

United States Department of Agriculture  
Animal and Plant Health Inspection Service

**Plant Protection and Quarantine**



# Asian Longhorned Beetle (*Anoplophora glabripennis*) Eradication Program



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# North American Asian Longhorned Beetle Introductions

- New York - August 1996
- Chicago, Illinois - July 1998
- Jersey City, New Jersey - October 2002
- Toronto, Canada - September 2003
- Middlesex/Union Counties, New Jersey – August 2004
- Worcester County, Massachusetts - August 2008
- Suffolk County, Massachusetts - July 2010 (Quarantine expanded in Massachusetts to 94 square miles)
- ALB declared eradicated in Chicago, Illinois, and Hudson County, New Jersey After four years of negative surveys - 2008



## Where did it come from?

- The native range of ALB is China and Korea
- ALB has been introduced into England Austria France Poland and Germany



# Asian longhorned beetle look-alikes

Exotic pest or native species ?

Exotic Pest: Asian Longhorned Beetle



Exotic Pest: Citrus Longhorned Beetle and adult emergence hole at base of tree trunk (inset photo).



Native Insect: Banded Alder Borer (Beetle)



Native Insect: White Spotted Sawyer (Beetle)



## Description of Asian longhorned beetle adults - Male and Female



Asian Longhorned beetle, female (left) and male (right)

# Asian Longhorned Beetle Lifecycle



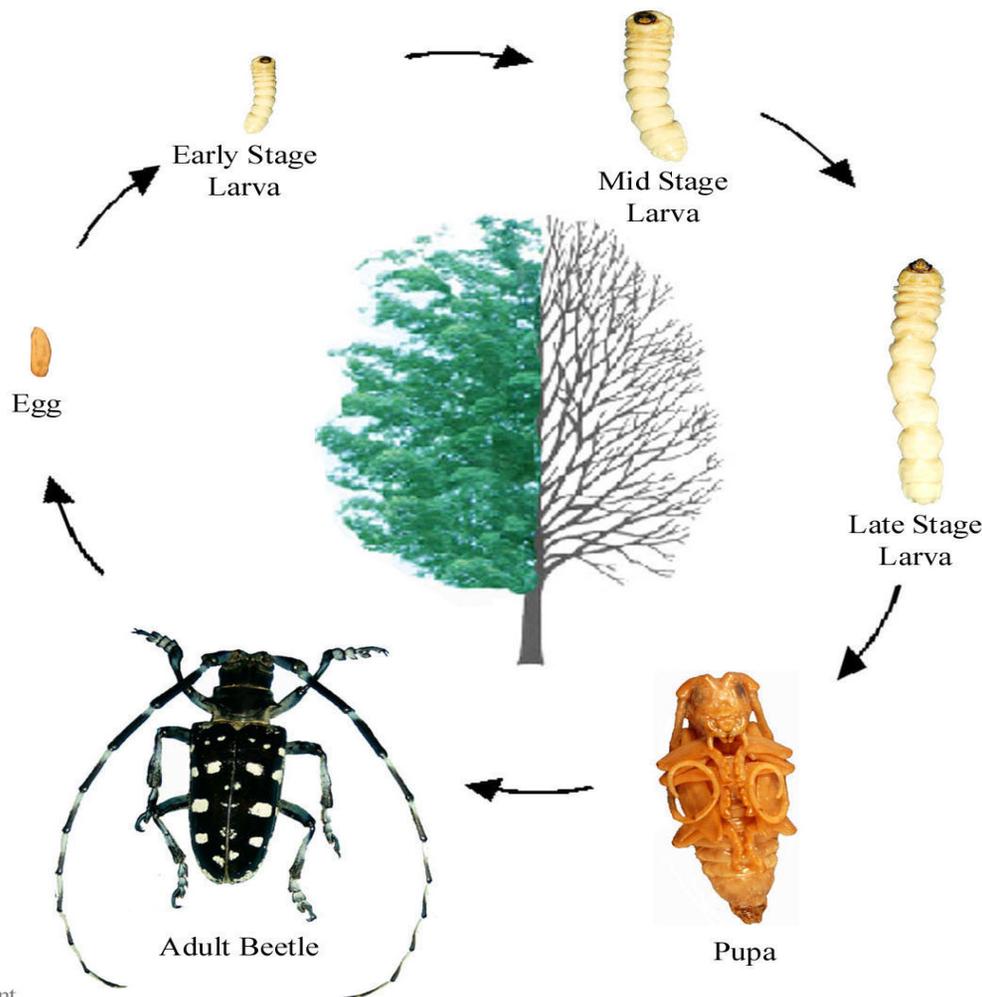
Adults and oviposition scars



Emergence holes



Adult emerging from tree



Larva in tree



Pupal chamber in tree

Diagram by Michael Bohne

## Hosts of ALB

- Maple
- Horse chestnut
- Elm
- Birch
- Willow
- Poplar
- London plane
- Hackberry
- Ash
- Mountain Ash
- Mimosa

## Signs of ALB infestation

- Dime sized exit holes that are perfectly round
- Holes oozing sawdust, sap and frass especially at crotches and base of trees
- Oviposition sites (small divots in the bark)
- Yellowing and drooping of leaves (caused by an interruption of flow of nutrients and water)
- Suckering at base of tree- “epicomic shooting”
- Increased woodpecker activity (woodpeckers feed on beetle larvae under the bark)
- Decline and death- especially groupings of ALB host trees

## Signs of ALB infestation – dime-sized exit holes that are perfectly round

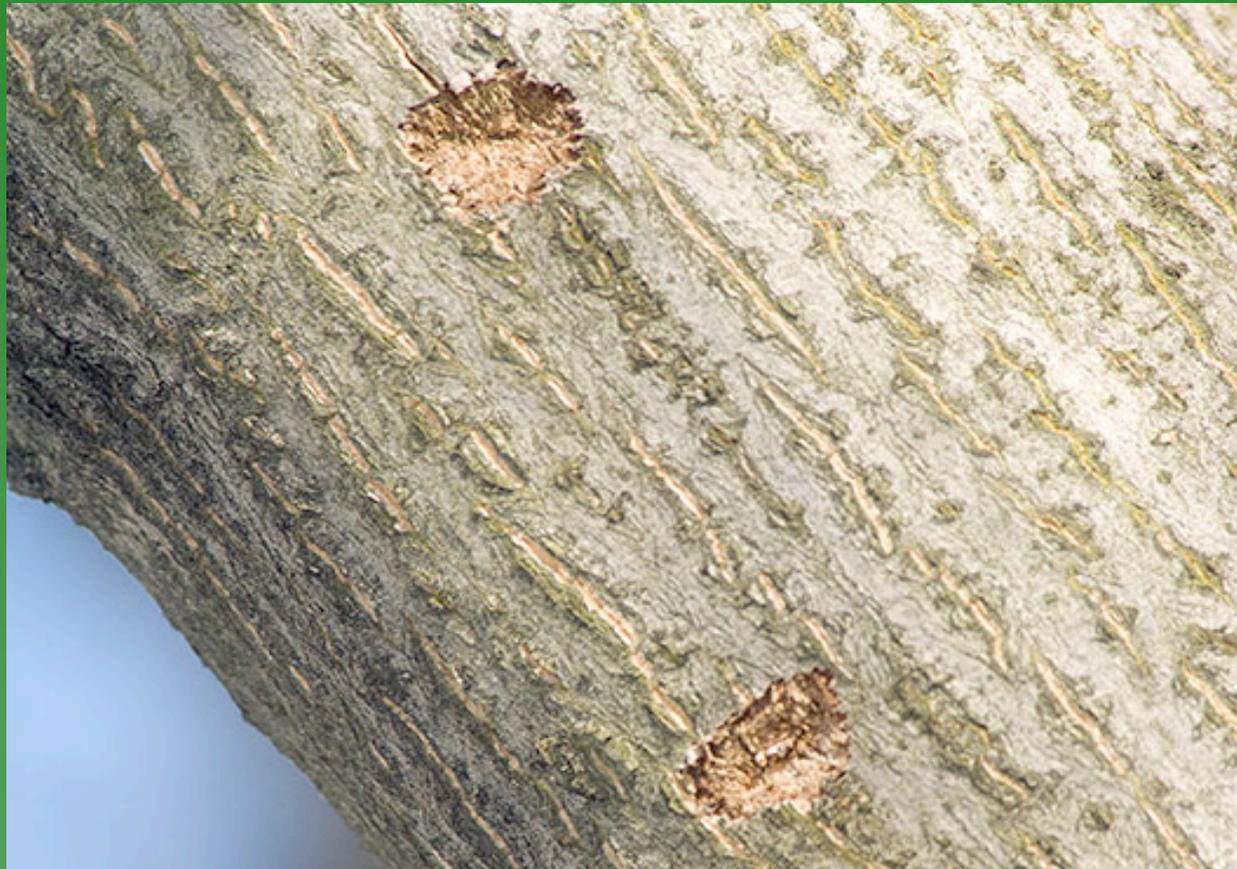


## Signs of ALB infestation – holes oozing sawdust and frass



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## Signs of ALB infestation – oviposition sites, small divots in the bark



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## Signs of ALB infestation – suckering at base of tree- “epicormic shooting”



# Why is ALB so harmful in North America

ALB is an exotic insect

- introduced exotic insects have few or no natural enemies
- North American trees have no immunity or natural defenses against exotic pests they are not adapted to. Healthy trees are susceptible
- exotic insects can out-compete native woodboring insects which are often a beneficial part of a healthy forest ecosystem

## **Another interesting reason ALB is so invasive in N America**

- China had huge programs in the 1950's and 1960's to repair decades of damage from removal of tree cover and erosion by planting trees- afforestation and reforestation.
- These a- and re- forestion projects resulted in vast stands of poplar clones, perfect situation for a build up of an insect pest that loves poplar.
- Insect-damaged poplar is the perfect material for making wood pallets.

# Potential impacts of ALB nationwide and in Alaska

- Affected industries:
  - Timber
  - Maple syrup
  - Landscape nurseries and greenhouses
  - Tourism
- Estimated national effect:
  - Loss of about 35% of canopy cover, 30% of trees (loss of tree canopy in cities)
  - Loss of wildlife habitat
  - Approximately \$669 billion compensatory value
  - Reduction in benefits from trees and wooded areas in urban areas
  - Cost of eradication and control programs to state and local governments and for replacing lost trees in parks and city streets
  - Loss of markets due to quarantines



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What is being done  
to prevent the introduction  
of more exotic wood boring  
beetles on wood packing  
material

# What exactly is WPM (Wood packing material)

- Pallets
- Crates
- Dunnage



Pallets



Crates

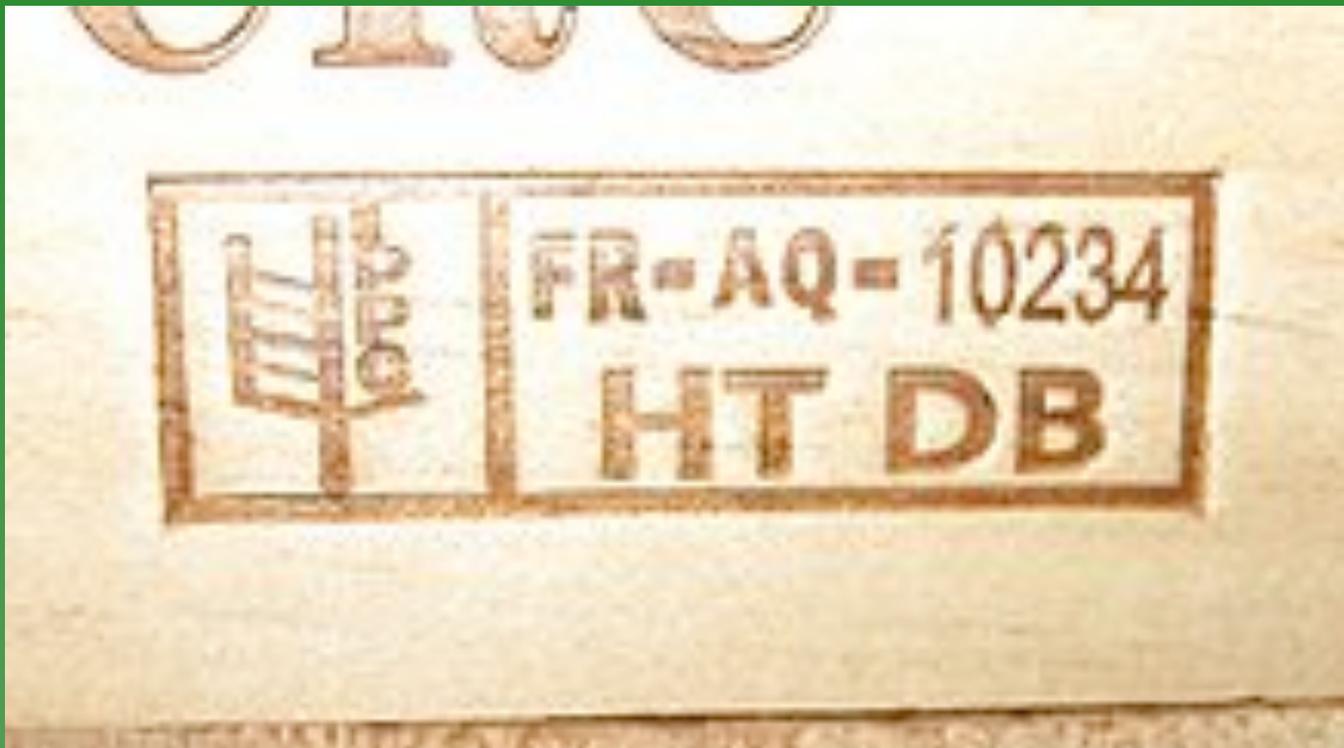


Dunnage

## International treaty for wood packing material

- IPPC (International Plant Protection Convention )
- All Solid Wood Packing Material (SWPM) must be treated with heat treatment or Methyl Bromide fumigation sufficient to destroy any woodboring insects
- Treated wood is stamped with an IPPC stamp

## Example of IPPC stamp on wood packing material





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**Does the IPPC stamp  
guarantee freedom from  
woodboring insects?**

# Wood boring beetles found in stamped woodpacking material



# Strategic Plan Developed for ALB Eradication Program

## Integrated Approach

- **Detection (Survey)**
  - In infested areas 4 years of negative survey required to declare eradication
- **Control**
  - 3 years of chemical treatments
  - Removal of all infested trees and high risk exposed trees
- **Regulatory**
  - Quarantines enacted
  - Compliance with companies handling trees and woody debris
- **Restoration**
  - Replanting using non host trees
- **Public Outreach**
  - Public Support
  - Prevent Artificial Spread
- **Research**
  - To enhance the tools available for eradication and survey

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# Detection (Survey)



# **Survey protocols for Asian longhorned beetle**

- 1. Intensive Core Survey (Level 1 Survey)**
- 2. Delimiting Survey (Level 2 Survey)**
- 3. High Risk Site Detection Survey (Level 3 Survey)**
- 4. Area Wide Detection Survey (Level 4 Survey)**
- 5. Outside the ALB infested area: Most states survey for woodboring beetle either with US Forest Service funding or USDA pest detection funding.**

## Control

1. Host material removal- infested trees and high risk exposed host trees.
2. Chemical treatment – 3 years of chemical treatments required to declare eradicated from an area.



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# Control action in Chicago street





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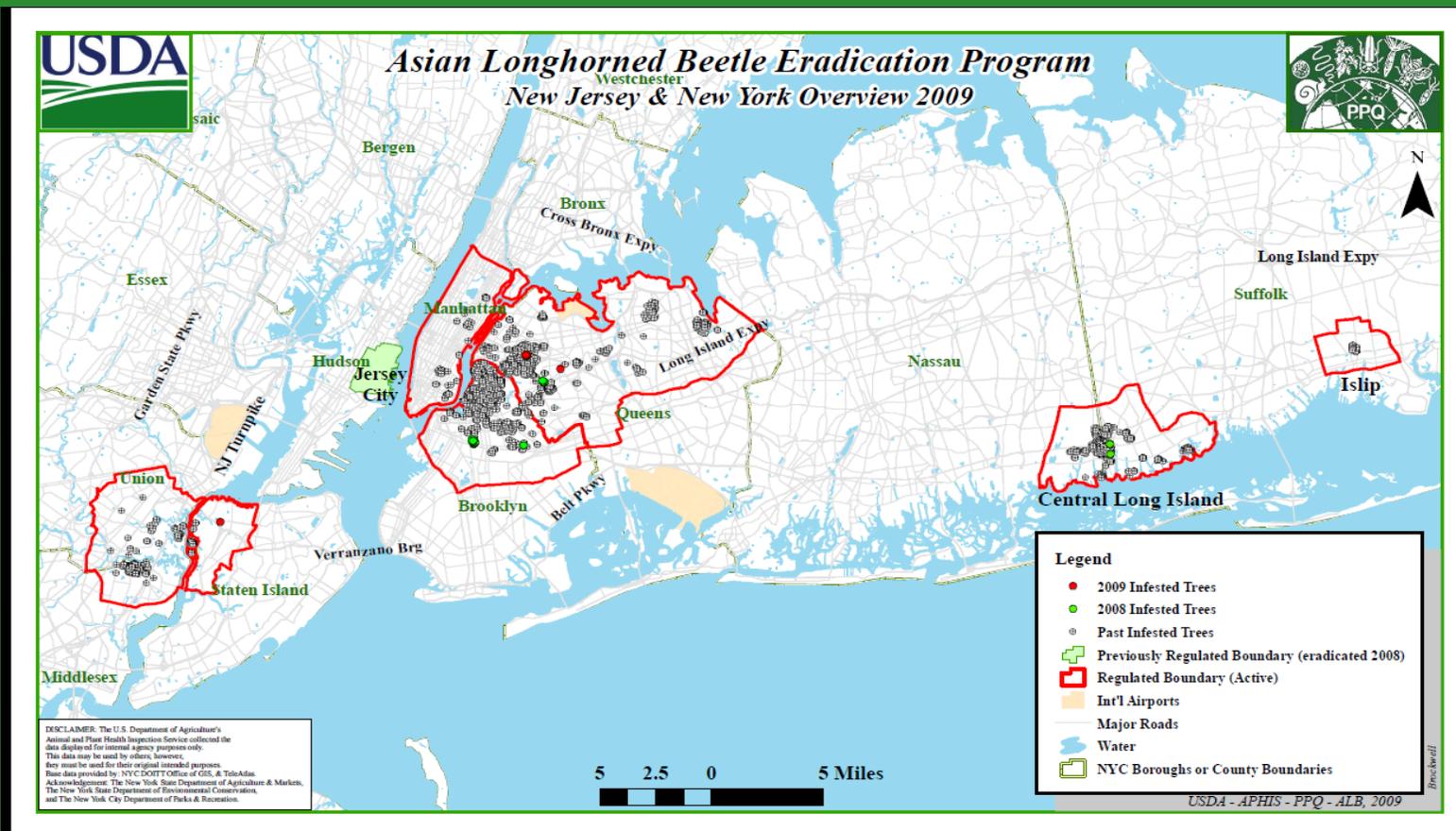
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# New York and New Jersey map



## **New York eradication – current update**

- Currently, 142 square miles are regulated for the beetle in New York. To date, USDA and its partners have removed 8,142 trees in New York

# Massachusetts

- Asian longhorned beetle was confirmed in Worcester County, Massachusetts in August 2008. 25000 trees have been removed
- Separate population found in the Boston area in July 2010. Only 6 trees were found to be infested and removed.
- State, federal and local governments have implemented an aggressive comprehensive program

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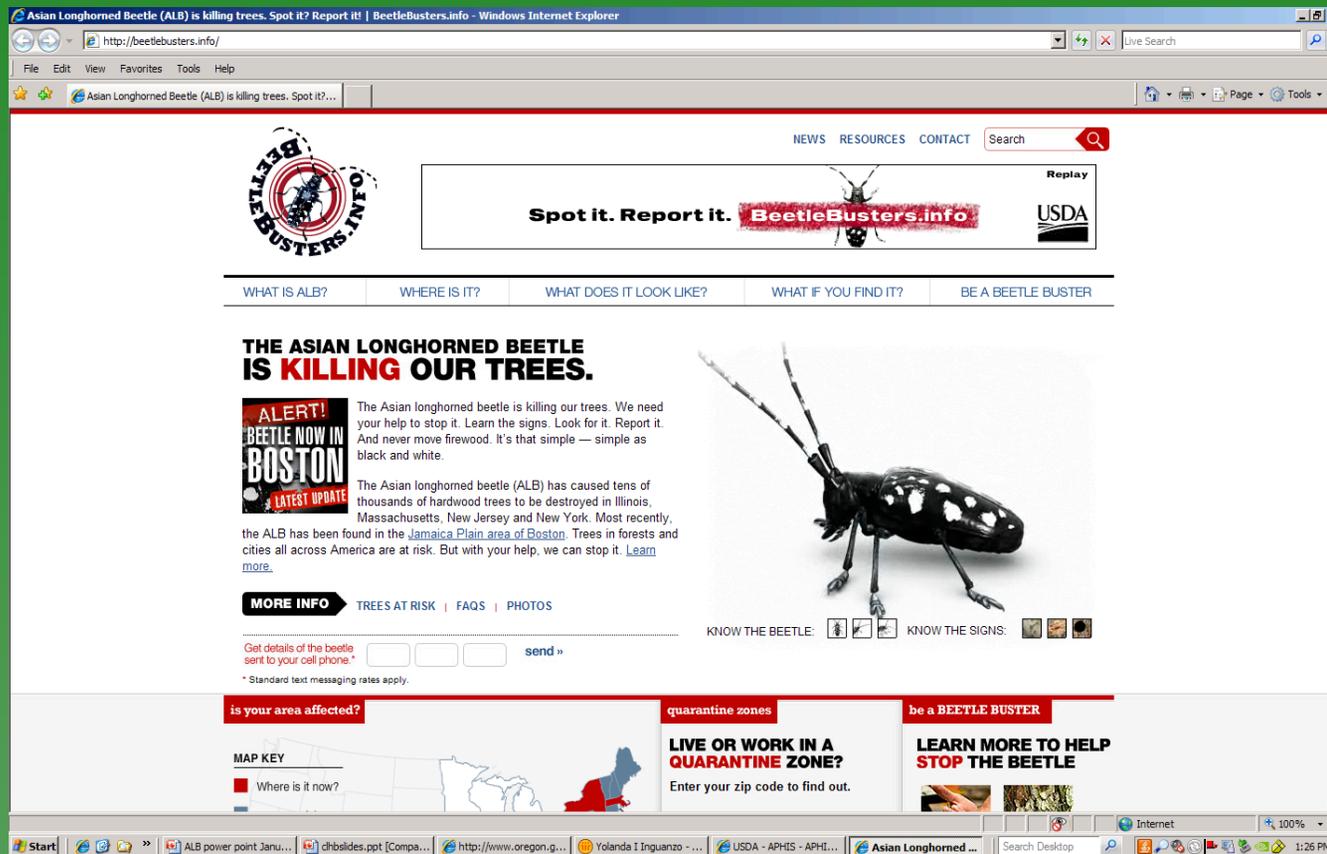
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# Asian Longhorned Beetle program public outreach



# Beetle buster program

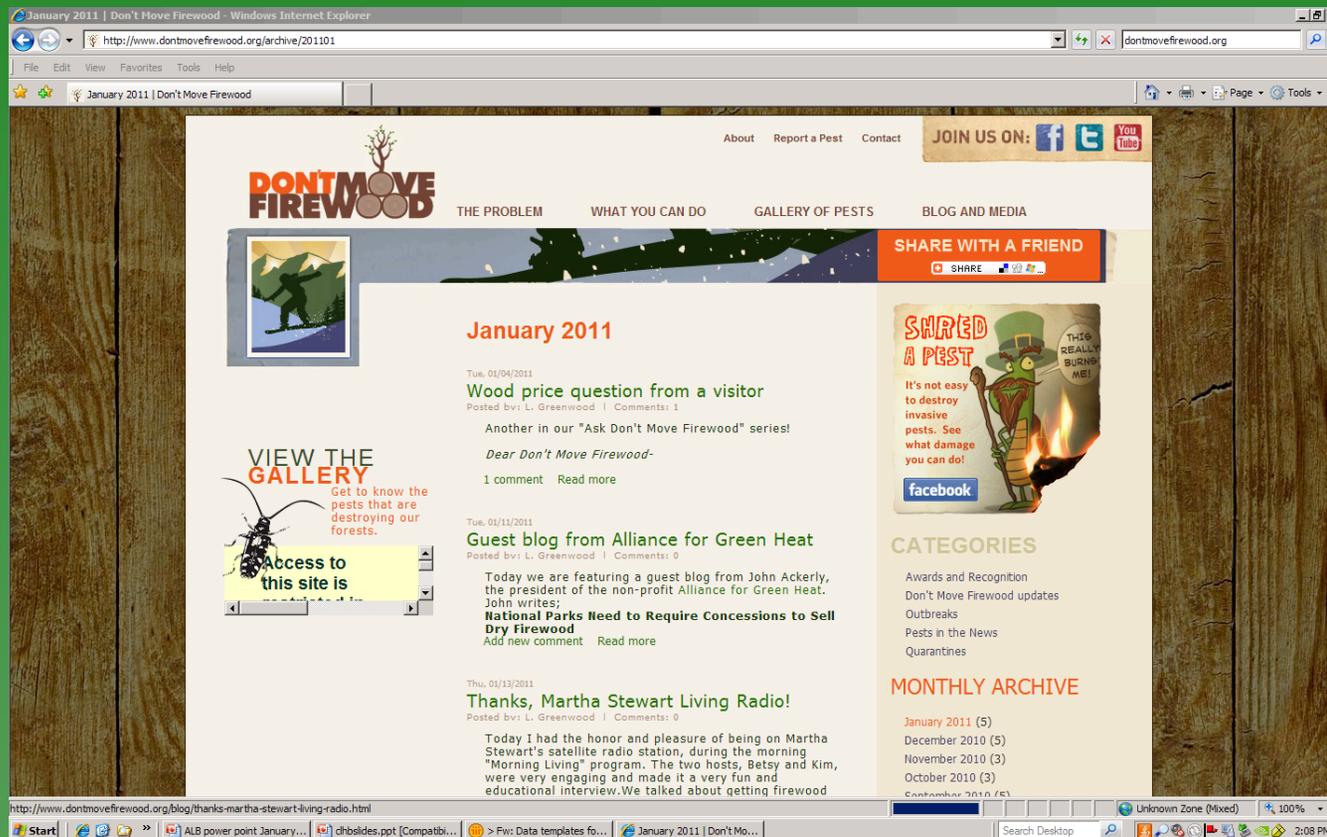


The screenshot shows the BeetleBusters.info website. At the top, there is a navigation bar with links for NEWS, RESOURCES, and CONTACT, along with a search box. The main header features the BeetleBusters.info logo and a banner that says "Spot it. Report it. BeetleBusters.info" with a "Replay" button and the USDA logo. Below the header is a menu with links: WHAT IS ALB?, WHERE IS IT?, WHAT DOES IT LOOK LIKE?, WHAT IF YOU FIND IT?, and BE A BEETLE BUSTER.

The main content area is titled "THE ASIAN LONGHORNED BEETLE IS KILLING OUR TREES." It includes a sub-header "ALERT! BEETLE NOW IN BOSTON" with a "LATEST UPDATE" badge. The text explains that the beetle is killing trees and provides information about its presence in the Boston area. A large image of the beetle is shown on the right. Below the image are links for "KNOW THE BEETLE" and "KNOW THE SIGNS".

At the bottom, there are three sections: "is your area affected?" with a map key, "quarantine zones" with a "LIVE OR WORK IN A QUARANTINE ZONE?" prompt, and "be a BEETLE BUSTER" with a "LEARN MORE TO HELP STOP THE BEETLE" prompt.

# Firewood outreach program



The screenshot shows the 'Don't Move Firewood' website in a Windows Internet Explorer browser window. The address bar shows the URL <http://www.dontmovefirewood.org/archive/201101>. The website features a navigation menu with links for 'About', 'Report a Pest', and 'Contact'. A 'JOIN US ON:' section includes social media icons for Facebook, Twitter, and YouTube. The main content area is titled 'January 2011' and lists three blog posts:

- Wood price question from a visitor** (Posted by: L. Greenwood | Comments: 1)  
Another in our "Ask Don't Move Firewood" series!  
*Dear Don't Move Firewood-*  
1 comment Read more
- Guest blog from Alliance for Green Heat** (Posted by: L. Greenwood | Comments: 0)  
Today we are featuring a guest blog from John Ackerly, the president of the non-profit Alliance for Green Heat. John writes;  
**National Parks Need to Require Concessions to Sell Dry Firewood**  
Add new comment Read more
- Thanks, Martha Stewart Living Radio!** (Posted by: L. Greenwood | Comments: 0)  
Today I had the honor and pleasure of being on Martha Stewart's satellite radio station, during the morning "Morning Living" program. The two hosts, Betsy and Kim, were very engaging and made it a very fun and educational interview. We talked about getting firewood.

On the right side, there is a 'SHARE WITH A FRIEND' button, a 'SHRED A PEST' graphic with a cartoon insect, and sections for 'CATEGORIES' (Awards and Recognition, Don't Move Firewood updates, Outbreaks, Pests in the News, Quarantines) and 'MONTHLY ARCHIVE' (January 2011 (5), December 2010 (5), November 2010 (3), October 2010 (3), September 2010 (5)).

# Could ALB come to Alaska

- Wood packing material
- Firewood
- Nursery stock- including bonsai trees that hobbyists mail order.



## **What should you do if you think you may have found ALB**

If you are in Alaska- contact the office of State Plant Health Director.

Ann Ferguson

USDA APHIS Plant Protection & Quarantine

1700 E Bogard Rd Bldg ,B Ste 101

Wasilla, AK 99654

Phone: (907) 357-9549

Fax: (907) 357-9548

Email: [Ann.Ferguson@aphis.usda.gov](mailto:Ann.Ferguson@aphis.usda.gov)

If you are able, photograph the beetle and e-mail to the Alaska State Plant Health Director.

If you have captured a specimen, place in an airtight secure container and place in the freezer.