

ASHBY CONSERVATION
COMMISSION PRESENTS
MDAR'S

LEARNING TO RECOGNIZE THE
ASIAN LONGHORNED BEETLE

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Mass. Department of Agricultural Resources



WHAT IS THE ASIAN LONGHORNED BEETLE?

- An introduced pest, native to Asia
- Longhorned beetle, Cerambycidae family
 - Scientific Name:
Anoplophora glabripennis
- Attacks hardwood trees, bores through wood



WHY ALB IS A PROBLEM?

...And why should YOU care?

- LOSS OF TREES!
- Loss of wildlife habitat
- Loss of shade, windbreaks
- Loss of flood/erosion control
- Loss of oxygen creation; CO² absorption
- Numerous industries affected
 - Tourism
 - Maple syrup industry
 - Timber industry
 - Nursery industry
- **Loss of quality of life**



HOW DID WE FIRST FIND ALB IN MASSACHUSETTS?

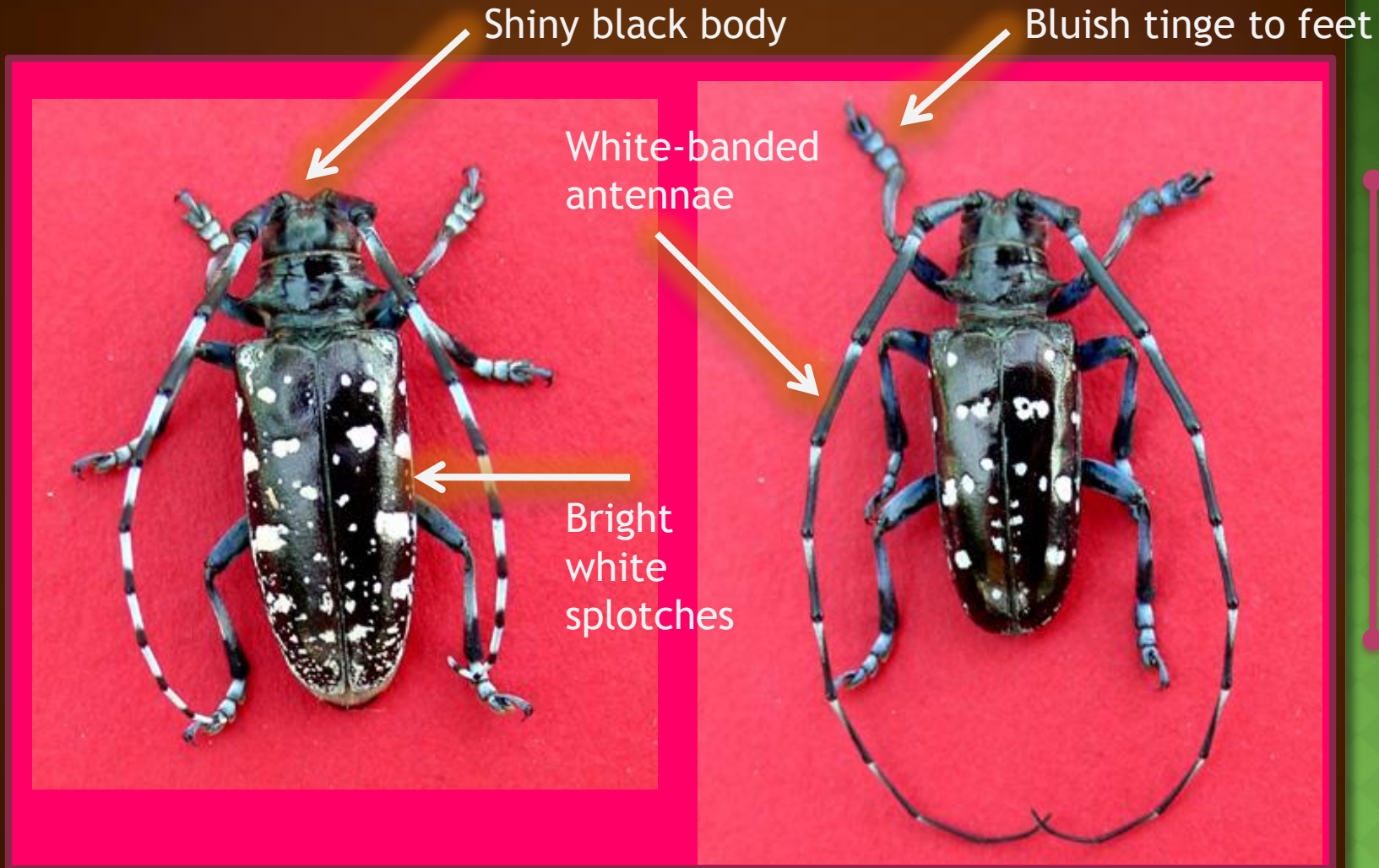
AN OMINOUS PEST REPORT...FRIDAY 08/01/2008

- ◎ Donna Massie, a concerned Worcester resident, contacted:
 - Mass. Department of Agricultural Resources
 - USDA/APHIS-PPQ (Plant Protection & Quarantine)

(“THE MIRACLE OF THE CELLPHONE CAM”)



ASIAN LONGHORNED BEETLE



Female

Male

.75 - 1.5 inch body length

HOW DID THE ASIAN LONGHORNED BEETLE GET HERE?

ALB originates in Asia

Infested wood in Asia may be used to manufacture solid wood packing material (spools, crates, pallets). ALB larvae may be present in this material when it is shipped to businesses across the US.



SOLID WOOD PACKING MATERIAL (SWPM)

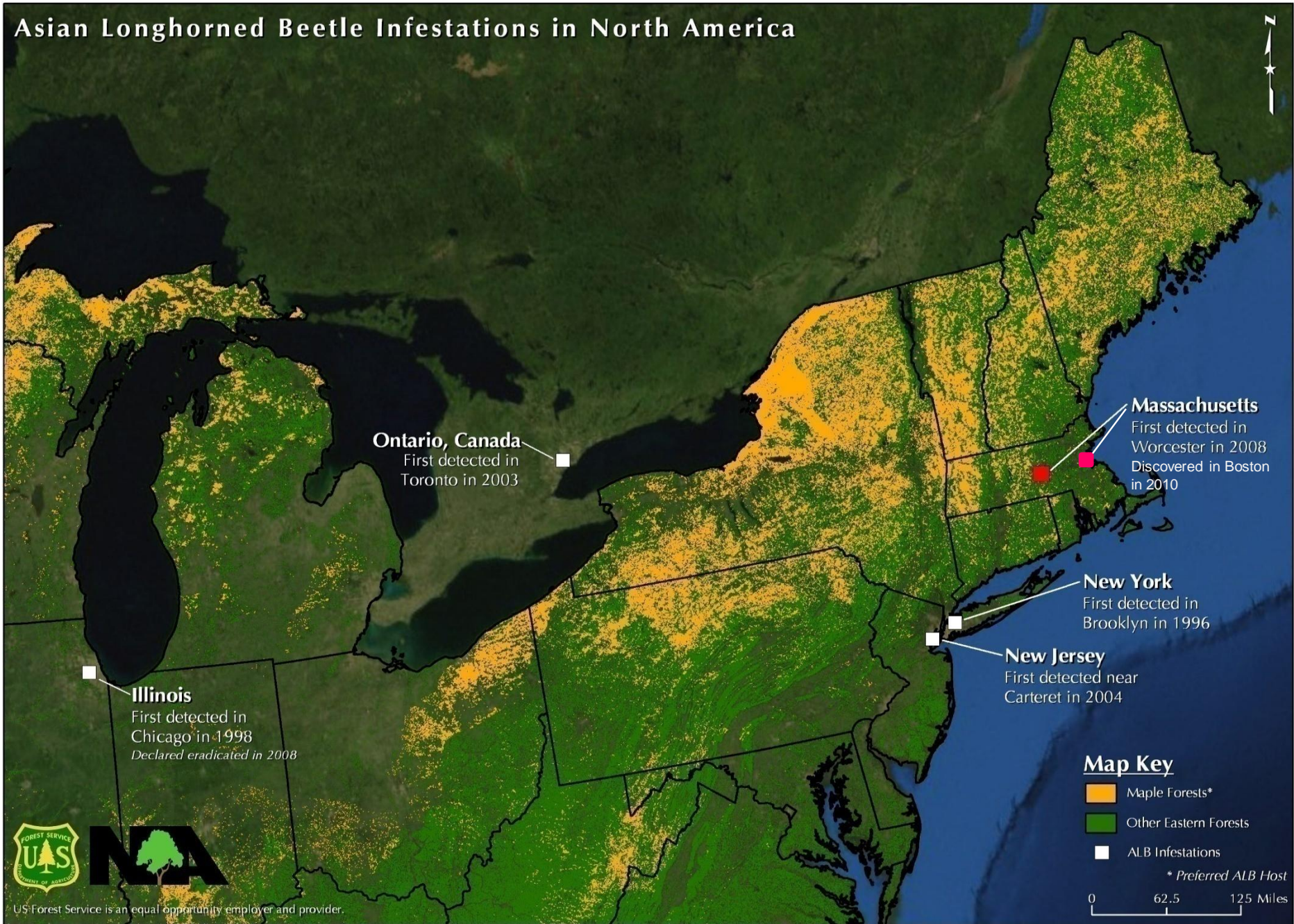
December 1998: USDA amended regulations to require treatment or fumigation of all SWPM from China to prevent further introduction of exotic wood boring pests



International Plant Protection Convention stamp from China (DBMB stands for Fumigation with methyl bromide)

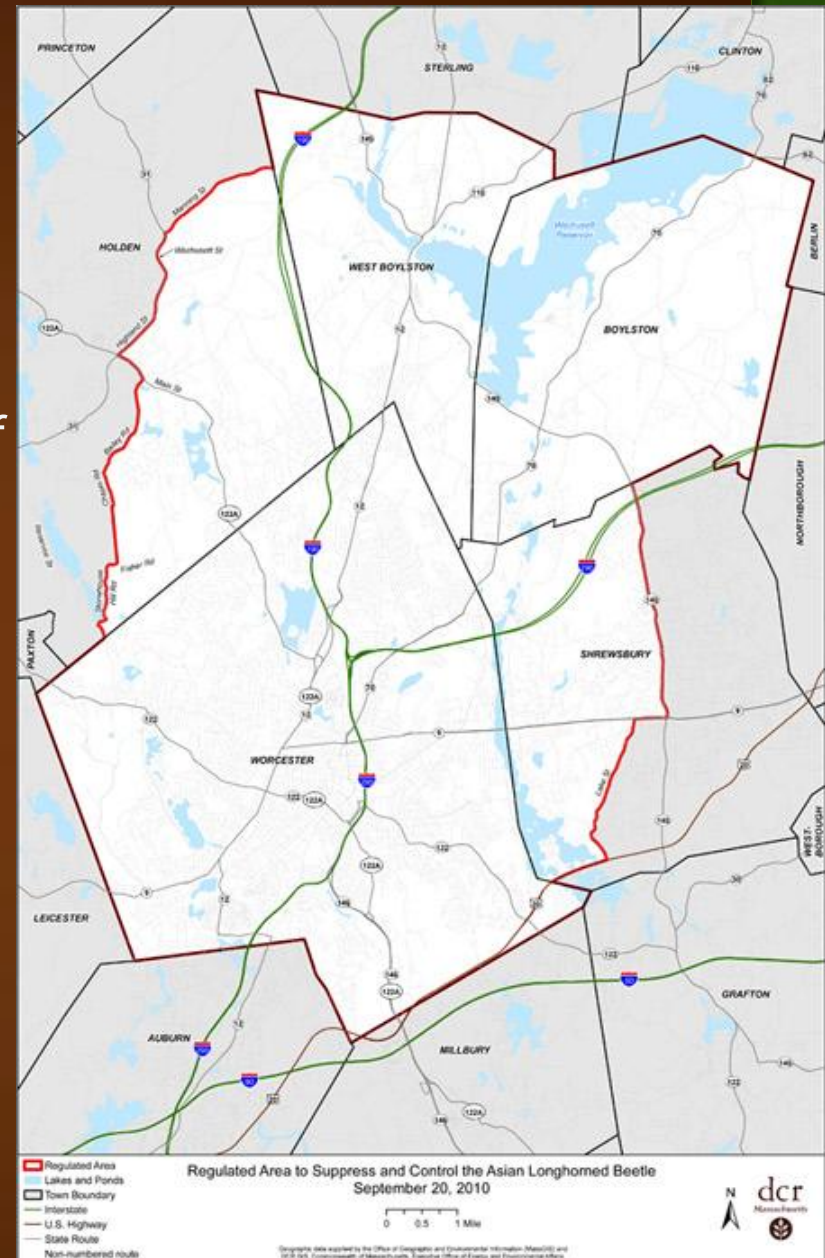


Asian Longhorned Beetle Infestations in North America



ALB IN WORCESTER

- Infestation discovered 2008
 - At least 12-15 years old
- As of **September** 2010, surveys of infested area have led to designation of a **94 square mile regulated area**
- Regulated area includes Worcester, West Boylston, and Boylston plus parts of Holden, and Shrewsbury
- No wood from host trees, and no firewood from any species, can leave the regulated area
- When an infested tree is found outside of regulated area, area expands

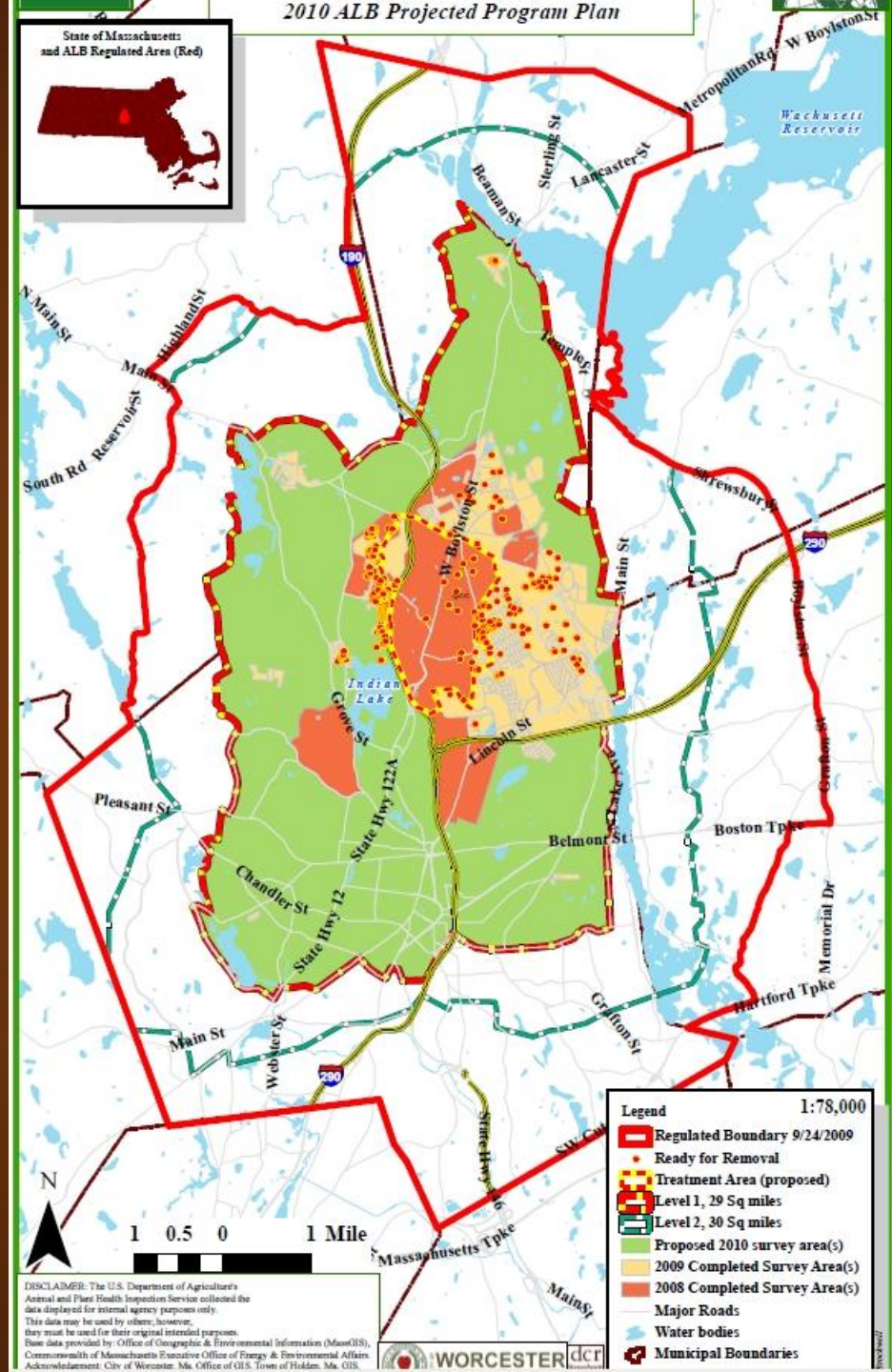


Regulated area, last changed **9/20/2010**

ALB IN WORCESTER

Tree Surveys:

- 531,892 + checked as of September 2010



ALB IN WORCESTER

Tree Removals

- 28,000+ trees removed so far
 - 60% infested
 - 40% “high-risk”
 - Many are young trees



ALB IN WORCESTER

What happens to all of that wood?

- Wood taken to disposal facility in regulated area
- Reduced to chips less than one inch in two dimensions



ALB IN WORCESTER

What happens to all of that wood?

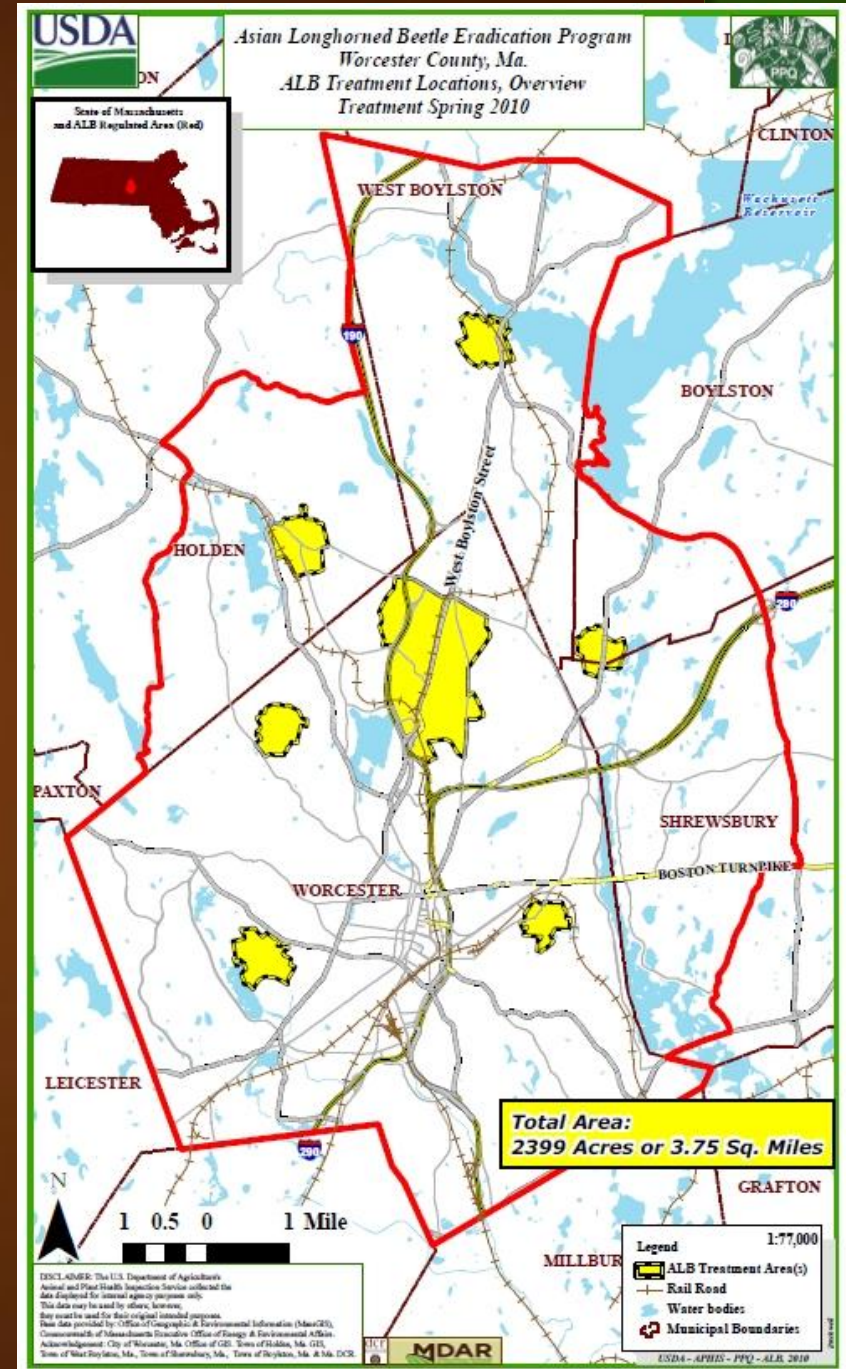
- During beetle's active period, chips are ground twice to ensure even smaller pieces
- Chips can be used as mulch or burned to generate electricity



ALB IN WORCESTER

Tree Treatments

- “Knockdown” treatment of host trees began April 2010
- 62,000+ trees treated in Worcester regulated area
- Trunk injections using imidacloprid
- Area-wide 3-year treatments to begin in 2011, once surveys completed



ENCYCLOPEDIA OF PEST MANAGEMENT, VOLUME 2 BY DAVID PIMENTEL*

- “...tree trunks have been injected with the beetle-active chemical insecticide imidacloprid or soil is injected and this chemical is taken up systemically by trees. This treatment can kill smaller larvae feeding directly under the bark, larger larvae in the centers of branches and trunks, as well as adults feeding on the outer bark of twigs if they receive a high enough dose.”
- “Perhaps more importantly, imidacloprid also acts as an anti-feedant, so adults feeding on a treated tree would be repelled and larvae may stop feeding and starve to death if not killed.”

*<http://books.google.com/books?id=DxrMm9lMFUAC&pg=PA23&lpg=PA23>

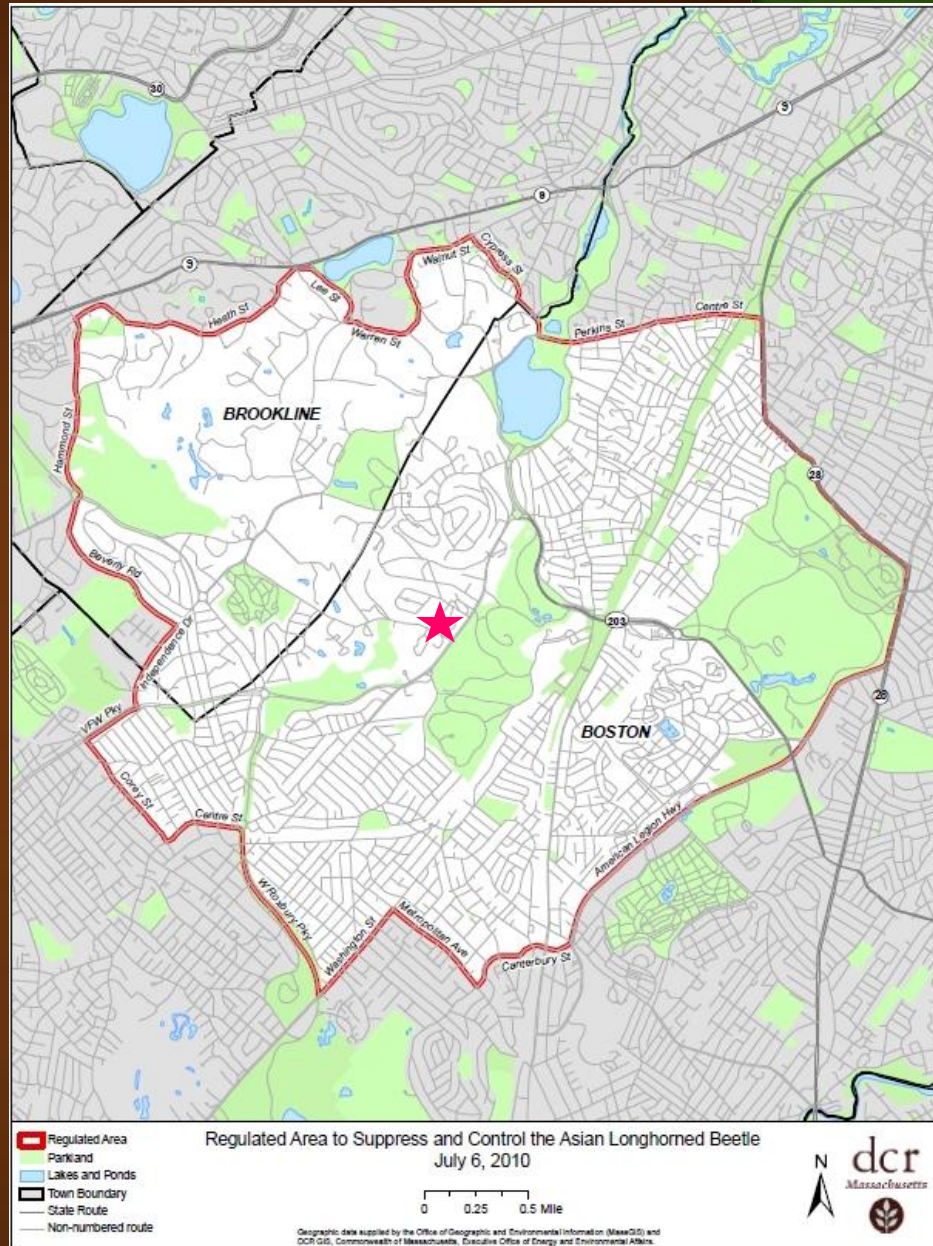
ALB IN BOSTON

- Infestation discovered July 2010
 - Reported by groundskeeper at Faulkner Hospital
 - Only 6 trees found so far
 - Infestation only a few years old



ALB IN BOSTON

- Officials have designated a 10 square mile regulated area in a 1.5mile radius around the infestation
- Regulated area includes Boston and part of Brookline
- Every host tree in regulated area will need to be surveyed
 - 24,602 trees checked as of 9/17/2010



Regulated area, last changed 7/6/2010

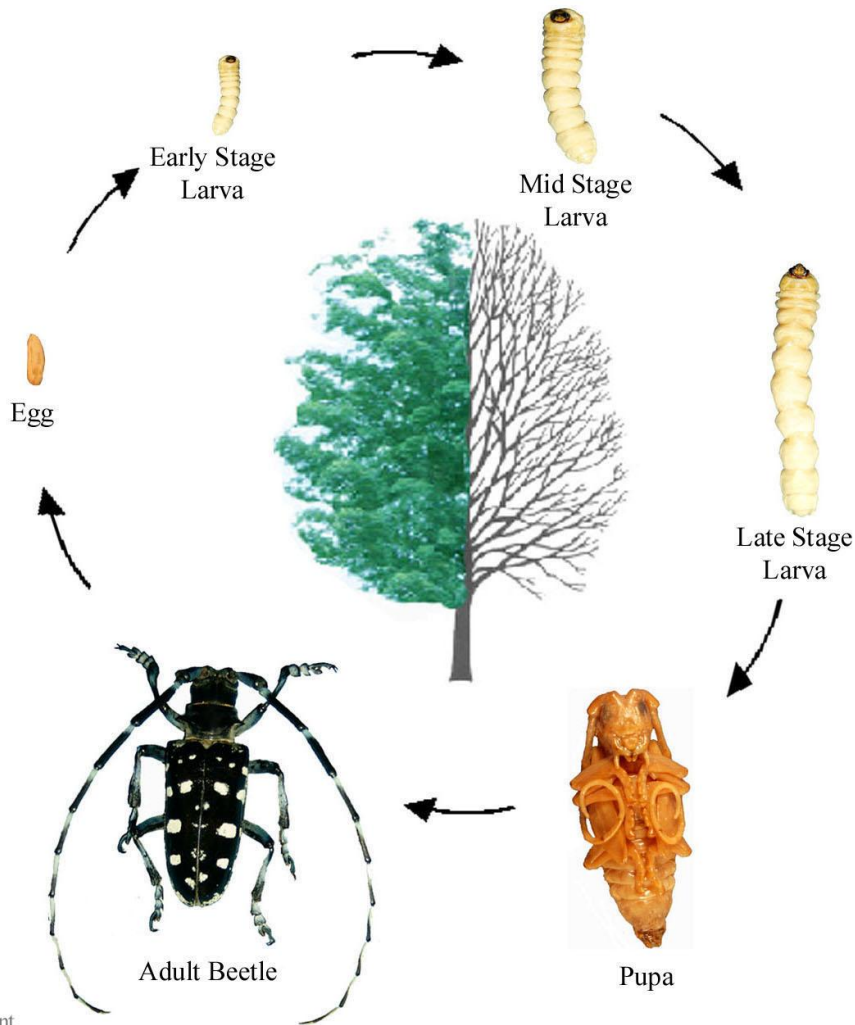
ASIAN LONGHORNED BEETLE LIFECYCLE



Asian Longhorned Beetle Lifecycle



Adults and oviposition scars



Larva in tree



Pupal chamber in tree



Emergence holes



Adult emerging from tree

ASIAN LONGHORNED BEETLE LIFECYCLE

- Adults active in Massachusetts July-frost



EGG LAYING



- Female chews into bark, lays one egg per site
- Male guards female during this process

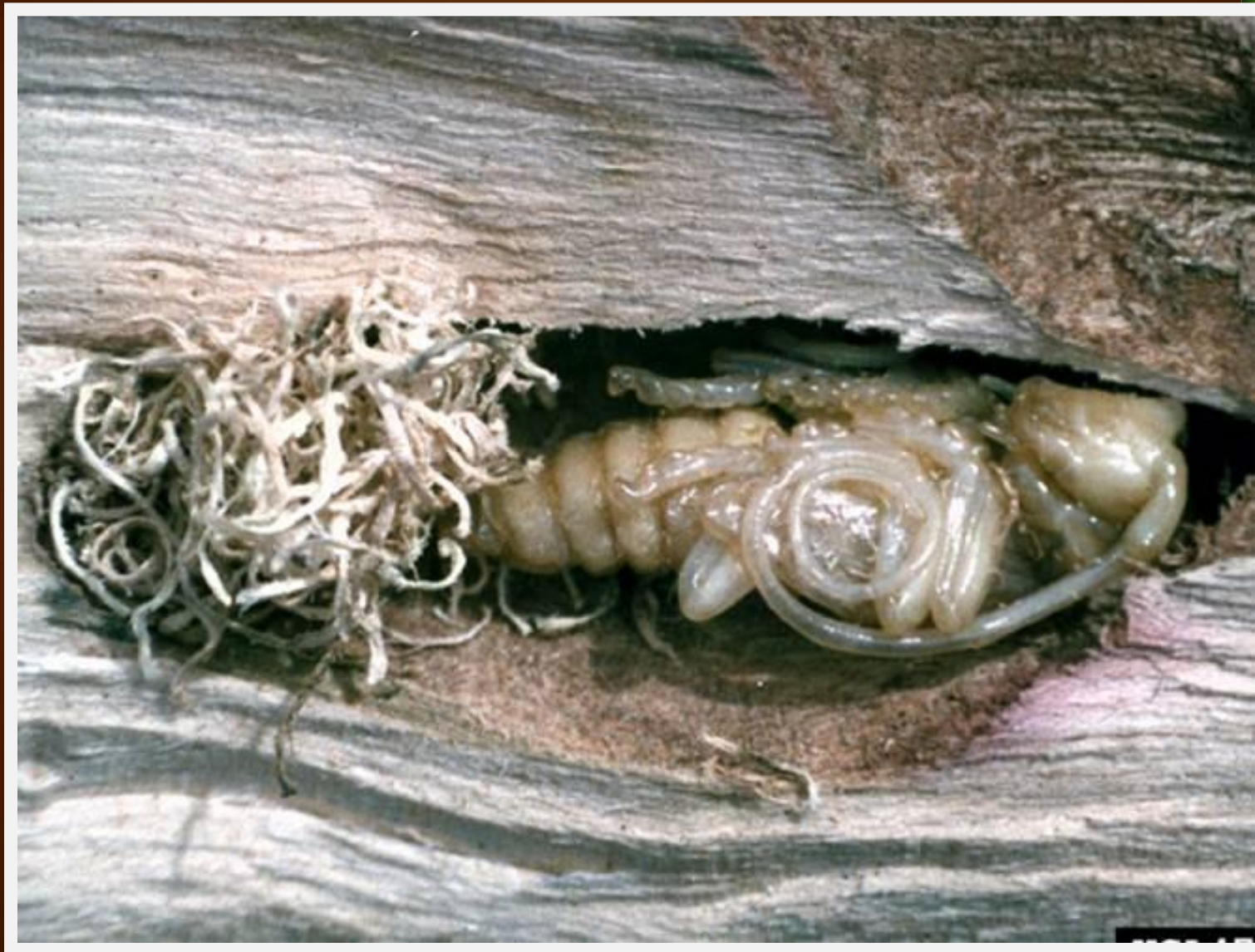
LARVAL STAGE

- Larvae survive winters inside wood
- Matchstick- like “FRASS” is characteristic of this wood boring insect



Frass

PUPAL STAGE



ADULT EMERGING



UGA1262009

ASIAN LONGHORNED BEETLE

Female



Male



ALB LOOK-ALIKES

Keep in Mind...

- There are over 200 species of longhorned beetles (Cerambycidae family) in Massachusetts
- ALB is not the only thing that makes holes in trees

ALB LOOK-ALIKES

SOME ALB "LOOK-ALIKES"

The insects shown below are commonly found in the United States.
They are NOT the Asian Longhorned Beetle.



♂
Whitespotted Pine Sawyer
Monochamus ocellus



♂
Oregon Fir Sawyer
Monochamus oregonensis



♂
Southern Whitespotted Sawyer
Monochamus titillator



♂
Northeastern Sawyer
Monochamus notatus



♀
Western Conifer Seed Bug
Leptoglossus accedentalis



♂
Broadnecked Root Borer
Prionus laticollis



ALB LOOK-ALIKES: WHITESPOTTED SAWYER

Comparison between the introduced Asian longhorned beetle (*Anoplophora glabripennis*) and the native Whitespotted Pine Sawyer (*Monochamus scutellatus*) [PHOTOS NOT TO SCALE]

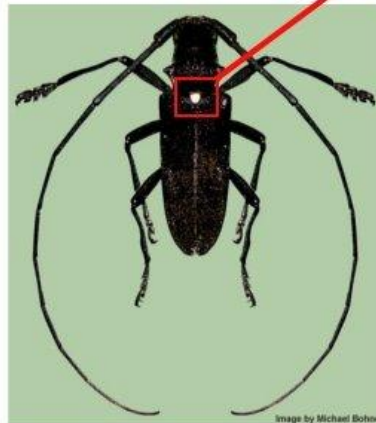


Male Asian Longhorned Beetle

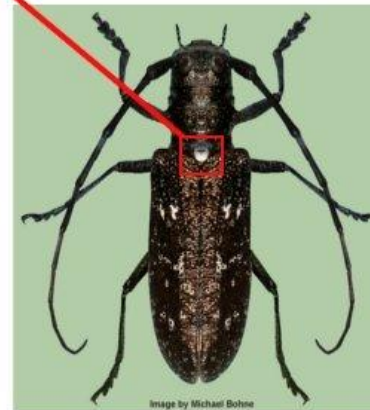


Female Asian Longhorned Beetle

Note distinctive white dot between elytra (wing covers)



Male Whitespotted Pine Sawyer



Female Whitespotted Pine Sawyer

Emerges in July

Emerges in May

ALB LOOK-ALIKES: WHITESPOTTED SAWYER



ALB HOST TREES

- Maple**
- Horsechestnut*
- Elm*
- Willow*
- Birch*
- Sycamore/Plane tree
- Mountain Ash
- Hackberry
- Ash
- Poplar/Cottonwood
- Mimosa
- Katsura

** , * preferred



NOT ALB HOST TREES

- ALB attacks Hardwoods, not Softwoods
 - Not in pine, fir, spruce, etc.
- ALB is not known to attack:
 - Oak
 - Cherry
 - Crabapple
- TIP: ALB may attack “non-host” hardwoods in a heavily infested area, but...
 - Holes in a single cherry tree surrounded by healthy maples are not caused by ALB

ALB TREE DAMAGE

- Exit holes
- Oviposition sites
- Leaf and twig damage
- Frass



ALB EXIT HOLES - WHAT TO LOOK FOR:



- Perfectly round (like a drill hole) exit holes 3/8" to 1/2" diameter.
- Pencil test - Possible exit hole if you can place a regular pencil inside the hole at least 1 inch.



NOT ALB



Photo via <http://www.plantgalore.com/articles/animals/001-plantfacts-Photo-Animals.htm>

ALB OVIPOSITION SITES - WHAT TO LOOK FOR

- Divots in bark, about ½ in wide
- Easiest to spot the season that they are made, then they fade



Old egg site (2+ yrs)

Recent egg site



Fresh egg site with sap

ALB OVIPOSITION SITES - WHAT TO LOOK FOR

MAPLE



BOX ELDER



BIRCH



WILLOW



POPLAR



FEEDING ON LEAVES BY ADULT BEETLES



Photos by Michael Smith

...Mmmm, Midribs!

FEEDING ON TWIGS BY ADULT BEETLES



Photo by Michael Smith

FRASS

- Sawdust-like waste produced by ALB
(They eat wood, so they excrete wood)
- Accumulates in crooks of branches, around base of trees



Photo by DCR



Photo via beetlebusters.info

ALB OR NOT - FACTORS TO CONSIDER:

- ⦿ ALB takes many years to kill a tree
- ⦿ ALB doesn't like dead trees
- ⦿ Poor tree health not a good indicator of ALB
- ⦿ Exit holes widely distributed on trees
- ⦿ Beetles do not spread far or fast on their own

NOW THAT ALB IS HERE, HOW CAN IT SPREAD?

- On its own, a beetle may fly up to a mile (1/2 a mile is more likely)
- The real risk: **Movement of wood**
 - Firewood
 - Storm debris
 - Removal of wood after tree maintenance

- More info:

www.dontmovefirewood.org

REPORT ALB AND OTHER SUSPICIOUS PESTS!

Found something odd?

1. Get a specimen or a photo!

Save specimens in a container in the freezer, or in a jar with rubbing alcohol

2. Report online:

<http://massnrc.org/pests>

3. ALB? Call 1-866-702-9938

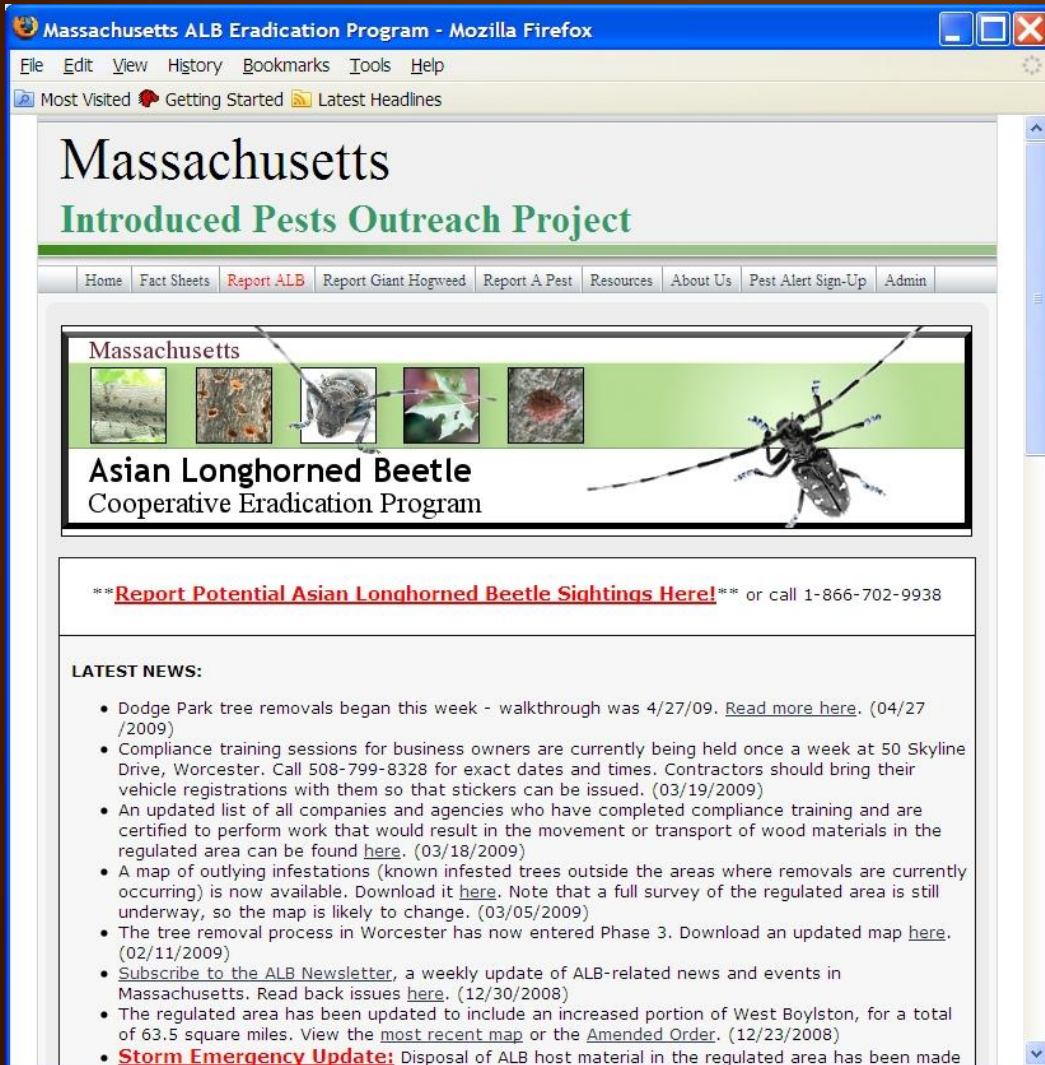
4. Else, call the MDAR pest hotline: 617-626-1779

BEETLE TURNED IN TO ASHBY CONSERVATION COMMISSION



GET THE LATEST ALB INFO:

<http://massnrc.org/pests/alb>



The screenshot shows a Mozilla Firefox browser window displaying the website for the Massachusetts ALB Eradication Program. The browser's address bar shows the URL <http://massnrc.org/pests/alb>. The website's main heading is "Massachusetts Introduced Pests Outreach Project". Below this is a navigation menu with links for Home, Fact Sheets, Report ALB, Report Giant Hogweed, Report A Pest, Resources, About Us, Pest Alert Sign-Up, and Admin. The main content area features a banner for the "Asian Longhorned Beetle Cooperative Eradication Program" with several small images of the beetle and its damage. Below the banner is a call to action: "**Report Potential Asian Longhorned Beetle Sightings Here!**" with a phone number 1-866-702-9938. The "LATEST NEWS:" section contains a list of updates, including tree removals at Dodge Park, compliance training sessions, an updated list of certified companies, a map of outlying infestations, the tree removal process in Worcester entering Phase 3, a newsletter subscription link, an update to the regulated area in West Boylston, and a storm emergency update regarding the disposal of ALB host material.

Massachusetts ALB Eradication Program - Mozilla Firefox

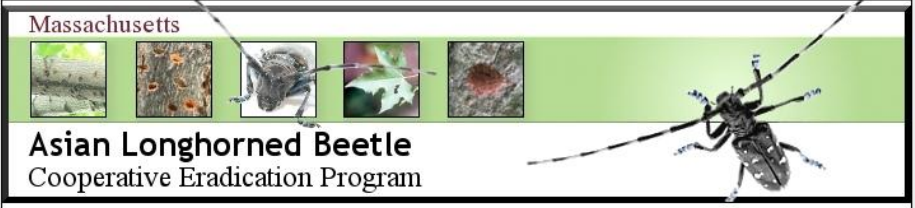
File Edit View History Bookmarks Tools Help

Most Visited Getting Started Latest Headlines

Massachusetts Introduced Pests Outreach Project

Home Fact Sheets **Report ALB** Report Giant Hogweed Report A Pest Resources About Us Pest Alert Sign-Up Admin

Massachusetts



Asian Longhorned Beetle Cooperative Eradication Program

****Report Potential Asian Longhorned Beetle Sightings Here!**** or call 1-866-702-9938

LATEST NEWS:

- Dodge Park tree removals began this week - walkthrough was 4/27/09. [Read more here.](#) (04/27/2009)
- Compliance training sessions for business owners are currently being held once a week at 50 Skyline Drive, Worcester. Call 508-799-8328 for exact dates and times. Contractors should bring their vehicle registrations with them so that stickers can be issued. (03/19/2009)
- An updated list of all companies and agencies who have completed compliance training and are certified to perform work that would result in the movement or transport of wood materials in the regulated area can be found [here.](#) (03/18/2009)
- A map of outlying infestations (known infested trees outside the areas where removals are currently occurring) is now available. Download it [here.](#) Note that a full survey of the regulated area is still underway, so the map is likely to change. (03/05/2009)
- The tree removal process in Worcester has now entered Phase 3. Download an updated map [here.](#) (02/11/2009)
- [Subscribe to the ALB Newsletter](#), a weekly update of ALB-related news and events in Massachusetts. Read back issues [here.](#) (12/30/2008)
- The regulated area has been updated to include an increased portion of West Boylston, for a total of 63.5 square miles. View the [most recent map](#) or the [Amended Order.](#) (12/23/2008)
- **Storm Emergency Update:** Disposal of ALB host material in the regulated area has been made



BEFORE AND AFTER



Source: Kenneth R. Law, USDA APHIS-PPQ

QUIZ!

- True or False?
 - Asian longhorned beetle has a distinctive white spot between its wing covers, near its head

QUIZ!

- **False**
 - It is the whitespotted sawyer that has a distinctive white spot between its wing covers, near its head

QUIZ!

- Which of the following is **NOT** considered a host tree for ALB?
 - a) Silktree
 - b) Oak
 - c) Elm
 - d) Pine

QUIZ!

- Which of the following is **NOT** considered a host tree for ALB?
 - a)
 - b) **Oak**
 - c)
 - d) **Pine**

QUIZ!

- The ALB lifestage you are most likely to see is:
 - a) Egg
 - b) Larvae
 - c) Pupa
 - d) Adult

QUIZ!

- The ALB lifestage you are most likely to see is:
 - a)
 - b)
 - c)
 - d) **Adult**

QUIZ!

- Adult ALBs typically emerge from the trees in:
 - a) May
 - b) June
 - c) July
 - d) August
 - e) September

QUIZ!

- Adult ALBs typically emerge from the trees in:
 - a)
 - b)
 - c) **July**
 - d) **August**
 - e) **September**

ACKNOWLEDGEMENTS

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- **Contact info:**

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<http://massnrc.org/pests/alb>

