



Minnesota Emerald Ash Borer Response Plan

May 21, 2007

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BACKGROUND

The Emerald Ash Borer (EAB), *Agrilus planipennis* (Fairmaire) (Coleoptera: Buprestidae), is a pest of ash trees native to Asia and first discovered in North America in 2002 in the Detroit, Michigan / Windsor, Ontario area. Since this initial discovery, the core area affected by EAB has expanded, and a number of satellite populations have also been detected in Ohio, Indiana, Illinois and Maryland.

All ash trees native to Minnesota are susceptible to infestation by EAB. Trees become infested when adult beetles lay eggs on the bark, which hatch into larvae that bore into the tree. The larvae tunnel in the phloem layer (between bark and wood) and disrupt the movement of water and nutrients, eventually killing the tree. EAB appears to prefer trees under stress, but is capable of killing perfectly healthy trees.

While it has been 4 years since EAB was discovered in North America, it has been at least 15 years since it arrived here from Asia. The delay between introduction and discovery was probably due to the difficulty in detecting this insect, especially at low population densities. This difficulty in early detection has also confounded efforts to limit the distribution of EAB via eradication of satellite populations.

This response plan details the processes and decision tree to be followed in responding to an EAB introduction, including criteria to use in determining if eradication is a feasible option. While eradication is still very much considered a viable option, it will not be the default response. Strong data showing that eradication is likely to be successful as well as economically practical will be necessary before undertaking any actions. However, even if eradication proves not to be a feasible option it will still be important to mitigate damages by preventing artificial spread through quarantine and preventing natural spread through sanitation.

PURPOSE OF EAB RESPONSE PLAN

1. Identify how the ICS will be used to manage efficient communication and coordination among responding agencies and affected groups.
2. Outline action steps to be taken by responding agencies.
3. Establish criteria for choosing a course of action and outline protocols for response actions to an EAB infestation.

STATUS OF EAB RESPONSE PLAN

The Response Plan is a dynamic document and, as such, changes over time in response to new information about EAB biology and management. The most current Response Plan will always be posted at www.mda.state.mn.us/plants/pestmanagement/eab.htm.

RESPONSE TEAM MEMBERS AND ROLES

The EAB Response Team will be a subset of the EAB Strategic Planning Team and will be made up of agencies/groups with legal responsibilities in the event of EAB detection (through statute or ownership of lands). Response Team members and roles relative to emerald ash borer (see Table 1 for specific roles by group):

1. MDA – Minnesota Department of Agriculture is the lead state agency to prevent the introduction into and the dissemination within Minnesota of terrestrial pests of plants (insect, pathogen and plant).
2. DNR – Minnesota Department of Natural Resources is the lead state agency for forest pests that have become established within Minnesota. DNR also manages approximately 5.6 million acres of land in Minnesota which could be affected by EAB.
3. USDA-APHIS, PPQ – Plant Protection and Quarantine is the lead federal agency to prevent the introduction into and dissemination within the United States of plant pests.

4. USDA-FS, S&PF – State and Private Forestry is the lead federal agency to prevent the introduction of plant pests to federal lands.
5. DOT – The Minnesota Department of Transportation is responsible for all aspects of the design, construction and maintenance of right-of-way vegetation.
6. USDA-FS – The Forest Service manages the National Forest System in Minnesota, which could be affected by EAB.
7. Municipal – There are approximately 852 municipalities in Minnesota, each owning lands potentially affected by EAB.
8. County – There are 87 counties in Minnesota, each owning lands potentially affected by EAB.
9. Tribes – There are approximately 2.7 million acres of Native-American owned lands in Minnesota that could potentially be affected by EAB
10. Utilities – Tree removal would likely include trees near utility lines.

Table 1. Minnesota EAB Response Team Roles by Activity.

Agency Owner / Manger	Contacts	Logistics	Planning	Operations - Regulation	Operations – Delimitation & Investigation	Operations – Mitigation & Utilization.
MDA	Mark Abrahamson mark.abrahamson@state.mn.us 651-201-6505 Terry McDill teresa.mcdill@state.mn.us 651-201-6448	1) Provide website w/ GIS for data sharing. 2) IC Center. 3) Supplies & equipment.	1) Training. 2) Maintain data, maps 3) Documenta-tion.	1) Maintain and publicize intrastate quarantine.	1) Lead survey efforts.	1) Coordinate mitigation action – eradication or suppression.
DNR	Val Cervenka val.cervenka@dnr.state.mn.us 651-259-5296 Ken Holman ken.holman@dnr.state.mn.us 651-259-5269	1) Operations Center if practical. 2) Aerial survey if available.	1) Maintain aerial data if available. 2) Public Meetings 3) Restoration		1) Participate in survey/investiga-tion if lands affected. 2) Lead aerial survey efforts if practical.	1) Lead utilization efforts.
USDA-APHIS, PPQ	Kevin Connors kevin.j.connors@aphis.usda.gov 612-725-1722 Art Wagner arthur.c.wagner@aphis.usda.gov 608-231-9577		1) Technical and financial support if eradication implemented.	1) Maintain and publicize interstate quarantine.	1) Lead investigation effort (interview, trace back and forwards).	
USDA-FS, S&PF	Steve Katovich skatovich@fs.fed.us 651-649-5264	1) Aerial survey if available.	1) Maintain aerial data if available. 2) Public meetings if on federal lands. 3) Restoration if on lands		1) Participate in survey/investiga-tion if lands affected. 2) Aerial survey if lands affected.	1) Utilization if federal lands affected
DOT	Dan Gullickson daniel.gullickson@state.mn.us 651-284-3763 Tina Markeson tina.markeson@state.mn.us 651-366-3619				1) Participate in survey if ROW affected.	
USDA-FS	Dependent on lands affected.	1) Operations Center if lands affected.	1) Public meetings and restoration if lands affected.		1) Participate in survey/investiga-tion if National Forest affected.	1) Utilization if federal lands affected.
Municipa-lity	Dependent on lands affected.	1) Operations Center if lands affected.	1) Public meetings and restoration if lands affected.		1) Participate in survey/investiga-tion if lands affected.	1) Utilization if municipality affected.
County	Dependent on lands affected.	1) Operations Center if lands affected.	1) Public meetings and restoration if lands affected.		1) Participate in survey/investiga-tion if lands affected.	1) Utilization if lands affected.
Tribes	Dependent on lands affected.	1) Operations Center if lands affected.	1) Public meetings and restoration if lands affected.		1) Participate in survey/investiga-tion if lands affected.	1) Utilization if lands affected.
Utilities	Dependent on lands affected.					1) Coordination for trees near utility lines.

RESPONSE ORGANIZATION – INCIDENT COMMAND SYSTEM

Incident Command System (ICS) = “...ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents...” From the Minnesota/National Incident Management System

Responding agencies and groups will be organized in an ICS structure so as to facilitate coordination and communication during all phases of the response. At the top of the ICS organization is the Incident Commander (IC) – the Incident Commander is responsible for all actions in response to the incident. In the event of EAB detection in Minnesota, a Unified Command will be established. A Unified Command combines individuals from different agencies and/or groups when multiple jurisdictions are involved. For an EAB response, if the detection is on non-tribal land the Unified Command will be comprised of a representative from MDA and from PPQ. If an EAB detection is made on tribal land the Unified Command will be comprised of a representative from the tribe and from PPQ (Figure 1 – EAB Incident Command Structure).

In addition to the Incident Commanders, the EAB Unified Command Staff will also include the following:

- Safety Officer(s) – As a response may involve felling trees, DNR would be best suited to supply a safety officer as the primary official. The Safety Officer reports directly to the ICs and is responsible for monitoring response actions for potentially unsafe situations. The Safety Officer may halt response actions at any time if unsafe conditions are present. Safety Officers from other responding groups may also participate to monitor response actions taken by staff from that group.
- Liaison Officer(s) – The Liaison Officer’s role is to coordinate with representatives from other agencies or groups. MDA staff will fill the Chief Liaison Officer role, but other responding agencies or groups will also need to designate a Liaison Officer to communicate with other groups relative to their actions.
- Joint Information Center (JIC) – The JIC is the clearinghouse for all media information related to the incident. Since an EAB find will likely cross multiple jurisdictions, a JIC will be established. The JIC will be made up of a Public Information Officer (PIO) from each Unified Command agency and, if desired, any groups listed above with lands directly affected by the find. The JIC will operate from the EAB Communications Plan (Appendix A).

In any ICS there are four general branches under which most response actions occur:

- Planning – This branch is responsible for collecting, evaluating and disseminating data throughout the ICS as well as determining short- and long-term strategies related to the incident. Planning actions will be led by the MDA who will oversee collection, management and publication of delimiting data. DNR and S&PF activities may also fall in the planning branch related to collecting, managing and publishing aerial data which may be useful to delimit declining ash. DNR and affected landowning groups will also fall into the planning branch regarding public meetings and planning restoration activities.
- Operations – This branch is responsible for implementing the action steps for the rapid response. Since there are multiple distinct action steps that will be taken if EAB is detected, this branch will be split into five sections:
 - Regulation – The MDA and PPQ are the only response team members with quarantine authority in this situation. The MDA will be responsible for intrastate quarantine while PPQ will be responsible for interstate quarantine.
 - Delimitation – Delimitation is the survey to determine the extent of the infested area. The MDA will lead the delimiting survey with the expectation that affected groups would also contribute man-hours to the delimiting survey.
 - Investigation – In addition to delimiting the infested area, the source and age of the infestation as well as whether the infestation has been spread artificially to new areas needs to be determined. Due to experience in conducting interviews, trace backs and trace forwards, PPQ would be best suited to lead the investigation effort with the MDA lending support with man-hours and the expectation that affected groups would also contribute man-hours to the investigation. This work will have the added benefit of notifying property and business owners within the affected area of the find and its implications.
 - Mitigation – Mitigation is the process of minimizing the affects of EAB within reasonable bounds of expense, collateral environmental damage and a reasonable expectation of achieving the actions

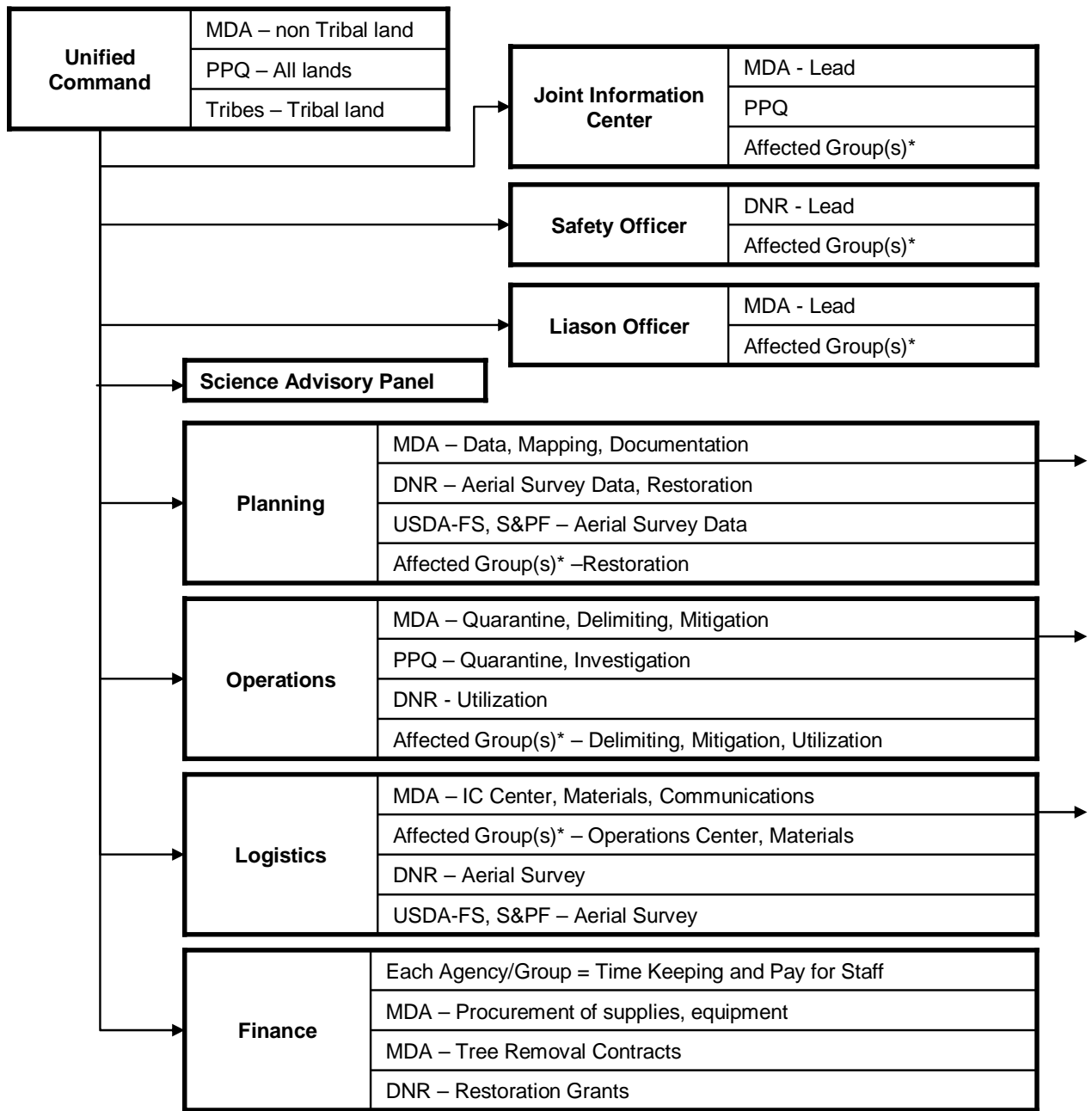
objectives. EAB mitigation could consist of a number of alternatives including:

- Eradication – removal of infested and healthy trees for a specified distance around the delimited boundaries of the infestation
- Sanitation – removal of infested trees within the boundaries of the infestation
- No action – no tree removal – EAB is limited to natural spread via quarantine

The course of action to follow regarding mitigation will be decided by the Unified Command with input from the Response Team. MDA will lead mitigation efforts including obtaining funds and hiring contractors for tree removal. It is anticipated that affected groups would also contribute man-hours to mitigation efforts if possible.

- Utilization – Utilization is the process of maximizing the usage of ash wood resulting from mitigation measures and/or the effects of EAB. Regardless of the course of action taken in responding to an EAB infestation, a significant amount of ash wood will need to be dealt with. Ideally, a more valuable usage can be found than simple disposal via chipping. DNR is best suited to investigate utilization possibilities and oversee utilization efforts. It is anticipated that affected groups would also contribute towards utilization efforts if possible.
- Logistics – This branch is responsible for acquiring facilities, supplies and equipment for the incident. Most of the logistical needs for the response will be supplied by the MDA, including the Incident Command Center (MDA in St. Paul), Internet resources, and most supplies and equipment. It is anticipated that affected groups may also be able to supply some supplies and equipment for staff working on the incident. In particular, an affected group may supply an Operations Center somewhere within or near the affected area. While all other branch activities will be coordinated from St. Paul, Operations will be coordinated within or as near as possible to the affected area.
- Finance – This branch is responsible for tracking expenditures, work hours, grants and contracts. It is anticipated that each agency or group will track expenditures for staff working on the incident, including labor and expenses. It is also anticipated that the MDA will arrange the procurement of the bulk of needed supplies and equipment as well as arranging contracts for tree removal. As lead on restoration efforts, the DNR would facilitate contracts for restoration activities.

In this ICS a fifth branch is included, the Science Advisory Panel. The role of the Science Advisory Panel is to provide an objective analysis of the situation and the scientific merit of various approaches. The Science Advisory Panel will review potential action plans developed by the Planning Branch and provide a third-party recommendation to the Incident Command who will either decide to proceed with the plan as written or return it to the Planning Branch to incorporate the Advisory Panel's recommendations.



*	Affected Land	Affected Group(s)
	County Owned Land	County Employees
	DNR Owned Land	DNR Employees
	DOT Right of Way	DOT Forestry or Maintenance Staff
	Municipality	City Employees
	National Forest	USDA Forest Service
		USDA-FS, State & Private Forestry
	Tribal lands	Tribal Natural Resource Workers

Figure 1. Minnesota EAB Incident Command Structure

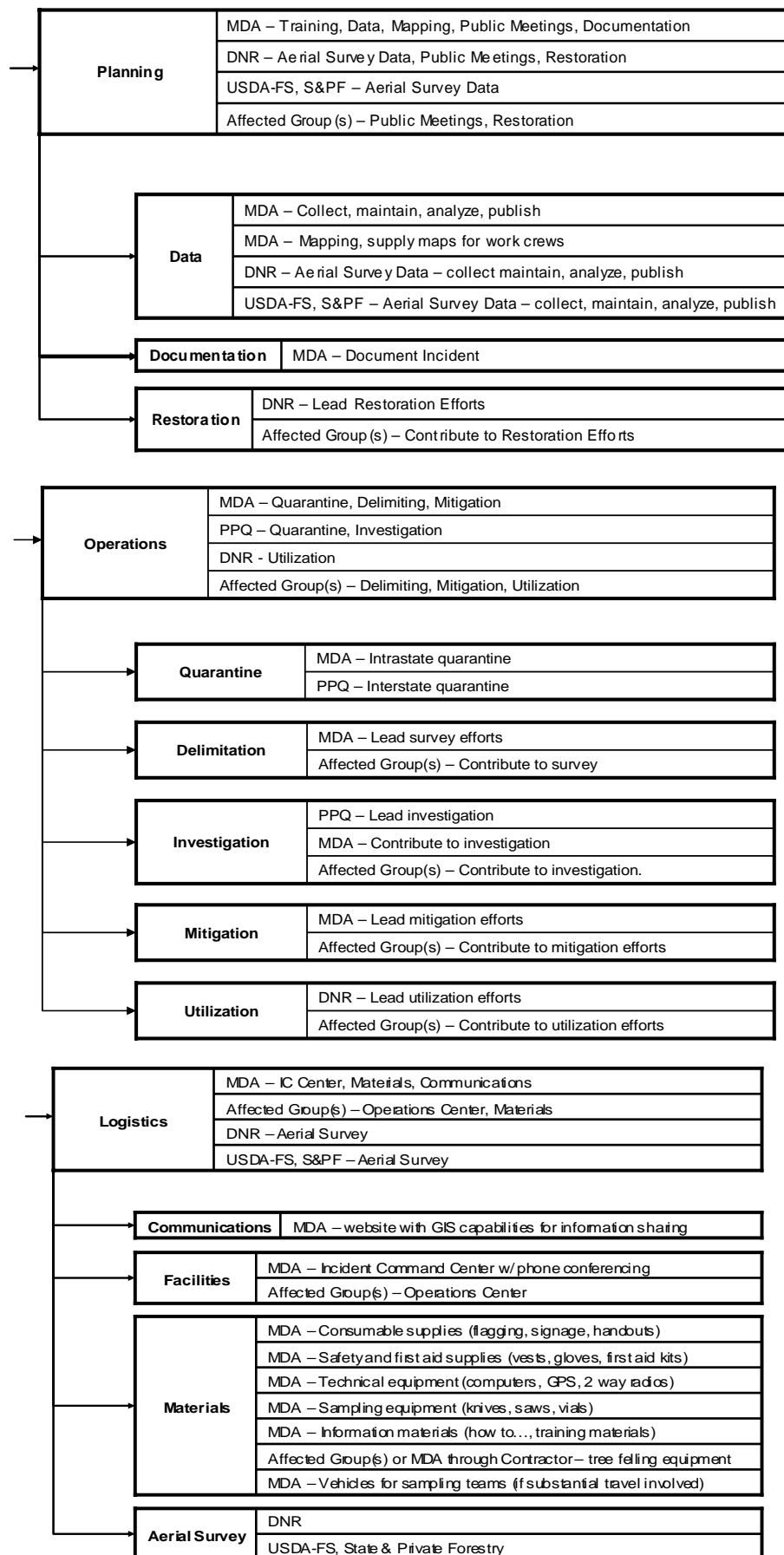


Figure 2. Minnesota EAB Incident Command Branches.

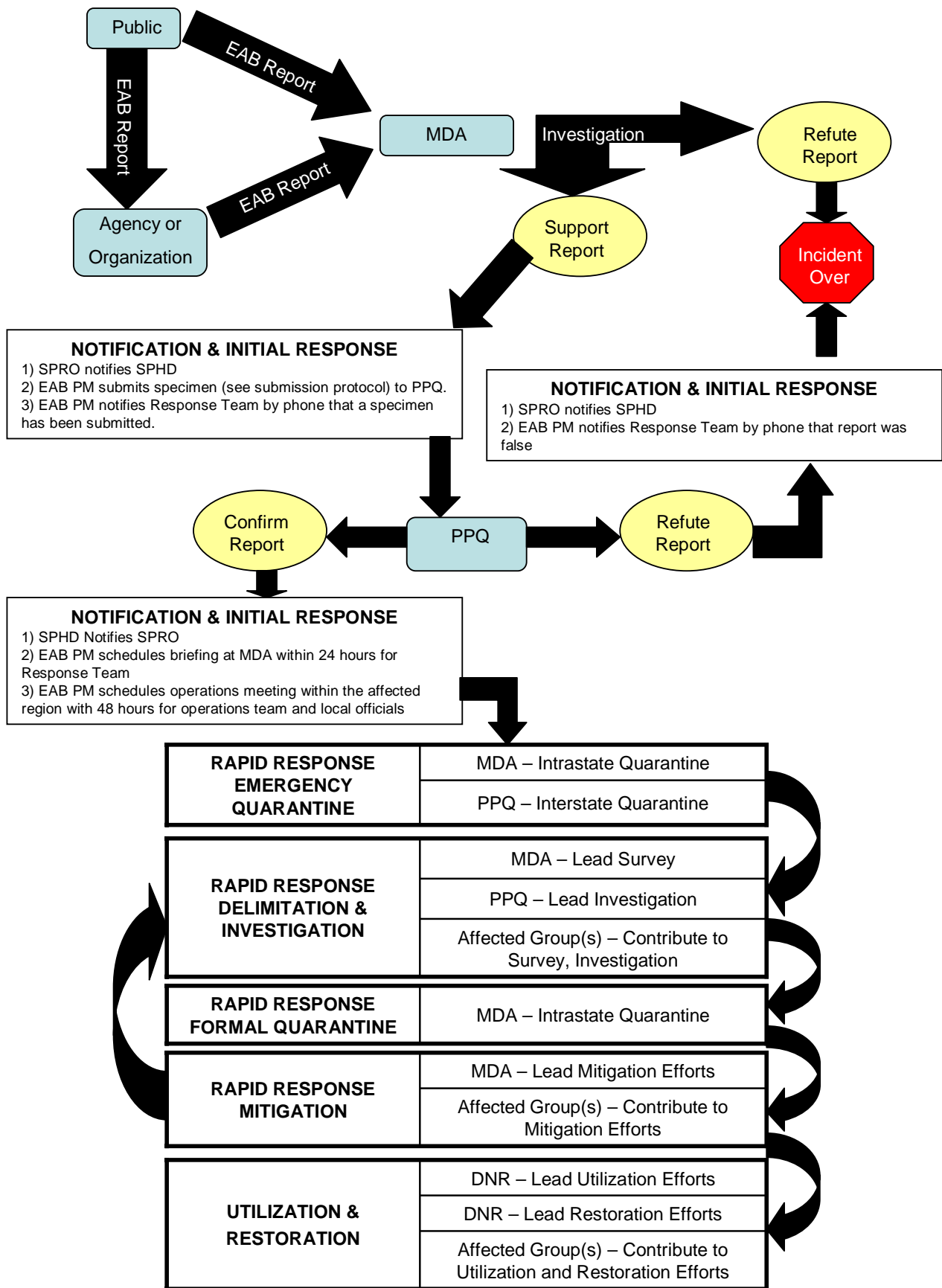


Figure 3. Minnesota EAB Incident Flowchart.

SUBMISSION OF SUSPECT SPECIMENS

Objective: Immediate submission of specimen for confirmation or refutation of positive EAB report.

Until EAB is confirmed in Minnesota, all suspect EAB specimens and wood/bark samples should be submitted to MDA for initial diagnosis and handling. If MDA supports the EAB diagnosis, a specimen will be recovered (if only wood/bark originally submitted) and sent to:

J. E. Zabloutny
USDA, APHIS, PPQ
11200 Metro Airport Center Drive, Suite 140
Romulus, Michigan 48174
734-942-9005
734-942-7691 (fax).
James.E.Zabloutny@usda.gov

This process will also need to be followed after EAB is confirmed in Minnesota each time EAB is found in a new county.

Specimens will be accompanied by a PPQ Form 391 and a copy sent to the USDA State Plant Health Director. The Identifier will be notified before the specimen is sent to ensure that they are expecting it and the address is correct.

From >>> <Joseph.F.Cavey@aphis.usda.gov> 08/15/06 12:13 PM >>>

“... ARS, SEL will identify samples labeled as "Urgent" priority within two work days. Tougher specimens may require further confirmation by a collaborator, Dr. Richard Wescott, who serves as buprestid specialist for them and PPQ National Identification Services (NIS). He has identified EAB larvae in ash to species and adults as well (of course). He is located on the West Coast, and samples referred to him would take an additional day or two for confirmation. In addition, our Detroit PPQ identifier, Dr. Jim Zabloutny, has Identification Authority issued by NIS for EAB adult and larval stages. Suspect specimens that would represent a new state record must be submitted through the NIS system, to SEL in the case of EAB, for confirmation. Early on in a future MN program for EAB, specimens from new locations, especially possible new county records and records for sites outside of the quarantine area, should also be submitted to SEL. At some point (varies case by case in domestic programs), we may designate state or university diagnostic folks and/or PPQ identifiers to handle anything short of new state records. We have done this for *Sirex* and pine shoot beetle surveys in the Northeast.”

Joe Cavey, Branch Chief
National Identification Services
Plant Safeguarding & Pest Identification
USDA, APHIS, PPQ
4700 River Road, Unit 52, Rm. 4D-04D
Riverdale, MD 20737
O: 301-734-8547, Fax: 301-734-5276
email: joseph.f.cavey@usda.gov

NOTIFICATION AND INITIAL RESPONSE

Objective: Notify all relevant authorities in an organized manner. Provide information updates to all relevant parties in an organized manner.

If the MDA believes an EAB specimen has been recovered in Minnesota, the specimen will be submitted immediately to USDA-APHIS, PPQ per the submission protocol, and the following steps will be taken:

- MDA SPRO will notify PPQ SPHD of detection.
- Communications Plan activated by Lead Public Information Officer (MDA).
- MDA EAB Project Manager will notify the Response Team that a specimen has been submitted.
- MDA EAB Project Manager will notify local officials (land manager and most relevant government authority) that a specimen has been submitted.

If PPQ determines the specimen is not EAB, these steps will be taken:

- SPHD notifies SPRO of negative finding.
- Communications Plan deactivated.
- MDA EAB Project Manager will notify Response Team by phone that the report was false.
- MDA EAB Project Manager will notify local officials by phone that the report was false.

If PPQ determines the specimen is EAB, these steps will be taken:

- SPHD notifies SPRO of confirmation.
- MDA EAB Project Manager schedules briefing for Response Team at MDA (St. Paul) within 24 hours.
- MDA EAB Project Manager schedules Operations briefing meeting within the affected region within 48 hours for operations team and local officials.
- Incident Command Briefing at MDA (St. Paul) – within 24 hours of confirmation
 - SPRO or designee gives briefing of situation
 - Finalize Incident Command Structure (Figures 1 & 2, pages 8-9)
 - Prepare specific short-term and general long-term action steps
 - Review Communications Plan in preparation for information release to media
- Confirmation communicated to EAB Strategic Planning Team by Liaison Officer with materials developed at IC briefing
- Operations Meeting in affected region – within 48 hours of confirmation
 - Assess local resources available to aid implementation of action steps and prepare implementation plan for action steps
- Planning Coordinator schedules a town hall meeting in affected area within one week of confirmation
 - Distribute Incident FAQs from Communications Plan
 - Distribute Action Steps from IC Briefing

After initial response, these activities will occur on a daily basis:

- IC meeting at MDA (St. Paul) led by MDA Incident Commander
 - Review/develop daily incident action steps.
 - Safety briefing – Lead Safety Officer (MDA).
 - Operations Coordinator in attendance by phone if needed.
- Operations meeting within affected area led by Operations Coordinator
 - Review/develop daily operation action steps.
- Update information for media – Lead Public Information Officer
- Respond to inquiries – Liaison Officers
- Update EAB website with daily data – Operations Coordinator – at end of each day

After initial response, these activities will occur on a weekly basis:

- Weekly progress report condensed from daily briefings – Incident Commander, Lead PIO, and General Staff (Leads for Planning, Operations, Logistics and Finance).

EMERGENCY QUARANTINE

Objective: Prevent the artificial movement of EAB beyond the currently affected area.

Regardless of what other action steps are decided upon, an intrastate quarantine will be established by the MDA to contain EAB to the affected region. Natural spread of EAB is relatively slow (1/4-2 miles/year based on various published estimates), and this will buy some time for not yet infested regions of Minnesota to prepare before EAB also reaches them. However, if artificial movement of EAB is not prevented it could be distributed all over the state within a matter of just a few years. EAB could be spread in any ash wood that has not been treated to prevent EAB survival including ash logs, firewood and nursery stock. Treatments to eliminate EAB from these materials include debarking (including outer 1/2" of sapwood), chipping to <1" diameter in two dimensions and kiln drying for 75 minutes at a minimum temperature of 160 F at the center of the wood.

The area quarantined for EAB will be situational. Initially an emergency quarantine will be established and, after delimiting is conducted, a formal quarantine will be established. The following are three potential situations in which EAB could be detected and the resulting emergency quarantine action:

1. **EAB detected at a point source (nursery, firewood, etc) prior to adult emergence.** If EAB is detected at point source, we can focus our attention on preventing its movement throughout the region as well as the state as a whole. In this case the location only would be quarantined, provided that no infested material has been moved from the location. If the location is a nursery, firewood dealer or mill, an order would be issued immediately to cease movement of all ash from the property until all infested material can be destroyed. If potentially infested material has been moved from the location, then trace forwards would be conducted to track down destinations of materials, and those materials destroyed as well. As needed, those locations will be prohibited from moving materials as well. If destinations of potentially infested materials are found after adult emergence, then the second scenario (below) is followed. In all cases trace backs will be conducted to determine the source of the infested materials. Trace backs and trace forwards would be conducted as part of the EAB Investigation and would be best led by PPQ (see Investigation section, page 15).
2. **EAB detected at a point source after adult emergence has begun.** A township-level quarantine would be initiated on the township containing the location where the find occurred as well as those bordering the find for a ten-mile radius surrounding the location. The rationale would be that the ten-mile radius should more than cover the maximum dispersal distance of EAB (~six miles) and, therefore, all areas potentially infested would be contained within the initial quarantine. However, the quarantine would be kept as tight to the potential infestation boundaries as possible to limit the spread of EAB within the region as well as the state. As in the first scenario, trace backs and trace forwards will need to be conducted.
3. **EAB detected at a non-point source (standing tree).** A county-level quarantine would be initiated on the county containing the location where the find occurred. If the find is near a county border then bordering counties may also be quarantined though no EAB has yet been detected within their borders. The rationale in this case is that since EAB has been found in a standing tree, we know that we have not found the source of the infestation. Due to the difficulty in detecting and delimiting EAB infestations, we should begin with the assumption that EAB is established in the region and focus our attention on preventing its movement out of the region and to the state as a whole. A delimiting survey will provide a better idea as to the scope of the infestation.

A draft emergency quarantine for EAB in Minnesota has been prepared (Appendix B). Boundaries of quarantined areas as well as other information pertinent to the quarantine will be maintained at the MDA EAB website:

<http://www.mda.state.mn.us/plants/pestmanagement/eab.htm>

Communicating quarantine information to affected industries as well as the general public will be critical. These steps should be taken to publicize quarantine restrictions:

- Within the delimiting area
 - Relevant businesses as well as property owners will be contacted personally as part of the investigation procedure. Materials describing the quarantine and action steps will be left for home or business owners not available (see Investigation Section, page 15).
- Within the quarantine area
 - Relevant businesses will be contacted by mail with materials describing the quarantine as well as the action steps being implemented and FAQs.
 - Businesses at greatest risk for violating EAB quarantine restrictions will be contacted personally to inform them of the restrictions.

- Ads will be placed in newspapers and on radio stations targeting the market within the quarantined area.
- Outside the quarantine area
 - Relevant businesses will be contacted by mail with materials describing the quarantine as well as the action steps and FAQs.
 - Media opportunities will be targeted to inform the public of the EAB situation.

The Quarantine Unit will be contained within the Operations Branch. MDA will lead the Quarantine Unit and be responsible for communicating quarantine restrictions to affected parties. However, some of this responsibility will be covered by the Delimitation and Investigation Units. Consequently, the main activity of the Quarantine Unit will be mailing information to affected businesses and property owners not contacted by the Delimitation or Investigation Units. Resources needed to conduct quarantine notification are listed in the Resource List (Appendix D pending completion).

DELIMITATION

Objective: Establish boundaries of area infested by EAB.

After establishing the quarantine boundaries, the Operations branch will begin conducting a delimiting survey (and investigation – next section). Progress and specific actions related to delimitation and investigation will be determined at daily Operations Meetings in the affected area.

The area to be delimited will be subdivided into a grid and teams of surveyors will be assigned to individual cells. Depending on the situation, there are two possible survey scenarios.

- Scenario 1: If EAB is detected at a point source, no immediate delimiting survey will be conducted. This assumes that we have determined that the EAB-infested materials were infested before entering Minnesota. If this is not the case, then a delimiting survey like that described under a non-point source detection will be implemented.
 - If the detection is made before adult emergence, there is no need for a delimiting survey (though intensive monitoring will be needed after the event).
 - If the detection is made during or after adult emergence, an initial delimiting survey will have little value. No symptoms of infestation would be expressed yet to target trees for sampling. Also, EAB density within trees is likely to be very light and the larvae difficult to detect during this early period of colonization. Based on studies of EAB dispersal, most adults are unlikely to disperse more than two miles (McCullough et al, 2004). However, mated females may disperse much farther than this – potentially six miles (Taylor et al, 2005). Therefore, while the immediate area (<1/4-2 miles from the point source, 1/4-16 sq. miles) will likely have the highest numbers of EAB present, the potentially infested area would extend 6 miles from the point source (36 sq. miles).
- Scenario 2: If EAB is detected at a non-point source (standing tree), then an immediate delimiting survey will be conducted. The survey will be conducted in two phases:
 - During the initial phase, a visual inspection will be conducted to record locations of symptomatic and asymptomatic ash trees. Visual survey will begin at the epicenter of the affected area and proceed outwards. Survey will be targeted towards areas most likely to contain ash rather than randomly selected areas because the purpose of the survey will be to quickly delimit the geographic scale of the EAB infestation rather than describe the population density of ash or EAB. The paths followed by surveyors will be recorded with GPS so that surveyed and not surveyed areas can be differentiated. If possible, aerial survey by DNR and/or S&PF would help to identify stands of declining trees. Surveyors will work in teams of two – with one person responsible for spotting trees and the other for recording data. Data recorded will include site and tree information related to the size and condition of the tree. The time needed to complete the visual survey will depend heavily on terrain.
 - The second phase of the survey will be destructive sampling of visually symptomatic trees. Visually symptomatic trees will be targeted to optimize the efficiency of resources used to fell and sample trees. However, it is recognized that EAB may also be present in asymptomatic trees. Depending on the number of symptomatic trees available to sample, asymptomatic trees may also need to be sampled. Surveyors will work in teams of two because of the physical demands of felling and peeling trees. Surveyors may fell small trees on their own with handsaws; however, large trees will be felled

by contractors or staff from an affected group with training and access to chainsaws (municipality, DNR, etc.). Depending on the numbers of symptomatic trees recorded, destructive surveys may begin at the outer edge of the area surveyed for symptomatic trees and proceed inwards. Again, the idea is to quickly determine the geographic scale of the infestation. For instance, if we find an EAB-infested tree a half mile from the initial find, we know that the infestation is at least that large, and we will want to focus our attention outward from that new find rather than inward toward the initial find. At some point, it will likely become necessary to conduct a more thorough census to determine the number of infested ash within the affected area, but the initial focus should be on delimiting the geographic area affected.

Surveyors will contact local homeowners and businesses as needed while accessing trees and, in so doing, will distribute an information kit including incident FAQs. The kit will be left for property owners not available at the time of the visit.

Training for surveyors will be conducted on site by the Operations Coordinator. One to two hours of training may be needed depending on the level of surveyor expertise. Training will cover survey tactics, ash identification, identification of EAB and its damage relative to that of other ash insects, computer/equipment operation and data recording.

Contractors for tree felling will be identified via the Tree Care Registry Database and hired under the terms listed in the State Contract for Tree Removal (Appendix C pending completion) by the MDA Finance Coordinator. Other resources needed to conduct the delimiting survey are described in the Resource List (Appendix D pending completion). The Delimiting Unit will be contained within the Operations Branch. The MDA will lead the Delimiting Unit and supply the bulk of the labor with the anticipation that affected groups may also supply some man-hours if possible.

INVESTIGATION

Objective: Determine source of infestation and if artificial movement of infested materials has occurred.

Investigation into the source of the EAB infestation and any movement of infested materials to new areas will be conducted concurrently with the delimiting survey. Depending on the situation in which EAB is detected, the investigation may be focused or broad in scope.

If EAB is detected at a point source (nursery, firewood, etc.), an order will be issued to immediately halt all movement of ash material. In each circumstance, trace backs will be conducted to determine the source of the infested material.

- If the detection is before the adult emergence period, all potentially infested material will need to be destroyed prior to May 31.
- If the detection is during the adult emergence period, all potentially infested material will need to be destroyed within 48 hours of the detection. Trace forwards will be conducted to determine where potentially infested material has been moved to and those destinations investigated.
- If the detection is after the adult emergence period, all ash material will need to be destroyed prior to May 31 of the next year in case some larvae remain in the material. Trace forwards will be conducted to determine where potentially infested material was moved to and to investigate those destinations.

If EAB is detected at a non-point source (standing tree), an order will be issued prohibiting any movement of ash material from the property. Investigators will begin at the epicenter of the infested area and work outwards, targeting relevant businesses and recreation areas that could be potential sources of the infestation. Like surveyors, investigators may also visit property owners in searching for the source of the infestation (i.e., a homeowner with firewood), as well as to determine whether potentially infested ash material has been moved to new locations. Kits including incident FAQs will be left for property owners unavailable at the time of visit. Tree cores will be taken from infested trees before tree removal for dendrochronological analysis to help recreate the history of the infestation. The University of Minnesota would be the best group to handle this analysis, but support may also be available at Michigan State University.

The Investigation Unit will be contained within the Operations Branch. PPQ would be best suited to lead the Investigation Unit due to experience assessing pathways and commercial movement of materials. Resources needed to conduct the investigation are described in the Resource List (Appendix D pending completion).

FORMAL QUARANTINE

Objective: Revise emergency quarantine boundaries if necessary and implement formal quarantine.

The emergency quarantine should be established on an area larger than the EAB infestation to insure no movement of EAB-infested materials occurs from an infested area. After delimiting the extent of the infestation and investigating the source and any destinations of the infestation, a formal quarantine will be instituted. The formal quarantine may be implemented on the same boundaries as the emergency quarantine, or a smaller or larger area could be implemented based on the results of delimitation and investigation. Before a formal quarantine can be established, these steps must be followed (per Minnesota State Statute 18G.06):

- A public meeting(s) will be held to communicate the specifics of the pest problem as well as the reasons for and terms of the quarantine – this will be an opportunity for public comment.
- Upon establishment of the quarantine, notice will be sent to all affected parties, including local, state and federal authorities as well as affected businesses.

Like the emergency quarantine, implementation of the formal quarantine will occur within the Operations Branch. The MDA will be responsible for intrastate quarantine.

MITIGATION

Objective: Minimize impact of EAB infestation through treatment if feasible.

There are a number of potential actions that could be taken to mitigate an EAB infestation. While realizing that it will be impossible to plot a specific course of action until a full understanding of the circumstances surrounding an infestation are known, it is useful to establish some criteria that will be considered when determining a course of action for dealing with an EAB infestation. Ultimately, the most effective approach to limit EAB population growth will be removing potential hosts from the system. Approximately 100 EABs can be produced from 1 m² of phloem (Siegert & McCullough, 2006). Every tree removed before EABs emerge means fewer beetles in the system. However, host removal could also have the affect of pushing dispersal farther out of the system and moving the problem to new areas sooner.

Potential measures to be enacted to mitigate the affects of an EAB infestation:

Eradication: The purpose of eradication is to remove small, isolated populations of a pest before the population size grows beyond control. Eradication may be justified if the target is truly a small, isolated population and the economic and environmental costs of the treatment are not too great.

Eradication treatments of EAB involve removal of all host material (known infested trees and trees of unknown status) within an area encompassing the delimited infestation borders and some additional distance. This approach has been controversial due to the ultimate removal of infested as well as healthy trees from the treatment area. However, it is impossible to undertake eradication via the removal solely of infested trees, because a tree cannot be determined to be free of EAB through visual inspection alone. Symptoms associated with EAB infestation may not be manifested until several years after the tree is first infested. EAB infestations tend to begin in the canopy of trees and proceed downwards. Even with careful inspection by tree climbers, the characteristic D-shaped exit hole will be difficult to find in beginning infestations and are not present when trees are first attacked. The only way to be certain that a tree is not infested with EAB is to fell the tree and remove the bark in search of larvae – which obviously defeats the purpose of trying to avoid removing healthy trees.

In EAB eradication, trees are removed from within the delimited edges of the infestation and a buffer because of difficulty in detecting EAB. The buffer is a means to catch the true edges of the infestation in which the population density is too low to be detected. Generally this distance has been a half mile, but Maryland is currently carrying out an eradication effort with a 1½-mile buffer after a ½-mile eradication effort in 2003 failed to eliminate EAB from Maryland. The size of the treatment area increases exponentially with the size of the buffer. If the delimited infestation is a quarter mile in radius (¼-square mile), a half-mile eradication buffer would result in a one-square mile treatment area. A one-mile eradication buffer on the same infestation would result in a 2¼-square mile treatment area. A two-mile buffer would result in a 6¼-square mile treatment area. Obviously, the smallest buffer that can be used with confidence will be the optimum. The buffer size to use would depend primarily on two factors:

- The confidence in the results of the delimiting survey. If there is high confidence that the edges of the infestation have been accurately captured, then a smaller buffer may be adequate.
- The population density of ash in the affected area. If ash is very abundant in the affected area, EAB dispersal would likely be less than if ash is not abundant. Conversely, eradication will be more economically practical with a lower density of hosts present.

The practicality of eradication depends not only on the size of the area to be treated and the number of trees to be removed, but also the potential for the eradication to be successful. Probably the primary reason that eradication has not worked elsewhere is the difficulty in detecting low-level EAB infestations and, therefore, difficulty in accurately delimiting the edges of an infestation. This problem is likely to continue; therefore, a higher buffer would be preferable.

Suppression or “Slow the Spread”: When a pest infestation grows beyond a size that can be eradicated, suppression efforts may still be able to slow the pest’s population growth and spread.

Suppression of EAB may involve one or more of the following tactics:

- Sanitation – removal of infested trees. Removal of all known infested host material will reduce EAB population growth; however, the problem is determining what trees are infested without first cutting them down. Removal could be limited to trees expressing symptoms. Symptomatic trees aren’t necessarily infested with EAB, but may be more likely to be infested than healthy trees. However, symptoms take two or more years to develop, and therefore many infested trees would be missed and left to produce beetles.
- Suppression with trap trees. In addition to removing symptomatic trees, trap trees could be created by girdling potential hosts prior to adult emergence (before summer), allowing the trees to be colonized (summer), and then removing the trees before the next generation of adults can emerge (before subsequent summer). Targeting large trees as trap trees would have the dual affect of potentially “soaking” up beetles and also removing a host from the system that could generate many beetles. Approximately 100 EABs can be produced per m² of phloem (Siegert & McCullough, 2006). Large trees have a much greater surface area of phloem and therefore may produce many more EAB than a small tree.
- Pesticide treatment of asymptomatic trees. Insecticide applications can be made to trees as a soil drench, trunk injection or trunk spray (McCullough, 2007). Trials have shown good protection of pesticide treated trees, but certain conditions apply.
 - Smaller trees are more easily protected; larger trees may require more than one year of application to achieve protection from attack (Smitely and McCullough, 2007).
 - Application must occur every year, though trials are being conducted to see if it can be lengthened to every other or every third year (Smitely and McCullough, 2007).
 - With a soil drench (commercially available product) a tree < 10” could be protected for ~\$22/year. A larger tree would require more chemical (plus additional year head start) and may cost \$50-60/year (Smitely and McCullough, 2007).
- Containment via quarantine. Simply limiting EAB to natural spread only will reduce the rate of spread of this pest. From 1998-2005, the EAB front in Michigan expanded ~12.5 miles per year (Iverson et al, 2005). However, this movement likely included both EAB flight and human movement of infested materials. If human movement of materials is stopped then the yearly expansion of the front should not exceed the maximum flight capability of EAB (at this time estimated to be 6 miles – Taylor et al, 2005). In the initial stages of an infestation, the infestation should expand much more slowly than this, but then likely increase with increasing population density. Based on research plots in Michigan and Ohio, substantial mortality of ash trees can be expected in affected areas (Smith et al, 2005) with the exception of individual trees protected via pesticide applications.
- Other methods to suppress EAB populations are also being researched in Michigan, including biological control agents and a Bt variety potentially effective against EAB. Any methods that significantly suppress EAB populations will both slow the spread of this pest and provide better opportunities to protect trees with pesticide applications.

EAB Detection Scenarios and potential mitigation methods:

Scenario 1: EAB is found at a point source (i.e., nursery, firewood dealer, firewood at a campground) prior to adult emergence. Assuming the material in question became infested before entering Minnesota, eradication of all potentially infested material at the point source would be the best option. In this circumstance only the ash material at that location would need to be destroyed, though the area would subsequently be intensively monitored for EAB activity in case there was an escape.

Scenario 2: EAB is found at a point source during or after adult emergence. Again, it would have to be determined that the material in question became infested before entering Minnesota. Eradication of potentially infested materials at point source would be the first step. Since a delimiting survey would have little or no value (see Delimitation Section for explanation), the next step would be to determine the area potentially affected by EAB. This step would require applying what is known regarding EAB dispersal:

- Field studies at three outlier sites in Michigan found that most trees became infested within ¼ mile of an EAB point source and a few trees became infested between ¼ and ½ mile of a point source. In none of the studies were trees sampled beyond ½ mile from the point source (McCullough et al, 2004).
- Lab studies have found that EAB flight capabilities without food, water or rest are males = ¼ mile, unmated females = ½ mile and mated females = 1 mile. When mated females were allowed to eat, drink and rest during testing, 50% flew >2.5 miles, 10% flew >4 miles and the maximum was ~6 miles (Taylor et al, 2004, Taylor et al, 2005).

The potentially affected area may be assumed to have a radius of the maximum known flight capability of EAB (6 miles) which results in a potentially affected area 36 square miles in size. An eradication treatment would not be practical over an area this size. However, field studies have demonstrated that the majority of individuals will colonize ash (if available) within ¼ mile of the point source. A few individuals may colonize hosts between ¼ and ½ mile from the point source. It is unknown how many individuals may colonize hosts farther than ½ mile from the source.

Removing the bulk of the population by removing all host material for ¼ mile of the point source may not remove every EAB from the landscape. However, this treatment may reduce the population density of EAB enough that remaining individuals cannot sustain a population (Liebhold and Bascombe, 2003). It is also possible that enough mated females will disperse beyond ½ mile to sustain populations in other areas.

Scenario 3: EAB is found at a non-point source. It will be critical to determine the original source of the infestation as well as the time since introduction (responsibility of the Investigation Unit). Each year that has passed since the original introduction means not only an additional generation of EAB dispersing farther from the introduction point, but also greater likelihood that infested material has been moved from the affected area to create new populations elsewhere. The older the infestation, the more difficult it will be to delimit the infestation as well as trace forward material moved from the affected area. Unless non-point source detection can be traced to a very recent introduction, eradication as a treatment method is unlikely to be successful and suppression will likely be a better tactic.

Before any action is taken the pros and cons will need to be weighed regarding the cost, potential for damage to sensitive sites through mechanical tree removal, and the potential for the action to reach the intended goal for any specific site. Decisions on mitigation measures will be made by the Response Team in consultation with other groups as appropriate.

The Mitigation Unit will be contained within the Operations Branch. The MDA will lead mitigation efforts including hiring contractors for tree removal if desired. It is anticipated that affected groups may also participate in mitigation efforts depending on circumstances. Resources needed for mitigation efforts are detailed in the Resource List (Appendix D pending completion).

UTILIZATION & RESTORATION

Objective:

The Utilization and Restoration Units will be contained within the Operations Branch. DNR would be best suited to lead both of these Units and develop plans for their implementation. Affected groups would also have a role in these activities.

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APPENDIX A – COMMUNICATIONS PLAN - AUGUST 18, 2006

The Challenge

Emerald Ash Borer (EAB) is a highly aggressive, Asian insect that is responsible for the death and/or damage of approximately 20 million ash trees in Michigan, Indiana, Ohio and Ontario. With no natural predators, EAB threatens nearly 8 billion ash trees in Canada and the U.S. Destruction caused by EAB could be similar to Dutch elm disease, which has essentially eliminated American elm from our forests.

Financially, the U.S. risks an economic loss of \$20 billion to \$60 billion. A complete devastation of ash trees could also seriously affect the eco-system.

Without agency action and cooperation from the public, firewood dealers and the nursery industry, EAB will be introduced here. EAB will endanger Minnesota's ___ (how many?) million ash trees which are valued at \$___ (how much?). Preventing the introduction of this invasive pest is far more cost-effective than containing an established pest.

The Minnesota Department of Agriculture (MDA), *Minnesota Department of Natural Resources and the USDA* (??) will use this communications strategy to postpone the introduction of EAB into Minnesota and minimize the destruction once the pest arrives.

Basic Messages

- EAB is an invasive pest that threatens to devastate Minnesota's ash trees.
- Minnesota (*or the MDA*) is taking steps to prevent the introduction of EAB into our state.
- Your cooperation is imperative if we are to contain this invasive pest.
- (EAB discovered in Minnesota) Your cooperation with quarantine/_____ measures is needed to prevent its spread.

Potential Partners

- Minnesota Department of Natural Resources
- US Department of Agriculture – Animal and Plant Health Inspection Service
- U. Department of Agriculture – Forest Service
- _____
- _____
- _____

Primary Stakeholders

- Minnesota firewood dealers
- Minnesota nursery industry
- Campers and recreationalists
- City foresters
- Environmentalists
- _____
- _____
- _____

Secondary Stakeholders

- Media
- Local government officials
- Minnesota elected officials
- _____

Potential Sources of Conflict

- Citizens who don't wish to change their firewood habits
- Firewood dealers who have issues with protective measures
- _____

Strategy

Provide information to Minnesota residents on the threat that EAB poses to our ash trees and what they can do reduce the likelihood of its introduction to Minnesota

- News releases
- Fact sheets at State Fair and other events
- Mobile information displays for use at events
- Billboards
- Posters/fliers at campgrounds
- Fact sheets at garden centers
- Fact sheet templates for city foresters, extension agents, etc. to distribute

Provide information to firewood dealers on the threat that EAB poses to Minnesota’s ash trees and what they can do reduce the likelihood of its introduction to Minnesota

- Direct mailing
- E-mail updates
- _____
- _____

Provide information to the nursery industry, tree inspectors and city foresters on the threat that EAB poses to Minnesota’s ash trees and what they can do reduce the likelihood of its introduction to Minnesota

- Direct mailing
- E-mail updates
- Seminar or presentation at licensing meeting
- _____
- _____

Create and publicize centralized information sources for the public to learn about EAB and what they can do help reduce the likelihood of its introduction to Minnesota.

- EAB web site or info on MDA, DNR & USDA web sites
- Toll-free hotline

Encourage residents, firewood dealers, city foresters and nursery growers to be on the lookout for EAB and report possible sightings

- News releases to industry/association publications
- Fact sheets to be distributed by city foresters
- Fact sheets at State Fair, garden centers and other public events
- Posters at campgrounds
- Direct mailing or electronic communication w/dealers, foresters and nursery growers (possibly offer financial award for first finding?)

If a quarantine or other restrictions are put in place, provide information to public on how they can comply and why their compliance is important

- News releases
- Fact sheets at State Fair, garden centers and other public events
- Signs/posters in quarantine areas?
- Fact sheet templates for city foresters, extension agents, etc. to distribute

If a quarantine or other restrictions are put in place, provide information to firewood dealers and nursery growers on how they can comply with the quarantine and why their compliance is important

- News releases to industry publications
- Direct mailing or electronic communication w/dealers, foresters and nursery growers (possibly offer financial award for first finding?)
- Presentation at licensing meeting

Key facts on Emerald Ash Borer

History:

- Discovered in Detroit area of Michigan – July 2002 & Windsor, Ont. CA
- As of 2006 – infestations in Michigan, Ohio, _____, _____
 - ___ under Federal Quarantine.
 - Infested nursery stock found in Maryland and Virginia
 - Nearly ___ sq. miles are heavily infested in Michigan, ____

Origin/Transmission:

- EAB likely came from China on solid wood packing material
- Likely period of introduction is 8 – 15 years ago.
- EAB has not been found in Minnesota yet!
- EAB may have been accidentally transported to the United States in shipments of firewood.

Hosts:

- In North America, EAB is only known to attack species of ash trees.
- All native ash (green, white and black) are highly susceptible to attack.
- Mortality appears to be close to 100% for all species and age classes.

Biology:

- Beetles over winter as pre-pupal larvae in bark.
- Emergence begins in early June and continues through August.
- Females lay eggs on bark.
- Larvae tunnel into and feed on cambial layer (this is what kills the tree).

Identification:

- The larvae, which cause the most damage to the tree, get to be about 1-1/2 inches long with a wide, flat head and a segmented, white body.
- The adult insect is a metallic green bug about a half-inch long.
- The larvae feed on the trees, moving in an S-shaped pattern.
- The beetle feeds on white, green, black and blue ash trees native to North America. Bark that is splitting and that, when pulled back, shows the meandering eating pattern of the larvae, is one of the main warning signs of the EAB.
- D-shaped holes where the emerald ash borers have finished pupation and the adult beetles have exited the tree, is another sign. Increased woodpecker activity, dying leaves at the top third of the tree and sprouts growing at the base of the tree are also important indicators of the EAB.

Control:

- Presently the only method of control is to remove infested trees and chip the wood.
- Regulate the movement of the host tree material. Some states have drafted rules that allow only certified wood to enter state-owned parks. Some states prohibit the movement of firewood by _____. Some states have used holiday weekend roadblocks, and fines to limit the movement of firewood.

MDA activities:

- Summer seasonal staff contacts and surveys campgrounds, firewood dealers, nurseries and communities.
- Nursery staff tracks any ash shipments into Minnesota and inspect all nursery ash as part of general inspection duties.
- Community foresters are monitoring urban ash populations.

What can the public do?

- Learn about the signs and symptoms of EAB infestations (via Pest Alert information sheet, web site, _____, _____)
- Report any suspicious ash dieback or EAB feeding symptoms to MDA or to their community forestry office.

Key facts on steps Minnesota is taking to prevent the introduction of EAB into Minnesota**How will Minnesota respond to an infestation?****What if someone finds EAB?****What is being done to monitor for EAB?****What are the ramifications for firewood dealers?****Has there been any evidence of EAB introductions in Minnesota?****What can nurseries do to protect their stock?**

APPENDIX B – QUARANTINE DOCUMENT

MINNESOTA DEPARTMENT OF AGRICULTURE STATE EMERGENCY QUARANTINE NO. 06-_____ EMERALD ASH BORER

Section I: Statement of Concerns

Whereas, the Commissioner of the Minnesota Department of Agriculture, having found that an exotic pest, known as the emerald ash borer, *Agrilus planipennis* (Fairmaire), has been detected in this state and has a limited distribution at this time; and

Whereas, the emerald ash borer has been found infesting and killing ash trees, *Fraxinus* spp., in certain counties, cities, and townships; and

Whereas, ash trees are a valuable resource for the nursery, landscaping, and timber industries in Minnesota; and

Whereas, ash trees represent a significant component of the natural environment in Minnesota; and

Now, therefore, the Commissioner of the Minnesota Department of Agriculture by the authority of Minnesota Statutes Chapter 18G.06, subd. 5, (2005) does promulgate this quarantine to prevent the further spread of this pest and sets forth: definitions, regulated articles, regulated areas, quarantines areas, conditions of movement, violations and penalties, and special exemptions. This revised quarantine shall become effective immediately and will remain in effect until rescinded by the Commissioner.

Section II: Definitions

“Certificate” and “Certificate of Inspection” mean a document issued or authorized to be issued by the Commissioner, including state-issued certificates of quarantine compliance, state phytosanitary certificates, limited permits, and multiple-use quarantine certificates to allow the movement of regulated articles to any destination.

“Commercial Firewood” means wood in any measure or volume that is intended to be burned in a heating process or for a recreational purpose, and which is moved for a business purpose. This does not include firewood manufactured and moved by a person for his or her own personal use, provided the requirements of the quarantine have been met.

“Commissioner” means the Commissioner of the Minnesota Department of Agriculture or his or her authorized representative.

“Compliance Agreement” means a written agreement between a person moving regulated articles and the Commissioner.

“Emerald Ash Borer” means the insect known as emerald ash borer, *Agrilus planipennis* (Fairmaire), in any living stage of development.

“Infestation” means the presence of the emerald ash borer or the existence of the circumstances that make it reasonable to believe that the emerald ash borer is present.

“Inspector” means an employee of the Minnesota Department of Agriculture or USDA Animal and Plant Health Inspection Service (APHIS) authorized to enforce the provisions of this quarantine.

“Log” means tree parts cut into lengths four feet or longer to be milled or processed. This does not include logs intended for firewood.

“Minnesota” means the area that consists of those 87 contiguous Minnesota counties. For the purpose of this quarantine, Minnesota is divided into two areas, the quarantined area and the regulated area as described below.

“Move” (“moved,” “movement”) means shipped, held for shipment, received for shipment, transported, carried or allowed to be moved or shipped.

“Person” means an individual, firm, association, partnership, corporation, governmental entity, or other legal entity.

“Regulated Article” means any article listed under Section III of this quarantine regulation.

“Receiving Facility” means any mill, incinerator, or other facility that receives a regulated article.

“Quarantined Area” means any state or any portion of a state listed in 7CFR301.50 or any Minnesota town listed in Section IV of this quarantine regulation pursuant to Minnesota Statute 18G.06, subd. 3, (2005).

“State” means the District of Columbia, Puerto Rico, the Northern Mariana Islands, or any state, territory, or possession of the United States.

Section III: Regulated Articles

The purpose of this quarantine is to facilitate movement of regulated articles from and through quarantined areas to contain the spread of emerald ash borer to other areas of the state and nation. Regulated articles are as follows:

- (A) The emerald ash borer, *Agrilus planipennis* (Fairmaire), in any living stage of development.
- (B) Entire ash trees (*Fraxinus* spp.).
- (C) Ash limbs and branches.
- (D) Ash logs or untreated ash lumber with bark attached.
- (E) Uncomposted ash chips and uncomposted ash bark chips larger than one inch in diameter in two dimensions.
- (F) Any article, product or means of conveyance when it is determined by the Commissioner to present the risk of spread of the emerald ash borer.
- (G) Firewood of any non-coniferous (hardwood) species.

Section IV: Quarantined Areas

- (A) The counties and portions of counties as listed below are designated as quarantined areas, based on the confirmed presence of emerald ash borer. In addition, the Commissioner may designate as quarantined any area where the presence of the emerald ash borer is confirmed in the future. Information on the additional quarantined areas not listed within this quarantine will be provided on the Minnesota Department of Agriculture website located at www.mda.state.mn.us/invasives/eab.
- (B) Thereafter, the movement of any regulated article from an area designated as quarantined or regulated will be subject to this quarantine. As soon as practical, this area will be added to the list of quarantined areas within this quarantine, and the Commissioner will post an update to the quarantine on the Minnesota Department of Agriculture website provided above. A current printed listing will also be available upon request at all Minnesota Department of Agriculture regional offices and through the Minnesota Department of Agriculture Plant Protection Division, 625 N. Robert St., St. Paul, MN 55155, 651-201-6684 or 1-888-545-6684.

[Insert list of portions of the state or certain names and locations of infected properties here.]

Section V: Conditions of Movement of Regulated Articles

- (A) The sale and/or movement of all ash nursery stock into Minnesota are prohibited pursuant to Minnesota Statute 18G.06, subd. 2, section (e) (2005).
- (B) The sale and/or movement of all ash nursery stock out of the quarantined area are prohibited.
- (C) The intrastate movement of regulated articles, except ash nursery stock, originating from any quarantined or regulated area to any destination outside the quarantined or regulated area is prohibited, except under all of the following conditions:

1. A thorough examination of all regulated articles and treatment methods must take place. A certificate of inspection may be issued based upon the determination by the inspector, grower, or shipper authorized to conduct such inspection under a Compliance Agreement that no life stages of emerald ash borer are present based on conditions or treatments administered in accordance with methods approved by the Commissioner.
 2. The certificate of inspection shall be attached to the regulated articles and shall remain on/with the regulated articles until such articles reach their final destination, except when the certificate of inspection is attached to the shipping document and the regulated article is adequately described on the shipping document and the certificate of inspection. The point of origin and the final destination shall be indicated on the bill of lading or other shipping documents and on the certificate of inspection. The certificate of inspection shall be given by the carrier to an inspector when requested or to the consignee at the destination of the shipment.
 3. A regulated article may move outside of the quarantined area only to a facility under Compliance Agreement approved by the Commissioner or a United States Department of Agriculture designee from September 1 to April 30 for processing, utilization, and/or disposal.
- (D) The movement of regulated articles, except ash nursery stock, originating from any quarantined area through any regulated area to a quarantined area requires a certificate of inspection and is prohibited, except under the following conditions:
1. Passage through a regulated area is made during the period of September 1 through April 30 and the passage is made without stopping except for refueling or for traffic conditions; or during the period of May 1 through August 31 if the articles are shipped in an enclosed vehicle or completely enclosed by a covering adequate to prevent the escape of any emerald ash borer.
 2. A bill of lading or accompanying shipping documents is required and must indicate the point of origin and final destination of the regulated article by township, county, and state.
- (E) The movement of regulated articles, except ash nursery stock, originating from any regulated area through a quarantined area to a regulated area is prohibited, except under all of the following conditions:
1. Passage through the quarantined area is made during the period of September 1 through April 30 and passage is made without stopping except to refuel or for traffic conditions; or during the period of May 1 through August 31 if the articles are shipped in an enclosed vehicle or is completely enclosed by a covering adequate to prevent access by the emerald ash borer.
 2. A bill of lading or accompanying shipping documents is required and must indicate the point of origin and final destination of the regulated article by township, county, and state.
- (F) The movement of regulated articles, except ash nursery stock, originating from outside any quarantined area which is moved into the quarantined area shall be considered to have originated from a quarantined area. These regulated articles may only be moved from the quarantined area under the conditions noted in VI (C) above.
- (G) The movement of regulated articles that do not leave a quarantined area does not require a bill of lading or shipping documents.
- (H) Within 24 hours of discovery, regulated articles moved in violation of this quarantine shall be removed from the area or destroyed at the expense of the owner or owners, under the direction of the commissioner.

Section VI: Penalties

- (A) Any person violating these quarantine regulations is subject to the civil penalties up to \$7500 per day of violation or misdemeanor penalties set forth in Minnesota Statutes (2005) Chapter 18J.10 and 18J.11, and subject to federal penalties.

Section VII: Special Exemptions

- (A) The Commissioner may allow, with written approval, the movement of emerald ash borer into or within Minnesota for research purposes.

- (B) Uncomposted ash chips and uncomposted ash bark chips one inch and smaller in diameters in two dimensions are not considered to be regulated articles under this quarantine and therefore are exempt from the conditions of movement prescribed.

This Notice and State Emergency Quarantine is effective _____, (superceding State Emergency Quarantine Number No. 06-_____).

Gene Hugoson
Commissioner
Minnesota Department of Agriculture

APPENDIX C – STATE CONTRACT FOR TREE REMOVAL (pending)

APPENDIX D – RESOURCE LIST (pending)