

# Observations and Notes from the **Asian Longhorned Beetle Symposium**

Hosted by Massachusetts Tree Wardens and Foresters Association (MTWFA)  
Waltham, MA - Wednesday, October 22, 2008



## **AUTHORED BY:**

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*This program was designed to inform the commercial and municipal tree care specialist about the current status of ALB in Worcester. It had over 200 professionals in attendance.*

Moderated by: Tom Brady (MTWFA)

1) Kevin J. Dodds (Entomologist: USDA, Forest Service, Durham, NH)

- o All finds of ALB in North America have been by civilians and not those trained to find it. (NYC '96, Chicago '98, NJ '02, Toronto '03, Worcester, MA '08).

### Urban Impacts of ALB

- o Loss of shade trees
- o Economic Impacts of ALB
- o Aesthetic loss, degradation of green space
- o Emotional reactions
- o Timber industry
- o Maple industry

### Ecological Impacts of ALB

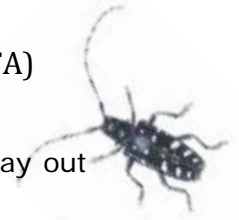
- o Widespread tree loss
- o Soil changes
- o Loss/change of wildlife habitat
- o Facilitation of other invasive species
- o Riparian / watershed changes/issues
- o Tourism-fall foliage, camp and park visitation

### Important Biological Characteristics of ALB (when monitoring for it)

- o ALB attacks multiple hardwood host species
- o Annually re-attacks host trees
- o Tree vigor is unimportant (healthy vs. stressed) when ALB chooses a host
- o Dispersal may be limited (can stay in small area for years)
  
- o 'Maturation Feeding' of adult ALB: Adult female must have maturation feeding before she lays eggs. Females feed on veins of foliage and create distinctive damage. They must do this to ensure viable eggs.
- o The female beetle chews ovipositional sites through bark for each egg. These are distinctive: 'raggedly' gnawed edges through the bark and often ooze sap. Sap flowing from wounds caused by feeding and/or egg laying can be symptomatic of ALB.
- o Larvae initially feed in the phloem, just under the bark. After they reach 2<sup>nd</sup> instar stage, they move into the sapwood and eventually the

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heartwood where they will pupate into adults and chew their way out (making a #2 pencil-sized hole).

- ALB can over-winter in the phloem or in the wood of the host.
- ALB can over-winter as: an egg, a larva, or a pupa.

## **Survey Focus**

- Eggs:
  - Monitor for egg sites on the bark (distinctive chewing marks)
  - Inspect for unusual sap flow
  - Inspect for foam on the bark which sometime drips from branches
- Exit Holes of the Adult Beetle
  - Almost perfectly round and range from 3/8" to 5/8" diameter
  - A regular pencil will go into these exit holes 1.5" to 2.0"
    - Adult Beetle
- Active from July into September; longer if mild weather prevails without frost.

## **ALB and the Forest**

- Poses a serious threat
- There are many unknowns (forest vs. urban areas)
- Not known if it could become an aggressive tree-killer in the forest
- Natural controls are unknown
- Maples and birches are at the greatest risk in New England
- 34% of MA forests are at risk
- 72% of VT forests are at risk
- 70% of NY forests are at risk

## **Approach to Limit the Spread of ALB**

- Aggressive management can keep ALB from spreading into forest ecosystems
- Impose restrictions on the movement of all wood products (firewood, etc.)
- Increase survey and detection efforts outside Worcester, MA
- Increase public awareness

## **Community Involvement: What can communities do?**

- Public outreach
- Survey
- Analyze resources that already exists
  - tree inventories (e.g. street trees in Springfield are 43% maple)
  - potential impact
- Consider the pathways for invasion by ALB into new areas
- Increase tree species diversity (limit Ash due to potential of Emerald Ash Borer)

## **Risk Mapping**

- Consider pathways for invasion
- Locate susceptible host trees (70-80% of town trees could be maples)
- Prioritize survey areas (industrial areas & maples)
- Mobilize volunteers (Conservation groups, green committees, etc)

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## **ALB Cooperative Eradication Program**

- Tom Denholm (Acting Director and Incidence Commander, USDA)
- First worked with ALB in NYC in 1996 and Chicago in 1998
  
- ALB in NYC and Chicago now deemed: Eradicated

## **Strategic Plan for Eradication in Worcester, MA:**

- Regulatory:
  - Generate a regulated Area
  - Initiate compliance training and generate a compliance agreement, which allows commercial and municipal arborists to work in the regulated area.
    - Currently 240 businesses are under Compliance in Worcester
    - Monitor regulated Area for movement of host material (currently 5 inspectors in Worcester)
    - Follow up on citizen or civilian calls
- The Regulated Area:
  - A 1.5-mile radius circle is drawn around each host tree that is a positive find of ALB. This process continues until all the circles merge together and form the regulated area. It is generally extended out to the nearest major road.
  - Currently (10/22/08) Worcester has a 62 square mile Regulated Area with a little more than 1,800 trees with positive finds for ALB. The bulk of the infested ALB trees are in the Greendale (northern) section of Worcester.
- Survey Cycles:
  - Ground Crew: find all potential host trees and mark them
    - (currently: all maples, birch, horse chestnut, willow and elm).
  - Detection Crew: inspect trees from the ground, by climbing and with bucket trucks. This is the first of the 'Delimiting Survey' to form the Regulated Area. Ground crews are 30% effective at finding ALB and climbers are 60%.
  - Time commitment for this survey:
    - The NJ Regulated Area was 25 square miles and the survey took 3.5 years to complete
  - Anticipate it will take more than 3 years in Worcester. Will only look at preferred host trees in Worcester in initial cycle.
  - Final Survey:
    - Go back and look at every potential host tree again
      - No positive finds of ALB equals: ERADICATION
- Tree Removal:
  - Done when the adult beetles are not present (after first hard freeze and before adult emergence the following summer).
  - Host trees that are deemed to be at 'high risk' may also be removed
  - (e.g. If 5 out of 6 maples in a backyard have positive finds of ALB, most likely all 6 trees will be removed)
  - In Worcester, only infested host trees will be removed. Non-infested host trees will be treated.

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- All stumps will be ground to a depth of 9 inches.
- Tree Treatments:
  - Currently only a special USDA formulation of Imidacloprid is approved for use in the Regulated Area.
    - Methods of Application:
      - Trunk injection, Soil Injection, Soil Drench (nursery only)
  - Trunk Injection:
    - Done when gardens or bodies of water are within 15 feet of the dripline of a tree
    - Done when the root zone of the tree is obstructed (concrete, buildings, etc)
    - in a dense woodlot
- For Soil Injection:
  - Research has shown that soil injecting close to the trunk provides better uptake of the product than when done out to the dripline of tree.
- Reforestation:
  - only landscape trees will be replaced
  - no woodlot trees will be replaced
  - only non-host tree species will be approved for replanting
  - USDA will cover the cost of replanting
  - 2.0" to 2.5" caliper trees will be used
  - replacement may take a few seasons to accomplish. Only spring and fall transplanting will occur.
  - Limited by the season and availability of new plants.
- Continue Public Outreach:
  - public meetings
  - compliance training
  - informational sessions
  - working with professional and trade associations
- Research:
  - Two labs have been in existence for about 10 years:
    - China: for field trials and testing
    - Massachusetts: USDA Lab on Otis National Guard Base on Cape Cod
  - Research Areas:
    - Biology of ALB
    - Pheromone search
    - Population dynamics and dispersal of ALB
    - Trapping and trap design

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- **Brian Breveleri: City Forester of Worcester**
  - There are 19,000 street trees in Worcester ; 75% of those are Maples (*Acer*) (not counting residential & non-street trees)
  - Many previously planned city projects are now on hold or are getting re-designed, mostly choices of plant material, due to ALB.
  - All of Brian's crews are working full time on ALB.
  - They are committed to keeping ALB in Worcester and not letting it spread.
  - There is a concerted effort to pass an ordinance in Worcester for a "No *Acer* City".
  - City Forester of Worcester, MDCR, MDAR, USDA all working diligently to make sure that they are all speaking in 'one voice' when addressing issue on ALB, which has helped immensely in dealing with this pest.
  - Incidence Command in Worcester
    - Aggressive public outreach to inform the public
      - Web Site
      - Public Meetings
      - News releases and press conferences
  - Targeting School Children
  - Fact sheets to take home
  - Tattoos (non-permanent)
  - Worcester to buy its own tree grinder and excavator specifically to deal with all of the cut down ALB-infested trees.
  - Worcester DPW considering installing a 'wood chip burner'. Other offices may do so as well.
  
- **Clint McFarland: USDA ALB Eradication Program**
  - Clint will be taking over for Tom Denholm who is returning to his ALB duties in NJ.
  - Clint gave a short briefing on the survey activity currently underway in Worcester.
  
- **Ken Gooch: MDCR ALB Coordinator for Massachusetts**
  - Ken presented a thorough talk on the history of the ALB find in Worcester and the work up to date, which was accompanied with his slides. He noted that \$34 million USDA emergency funds are committed to ALB in Worcester, MA, while \$20 million, combined, was committed for ALB eradication in New York and New Jersey.
  - Quinsigamond Community College, Worcester, MA, is supposedly going to lose almost all their trees on campus, 90% of which are maples.

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**The Panel then entertained a Question and Answer session**

**Some highlights.....**

Tom Denholm: There was an Executive Order issued in 1998 by the federal government that stated 'all wood packing material originating from China had to be deemed insect-free by either heat treatment or fumigation. In 2005, that order was extended to all countries. Tom noted that none of the ALB finds in North America have occurred after these orders (the Worcester infestation is now believed to be at least 8-10 years old).

Tom Denholm: Federal support for dealing with ALB has been 80 – 90 % of all costs. The USDA is now looking for some cost-sharing with MA.

Brain Breveleri: The City and the Massachusetts Arborist Association are now working out the details for developing a volunteer network to assist with the ALB work in Worcester.

Tom Denholm: There are no known natural controls for ALB, The ones that have been found in China are 'generalist' parasitoids meaning that they attack many different hosts and could potentially become a problem here. Therefore, no natural controls are yet being planned for release in North America.

Tom Denholm: In China, ALB was not all that well known when it became a pest here. China was fairly denuded of trees up until the 1960s. During the Cultural revolution in China (began 1966) China planted large areas to trees in an effort at reforestation. All of the tree species that they chose were North American species and that is where ALB is a problem in China. China also has used North American maples as ALB trap trees next to managed poplar plantations.

Tom Denholm: When planting trees in a city, there is now a strong need to have diversity among the trees species utilized.