

ASIAN LONGHORNED BEETLE RESPONSE GUIDELINES



Photograph by Alan Sawyer

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BACKGROUND

I. Introduction

The information contained in this document is intended for use when an outbreak of Asian longhorned beetle (ALB), *Anoplophora glabripennis* (Motschulsky), is detected. This action plan is to be used for guidance in implementing eradication procedures and in preventing the spread of the insect to other locations. This document provides the technical and general information needed to implement any phase of an ALB eradication program; however, the specific emergency program is to be based on local conditions and scientific information available at the time the outbreak is detected.

This is a guidance document that should be considered on a case-by-case basis and is not intended to be all-inclusive. The information in this document was developed from consultation with ALB program staff, Technical Working Groups and scientific literature that is synthesized into a specialized paper intended to assist further work.

This document will be updated as new information becomes available. Specific emergency program's response should be based on information available at the time of the incident.

II. Pest Status

Invasive species such as ALB have cost the United States millions of dollars and wreak havoc on the environment. If ALB were to become established in the United States, it could have a severe impact on the timber, maple syrup, tree nursery, firewood, and tourism industries as well as the environment.

ALB feeds on a wide variety of tree species. There are 13 genera of host trees that are regulated for ALB: *Acer* spp. (maple and box elder), *Aesculus* spp. (horse chestnut and buckeye), *Albizia* spp. (mimosa), *Betula* spp. (birch), *Celtis* spp. (hackberry), *Cercidiphyllum* spp. (katsura tree), *Fraxinus* spp. (ash), *Koelreuteria* spp. (golden rain tree), *Platanus* spp. (sycamore and London planetree), *Populus* spp. (poplar), *Salix* spp. (willow), *Sorbus* spp. (mountain ash), and *Ulmus* spp. (elm) (USDA-APHIS, 2008a). *Acer* is the most commonly infested tree genus by ALB in the United States, followed by *Ulmus* and *Salix* (Haack et al., 2010). These trees are considered hosts because ALB can derive its food supply and complete its life cycle in them. A host tree is still considered a host even if it is not infested.

III. Contacts

When an emergency pest response program for ALB has been implemented, its success depends on the cooperation, assistance, and understanding of the involved stakeholder groups. The appropriate State and Federal liaison and information officers should distribute news of program progress and developments to interested groups, including the following:

- Other Federal, State, county, and municipal agricultural and regulatory officials;
- Grower groups (such as specific commodity or industry groups);
- Commercial interests;
- Academic entities with agricultural interests;
- Land-grant universities and Cooperative Extension Services;
- State and local law enforcement officials;
- Tribal governments;
- Agricultural interests in other countries (via APHIS Trade Directors);
- National, State and local news media; and
- The public.

IV. Initiating an Emergency Response Program

An emergency pest response program or incident response consists of detection and delimitation, and may be followed by strategies in quarantine, containment, eradication and control. APHIS' Asian Longhorned Beetle Eradication Program National Field Operations and National Policy Managers will work with the State Plant Health Director (SPHD) to evaluate an infestation. After assessing the scale and risk of the infestation and consulting with experts, program, and regulatory personnel, the Field Operations and Policy Managers will submit recommendations to PPQ management for a course of action.

The following needs to be addressed when initiating a pest response program:

1. A new or reintroduced infestation of ALB is discovered and reported.
2. The pest is examined and pre-identified by regional or area identifier.
3. Pest identity is confirmed by national taxonomic authority recognized by USDA-APHIS-PPQ-National Identification System.
4. State Departments of Agriculture are consulted.
5. Existing Response Guidelines are consulted or a new Technical Working Group (TWG) is assembled to evaluate the infestation.
6. Depending on the urgency, official notifications are made to the National Plant Board, cooperators, and trading partners.
7. An initial survey is conducted at the site of detection.
8. An Incident Management Team may be sent to evaluate the site. When feasible, it is preferred that the initial response should include a team from an established ALB field office. If the incident occurs in a state with an ALB program office, staff from that office should lead the Incident Assessment Team.
9. Recommended strategies are made, based on the assessment of surveys, other data, and recommendation of the Incident Management Team.
10. The PPQ Deputy Administrator authorizes a response.
11. An appropriate control strategy is selected.
12. If needed, an Incident Command System can be implemented.

13. Appropriate state government authorities cooperate with parallel intrastate actions.
14. Trace-back and trace-forward investigations are conducted.
15. Field identification procedures are standardized.
16. Data collection and reporting is standardized.
17. Regulatory actions are taken.
18. Environmental assessments are completed as necessary.
19. Environmental monitoring is conducted, if appropriate.
20. Pest monitoring surveys are conducted to evaluate program success.
21. Programs are designed for eradication.

PEST INFORMATION

I. Economic Importance

The natural spread of ALB is relatively slow when compared to some other invasive species such as the emerald ash borer. Left unchecked it will continue to destroy host trees. Human-assisted movement of ALB through infested material can greatly enhance the rate of spread. Threatened resources include: tree cover, fuel, fiber, wood for lumber, cooling shade and wind breaks for homes and businesses, landscaping, fish and wildlife habitat, watershed conservation, esthetics, maple syrup production, aesthetics and other industries dependent on this tree resource. ALB poses a serious threat to forest resources nationwide; roughly 30 percent of U.S. trees are hosts. The potential value loss of forested areas from ALB has been determined by the council of Tree and Landscape appraisers as greater than \$2 trillion (http://www.nrs.fs.fed.us/disturbance/invasive_species/alb/local-resources/docs/ALB_potential.pdf).

In the eastern United States alone, four million jobs depend on forests that are vulnerable to the ALB. With this pest eradicated, billions of dollars in economic losses to industries such as timber, recreation, and tourism will be avoided. For example, if the ALB spread to all urban areas of the lower 48 States, the estimated national impact would be a loss of 35 percent of canopy cover, and a 30 percent tree mortality (i.e., more than one billion trees), and a combined total value loss of more than \$669 billion (Nowak et al 2001, http://www.nrs.fs.fed.us/disturbance/invasive_species/alb/local-resources/docs/ALB_potential.pdf).

II. Damage to Hosts

After ALB eggs hatch, small white larvae bore through the tree's vascular layer beneath the bark. As they mature, larvae feed deeper into the tree's sapwood and heartwood forming tunnels (galleries) in the trunk and branches. This damage interferes with nutrient flow and weakens the structural integrity of the tree. Infested trees are also prone to secondary attack by other insects, fungi, and diseases because of ALB damage. Over the course of a year or two, a larva will mature and then pupate. From the pupa, an adult beetle emerges chewing its way out of the infested host material. This forms distinctive round holes approximately three-eighths of an inch in diameter. Sawdust debris or insect

waste/excrement (or frass) is commonly found at the base of infested trees. Heavy sap flow may occur from the resulting trunk and branch wounds. The tree will eventually die if the infestation is severe enough.

III. Distribution and Detections

The Asian longhorned beetle is native to China and Korea (Peng and Liu 1992). ALB is believed to have been introduced into the United States from wood pallets and other wood packing material carried in cargo shipments from Asia. Eradication programs are currently being conducted in New York, Massachusetts, and Ohio. Eradication of ALB has been achieved in Chicago, IL; Islip, Manhattan, and Staten Island, NY; Hudson, Middlesex and Union Counties, NJ; and Boston, MA.

ALB was first discovered in the United States in August 1996 in the Greenpoint neighborhood of Brooklyn, New York from a citizen referral. Within weeks, another infestation was found on Long Island in Amityville, New York, from a report by a landscaper. ALB was subsequently found in Queens and Manhattan, and additional communities in Nassau and Suffolk Counties, New York.

In July 1998, a new infestation was discovered in the Ravenswood area of Chicago, Illinois. In October 2002, ALB was discovered in Jersey City, New Jersey, and in August 2004, it was discovered in the Borough of Carteret of Woodbridge Township, and in the nearby cities of Rahway and Linden. It was subsequently found in 2007 in Richmond County on Staten Island, New York, across the Arthur Kill Bridge from the New Jersey infestation sites.

In August 2008, ALB was discovered in Worcester, Massachusetts. This infestation includes the city of Worcester and the towns of West Boylston, Boylston, and Shrewsbury, as well as portions of the towns of Holden and Auburn. In July 2010, an infestation was reported in the Jamaica Plain neighborhood of Boston, Massachusetts; only six infested trees were detected and it was declared eradicated in May 2014.

In June 2011, ALB was confirmed in Clermont County, Ohio. Delimitation surveys are being conducted in and around the regulated areas within Clermont County to determine the size of the infestation, and to identify infested host trees.

In July 2013, a homeowner's cellphone video led to detection of ALB in the Town of Babylon on Long Island, NY, north of the previously established Amityville quarantine.

IV. Risk of Establishment

All states within the U.S. are at risk for the establishment of ALB by human assisted movement of infested wood and wood products, as well as natural dispersal once introduced (http://www.fs.fed.us/foresthealth/technology/invasives_anoplophoraglabripennis_riskmaps.shtml; <http://www.hungrypests.com/the-spread/ByPest.php?pestabbr=alb>). The potential damage is significant if ALB moves into forest stands. In the U.S. 28.5% (71

billion trees) of the trees on timberland, land suitable or managed for timber, are at risk to mortality due to the ALB.

V. Life Cycle

ALB can overwinter in the tree or cut wood product as an egg, a larva, or as a pupa. Individual eggs are deposited under the bark in pits chewed by adult females. The first three larval instars, or development phases, typically feed at the interface of the phloem, nutrient conducting outer tissue, and xylem, water conducting deep tissue, whereas older instars tend to tunnel more deeply into the xylem. In the northern United States, adult emergence usually occurs between June and October, with peak populations varying based upon climate. In warmer areas, development is completed in a year, but in colder portions of the U.S. a portion of adult ALB will not emerge until the second summer after oviposition. Adult beetles are long-lived and likely often survive several weeks in the field; under laboratory conditions, individual adults have lived over a year. Females lay eggs, and larvae thrive, on healthy or stressed host trees of all ages as well as on recently cut logs. Adults will often lay eggs repeatedly, year after year, on the same tree, causing die-back of branches and eventual tree death. Individual females may also move to adjacent trees or fly to distant trees to deposit some or most of their eggs. The tendency of the beetles to disperse appears to increase with crowding.

VI. Identification

Egg Stage: The off-white, oblong eggs are 5–7 mm in length. Both ends are slightly concave (Peng and Liu 1992).

Larval Stage: Full grown larvae will reach 35-55mm in length. The prothorax has a brown mark. The front of the mark does not have a brown margin (Peng and Liu 1992).

Pupal Stage: The off-white pupae are 30–33 mm in length with a width of 11 mm. The eighth segment of the abdomen has a protruding structure (Peng and Liu 1992).

Adult Stage: Adults are 20–35 mm in body length and 7–12 mm in width. They are jet black with white markings. The antennae have 11 segments. The base of the antenna is whitish with a blue-black color. The antennae of the males are approximately 2.5 times their body length; the antennae of the females are approximately 1.3 times the body length. The bases of the elytra, or hardened wings, do not have a granular structure (a distinguishing feature of a closely related species, *Anoplophora chinensis*, or the citrus longhorned beetle). Each elytron typically has about 20 white dots (Peng and Liu 1992), but this trait is variable. The elytra of some individuals have numerous small speckles whereas others are almost all black. The white spot are actually clumps of short hairs (setae).

SURVEY PROCEDURES

I. Initial Response

The immediate response to a new detection is to conduct an initial survey in order to determine the scope of the infestation and for planning the type of response, resources and possible quarantine enactment. A limited number of infested trees or localized infestation may not require the extensive response needed for the discovery of a large or well established infestation (i.e., numerous infested trees exhibiting sequential years of infestation and clearly spread or spreading over an extended area). When available, experienced ALB managers and staff should be utilized in response to new infestations for the initial analysis and to advise local responders regarding anticipated movement, host tree and pest density, regulated parties and/or industries, and if needed cultural practices relating to forest product utilization.

It is important that a preliminary estimate of the scope of the infestation is determined and a consensus reached in collaboration with the lead state agency in order to establish a quarantined area as soon as possible. A minimum of 1.5 miles from the point of any infested tree should be considered as the initial survey area and host trees within that radius surveyed for signs of infestation. As additional infested trees are identified, the radius from each infested tree should be plotted to determine if an expansion of the initial survey area is warranted.

Depending upon terrain or geographic layout such as urban/suburban streets versus forested area, differing techniques may be employed to move quickly through to determine the extent of the infestation. For example, in areas with distinct street grids it is often practical to move to the next street or block of an infested tree and begin searching there, moving in similar fashion until no additional infestation is found. In a wooded location this may not be practical and a grid pattern may be created to do something of a similar nature.

Local businesses and homeowners should be alerted of ALB and what to look for. High risk establishments handling host material should be placed on notice or provided with state/federally issued quarantine orders. During this entire process it is essential to have a representative or representatives from Legislative and Public Affairs (LPA) included to advise about handling media inquiries ensuring that essential activities may continue without interruption, and that accurate information is disseminated.

II. Established Programs

a. Preliminary Surveys

1. Intensive Core Survey (Level 1)

Level 1 is defined as a ½-mile radius around any point of infestation for signs of ALB oviposition sites or exit holes. The “point of infestation” is typically an infested tree. If additional infestations are found, the core area will be

extended to ½ mile from the outermost find.

2. Delimitation Survey (Level 2)

Level 2 is defined as a 1-mile radius beyond the Level 1 boundary resulting in a 1 ½-mile radius from the point of infestation.

3. High Risk Site Detection (Level 3)

Using investigative work to identify potential high-risk sites where ALB infested materials may have been moved to. See the Regulatory Procedures Section V. Determination of Historical Movement below for examples.

b. Secondary Surveys

After an infestation has been delimited (through the intensive core and delimitation surveys) and infested trees removed, secondary surveys are conducted within the Level 1 and Level 2 boundaries. The frequency of secondary surveys is determined on a case-by-case basis since ALB infestations develop, and signs of infestation become more readily detectable over time.

III. Survey Actions

Visual tree inspections from the ground, bucket trucks and/or tree climbers can be used to complement and complete the survey of host trees within the Level 1 and Level 2 boundaries.

A review of the circumstances surrounding the infestation must be conducted to determine what survey procedures will be implemented. The number of times an area is surveyed is based on forest and host composition, the degree of infestation, and the time it takes between survey cycles. The number of survey cycles will also be impacted by the control strategy employed such as full host tree removal in an area.

REGULATORY PROCEDURES

I. Regulatory Authorities

Federal Quarantine authority for ALB include 7 CFR 301.51 for eradication programs, 7 CFR 319.40 for solid wood packing material, and 7 CFR 330 for plant pests. Under these regulations, PPQ establishes quarantines and regulates international and interstate movement of regulated host plant material. PPQ cannot regulate intrastate movement without the establishment of an intrastate quarantine which must be done parallel to, but after the State Plant Regulatory Agency from the infested state enacts an intrastate quarantine for ALB. This is done to facilitate regulatory activities within a geographical area less than an entire state.

II. Regulated Articles

ALB in any living stage of development is a plant pest that is regulated according to the 7CFR Part 330. The regulated articles for ALB are described in the 7CFR 301.51-2 and include the following:

1. Firewood from all hardwood species. Firewood is all wood split or unsplit less than 4 feet in length. This excludes products moving for further processing or otherwise already regulated
(<http://www.dontmovefirewood.org/sites/default/files/nationalfirewoodtaskforcerecommendations.pdf>)
2. All host material living, dead, cut, or fallen inclusive of nursery stock, logs, green lumber, stumps, roots, branches, and debris of one-half inch or more in diameter.
3. Any other article an inspector determines presents a risk of spreading ALB.

III. Regulated Establishments

Any entity, including municipalities or businesses engaged in the handling or movement of regulated host material in interstate or intrastate commerce should attend compliance training workshops presented by State or Federal officials. Private citizens may also attend these workshops. These workshops are designed to increase understanding of the regulations for the proper handling of regulated items in order to prevent further artificial spread of the ALB. ALB program officials may issue compliance agreements to interested parties in order to facilitate movement of regulated items in interstate or intrastate commerce for commercial processing or disposition at approved facilities. With a compliance agreement in place, the ALB program will not need to authorize or accompany individual movement of regulated material, thereby expediting commerce and maintaining quarantine integrity. Program regulatory staff are charged with monitoring of compliance agreement holders.

IV. Enforcement

Regulated articles are eligible to leave the regulated area provided the conditions governing the interstate movement as described in the 7 CFR 301.51-4 are followed. A certificate or limited permit to move regulated material is required under a compliance agreement, as described in 7 CFR 301.51-5, 6, 7 and 8. Additionally, a State issued Limited Permit or Certificate may be issued for the intrastate movement of regulated articles moving for authorized processing or disposition in a manner that effectively eliminates the threat of ALB spread. Compliance agreements may be entered into by regulated entities permitting the movement of regulated material outside of the regulated area in lieu of individually issued limited permits or certificates issued by an on-site inspector.

All ALB host material leaving the regulated area without a limited permit or certification are required to be chipped to a size of less than 1 inch in at least two dimensions - this is inclusive of all species of hardwood firewood, dead, cut, or fallen logs, green lumber,

stumps, roots, branches, and debris of ½ inch or more in diameter, of regulated species are. Chips of this size are no longer subject to federal regulations.

V. Determination of Historical Movement

Trace back investigations will be conducted in an attempt to determine the source of the infestation. These investigations will begin at the apparent epicenter of the core area and work outward from there.

Trace forward investigations will be conducted to determine if infested host material and other regulated articles have been moved, when and to what locations.

Investigations and analysis serve to identify potential high-risk sites where ALB infested materials may have been taken, including:

1. Tree services that conduct business within the infested or regulated area, including locations where their vehicles are routinely parked and wood is disposed of or stored.
2. Municipal parks, tree wardens, foresters, or other municipal groups that may cut or trim trees.
3. Illegal roadside dumping areas that residents may utilize to dispose of tree waste.
4. Locations where firewood may have been transported to (e.g., cabins, camps, etc.).
5. Firewood dealers.
6. Landfills or other places used for the disposal of recently cut wood and brush.
7. Utility companies.
8. Wood processing plants.
9. Other persons or businesses who may transport regulated articles.

VI. Regulated Area

Quarantine boundaries of the regulated area are established through consultation with the cooperating regulatory agencies on the project. They are established based on current best management practices (BMP) and scientific data with consideration of the level of infestation (e.g., presence of egg sites and/or exit holes), geography (e.g., urban, wooded, etc.), knowledge of beetle movement characteristics in similar habitats, and areas of regulatory concern (e.g., movement of wood pallets or firewood). At times, quarantine boundaries may need to be adjusted to coincide with geographic barriers, major landmarks (e.g., highways) or other considerations that simplify following the boundary lines.

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ERADICATION PROCEDURES

I. Strategies

The eradication strategy provides a means to significantly reduce ALB populations by targeting the area into which the pest is most likely to naturally disperse from an outbreak site. When combined with intensive detection activities, the strategy is expected to eradicate the pest from the outbreak site. The ability to apply control measures will be determined through an Environmental Assessment (see Environmental Compliance Chapter) and on a case-by-case basis. For control purposes, hosts include *Acer* spp., *Aesculus* spp., *Albizia* spp., *Betula* spp., *Cercidiphyllum* spp., *Fraxinus* spp., *Platanus* spp., *Populus* spp., *Salix* spp., *Sorbus* spp., and *Ulmus* spp.

The response by the ALB eradication program depends upon specific conditions and characteristics of the site or area as well as local concerns. Targeted control strategies will be used to significantly reduce and contain ALB populations while working toward eradication.

Considerations:

- Total host removal and/or chemical treatment up to a ½ mile radius would encompass an area where a large percentage of the beetles would naturally disperse, but a low percentage could possibly disperse beyond this distance. An effective detection program is essential both inside and outside the control zone.
- Total host removal is recommended to significantly reduce the likelihood of missing a low level infestation in a single or multiple trees.
- Chemical treatment may be applied on a case-by-case basis through a minimum of three emergence seasons or cycles. Chemical treatment is expected to remove a high percentage of adults as they are exposed to lethal doses of pesticide residues during post-emergence feeding on twigs and leaves prior to mating and dispersal. Mated female adults are susceptible to treated trees as they prepare oviposition sites. Additionally, early-instar larvae may also be exposed to the chemical in a treated host tree's vascular system.
- As long as active populations exist in an area, chemical treatments applied on an annual basis to host trees that are not known-to-be infested with ALB will aid in the reduction of localized beetle populations.
- While using chemical treatments, the ALB program should expect to continue to discover exit holes and/or oviposition sites on treated trees. The chemical treatment is not believed to be effective against large larvae already present in the sapwood or heartwood of a tree at the time of treatment. Also, some exit holes and/or oviposition sites may not have been discovered during previous surveys. These newly discovered trees with exit holes and/or oviposition sites should be removed and the control zone be adjusted accordingly. Because of this possibility, tree owners should be informed that their chemically treated tree is less likely to become infested due to expected ALB population decline resulting from chemical treatments conducted in the area, but that the tree may have to be removed in the future if evidence of the beetle is discovered.

Host Material Removal

1. Infested trees

The first priority when responding to an ALB infestation is to remove infested host trees. A host tree is considered infested when there is any sign of ALB activity or damage. Infested host removals remove immature life stages, eliminating potential adult beetle dispersal.

After removing an infested host tree, all wood should preferably be chipped inside the quarantine zone to a size of less than 1 inch in at least two dimensions. Chips of this size are no longer subject to federal regulations. In some instances, host material that is not chipped at the site where the tree is removed may be moved to an approved processing site with proper safeguards as per a compliance agreement. For example, chipping infested material may not be necessary if it goes directly to incineration. During flight season infested material should be transported in covered or similarly enclosed trucks to further reduce the chances of beetle emergence and dispersal during transportation for final disposition.

To prevent re-infestation of stumps, roots, and any shoots that may grow from these structures, it is recommended that the stumps and roots of host material be removed to a minimum of 6-9 inches below ground level. Any aboveground roots of one-half inch or more in diameter should also be removed.

If stump removal is not possible, foliar applications of triclopyr mixed with two other herbicides, imazapyr and metsulfuron, could be applied to sprouting foliage. This would be used to prevent re-sprouting of stumps. ALB can re-infest sprouts of host trees. However, in some cases, such as woodlots, stumps of high risk host trees may not be ground or treated with herbicides to allow for regrowth of the trees.

2. High risk host trees

Signs of low infestation levels may not be readily apparent and can remain unnoticed by visual survey. Consequently, due to the proximity to known infested trees, there is a risk of infestation of these high risk host trees. When feasible, total host removal including high risk host trees is recommended over chemical treatments in proximity of an infested tree. Cutting down infested and high risk host trees removes ALB larvae that may be within those trees, thus eliminating potential survival, emergence and dispersal.

II. Chemical Treatment

1. Pesticide use:

Imidacloprid (or other approved agents) can be applied to high-risk host trees. Chemical treatments of imidacloprid are made through direct injection either into the tree trunk, into the soil immediately surrounding the tree, or via soil drench for containerized plantings (often

found in urban landscaped plantings). The rate of Imidacloprid used depends on the application method. Program applicators must adhere to the requirements on the chemical label and applicable local pesticide regulations or exemption requirements

Imidacloprid treatments applied prior to and during the adult emergence period (spring and early summer), provide the time needed for the insecticide to be distributed throughout the tree. When multiple treatment applications are being considered, fall treatments have been shown to be as effective as treatments applied only in the spring.

Application of imidacloprid should be repeated once yearly over a 3-year period to ensure that the concentration of the insecticide within the treated tree is at an adequate level to kill ALB. Imidacloprid treatments do not ensure complete control of ALB within a tree due to variability in treatments, weather conditions, and tree health, all of which can result in non-uniform distribution of imidacloprid within a tree. In addition, the chemical treatment has not been shown to be effective against large larvae already present in the tree at the time of treatment (USDA–APHIS, 2008a).

2. Pesticides and the label.

Before using any pesticide, always read the entire label and follow all instructions. Make sure the material is registered for your specific use in the area where you plan to treat; in some cases exemptions may be needed before using a product in ALB programs. Make sure all human and animal safety guidelines are strictly followed. Make sure all environmental guidelines are strictly followed and adhere to restrictions regarding the use of insecticides near wetlands and bodies of water. Adhere to state and local requirements. Dispose of any empty containers as per label instructions.

ENVIRONMENTAL COMPLIANCE

I. Document Preparation

A key element in designing a program or an emergency response is consultation with Environmental Services (ES), a unit of APHIS' Policy and Program Development Staff (PPD). ES prepares environmental documentation such as environmental impact statements (EIS) and environmental assessments (EA) to aid in program operational decisions, as well as Endangered Species consultation. ES also coordinates pesticide registration and approvals for APHIS programs, ensuring that registrations and approvals meet program use needs and conform to pesticide use requirements. In addition, PPQ's Environmental Compliance Team (ECT) assists ES in the development of required documentation and implements any environmental monitoring that may be required of program activities. Refer to the Resources Section of this document for additional information.

II. National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires that federal agencies document the potential adverse effects of their actions. The process often requires public input. The

exact nature of the documentation and public involvement is dictated by the potential for adverse effects and the significance of those effects. It is likely that most pest control responses will include actions that need up to 30 days of public comment prior to initiation. Therefore, it is imperative to involve staff from EC and ECT early in the planning process. Doing so assures public involvement and a more timely response.

Depending on the proposed program, NEPA requirements will be met with a categorical exclusion, environmental assessment, or environmental impact statement. Some programs can prepare their own NEPA documentation.

III. Endangered Species Act

The Endangered Species Act (ESA) requires that all Federal actions, including emergency responses, do not harm Federally protected, threatened, or endangered species. ESA is administered by the Environmental Protection Agency (EPA). Before an action can begin, it must be determined if protected species are in the project area. If such species are present, measures must be put in place to protect them from potential adverse effects of the action. Such work requires coordination with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service.

Several methods are available to ensure compliance with ESA, but the exact one chosen is dictated by the nature of the emergency, proposed response, and location. As soon as possible in the early stages of the response, staff at Environmental Services or Environmental Compliance should be contacted, to provide the necessary guidance and support in conducting the necessary analyses and developing the required documentation.

IV. Federal Insecticide Fungicide and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires that chemicals used for control have approved labels and that all label requirements are followed. These requirements can include applicable uses, maximum application rates, handling instructions, and personal protective equipment. If no label is available for the emergency in question (i.e., the pest of concern is not listed as one for which the chemical may be used), it is possible to obtain a new label or a label exemption.

V. Other Laws

The National Environmental Policy Act, Endangered Species Act, and the Federal Insecticide, Fungicide, and Rodenticide Act, are of critical importance to all pest control programs, but other laws may apply depending on program locations and activities. These include the Migratory Bird Treaty Act, the Coastal Zone Management Act, and the Bald and Golden Eagle Protection Act. By including Environmental Services and Environmental Compliance early in program planning, guidance can be provided on meeting the requirements of these and other laws that may apply.

VI. Environmental Monitoring

Environmental monitoring of APHIS pest control activities may be required as part of compliance with the above laws, as requested by program managers, or as suggested to address concerns with controversial activities. This is especially true for less benign chemical controls and aerial application of chemicals. Monitoring may be conducted with regards to worker exposure, quality assurance and control, off-site deposition, or program efficacy. Different tools and techniques are used depending on the monitoring goals, program chemicals, and control techniques. Environmental monitoring is coordinated by Environmental Compliance (EC). Staff from EC will work with the program manager to develop an environmental monitoring plan, conduct training to implement the plan, provide day-to-day guidance on monitoring, and provide an interpretive report of monitoring activities.

PUBLIC EDUCATION

I. Public Outreach

An effective public outreach program developed with state and local cooperators is essential to the success of an ALB eradication program. An informed and supportive public will serve as the best survey tool available to the program, as many new ALB infested sites have been identified and reported by the general public. Outreach also serves to educate the public and gain voluntary compliance to not move potentially infested wood products.

a) Public Meetings

Public meetings should be scheduled in the impacted communities as soon as it's practical after ALB has been confirmed. The purpose of public meetings is to inform the public of the need and plans for an eradication and quarantine program. Prior to the meeting, any specific political, social, economic, and environmental concerns of the community should be identified.

Public meeting notifications should, at a minimum, be posted in the local news media.

The public meetings should include the following:

1. A moderator who can insure orderly conduct of the meeting and direct questions to the appropriate persons for answers.
2. Political representatives who are familiar with local concerns.
3. Representatives from State Regulatory Agencies who can answer questions about the detection of ALB, quarantine restrictions, control measures, and their impact.
4. Representatives from state and local universities who can answer questions about the biology of ALB, its host range, and potential impact in the United States.

b) Phone Banks

A toll-free telephone number will be set up to serve as an ALB hotline. The hotline number is staffed by personnel trained to answer questions from the public about the ALB eradication program. Reference material is provided with anticipated common questions and answers the history and protocols of the project as well as the biology of ALB. Forms will be developed locally to document sightings of ALB, complaints, and threats. Past experience has shown that three to five individuals on staggered shifts between 7:00 a.m. to 7:00 p.m. can handle calls from a community of 30,000. In large metropolitan areas, additional staffing may be required to answer calls in a timely manner. When the initial high demand tapers off, staffing can be reduced. A voice mail system can be used to take calls after office hours,

c) Notification to Residents

The purpose of notification is to comply with state or local laws and provide accurate information in an understandable and non-threatening format to residents within the regulated area for ALB. Any resident who may have ALB-positive or high risk host material removed from their property or pesticide treatments applied to trees on their property will be notified in writing prior to the action being conducted. These notices will include the ALB hotline number and the opportunity for the property owner to witness the removal of ALB-positive host material if they desire to do so.

Notification can be accomplished by direct mailing or door-to-door contact. Staff conducting notifications should avoid the following:

1. Negative or facetious comments about the project.
2. Misinformation about regulatory and control protocols.
3. Speculation about the progress of control measures.
4. Special arrangements with individual property owners.

II. Media Relations

The APHIS, PPQ, Legislative & Public Affairs (LPA) staff should be notified as soon as possible after ALB is confirmed and routinely notified of any media requests. All national media calls must be coordinated with APHIS/LPA. The State partnering agency may also have a Public Information Officer.

One primary media spokesperson should be designated for the cooperative eradication program staff. The spokesperson is to be thoroughly briefed and current on particular aspects of the program such as control, regulatory, and survey activities. It is important that representative create a rapport with local media, to ensure best results with accurate

and favorable coverage of the project. To avoid conflicting and confusing statements, all outgoing information should be processed through the designated spokesperson.

The amount of media attention given to ALB eradication programs in the past has been very high. If personnel at the local level do not have adequate media experience to deal with the requests, the APHIS, PPQ, LPA staff should be notified so they can provide experienced media representation to the program.