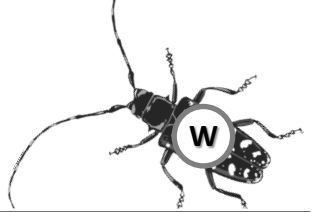
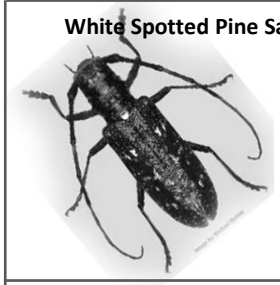
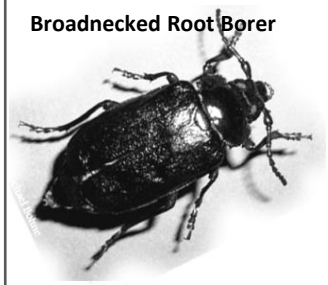
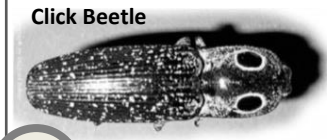
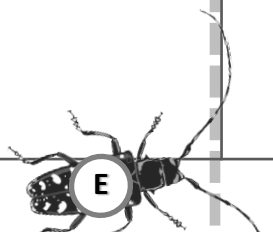
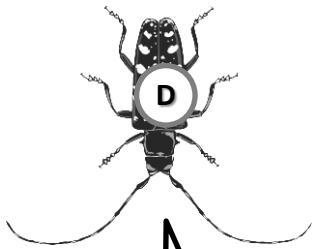
Not every large beetle out there is an ALB! Some native insects are often mistaken for ALB. Here are a few of them. Fill out this chart to compare and contrast these native 'lookalikes' to the real invasive pest!



Insect	Long Antennae?	Striped Antennae?	Body Color	White Spots?	Eats Healthy Maples?
Asian Longhorned Beetle	Yes	Yes	Black	Yes	Yes
White Spotted Pine Saywer 			Brown		No, only eats conifers
Broadnecked Root Borer 			Black		Only eats dead wood
Brown Prionid Beetle 			Brown		Only eats dead wood
Click Beetle 			Black		No, eats leaf litter



ALB CROSSWORD PUZZLE



If you're stuck, look through this booklet for hints!

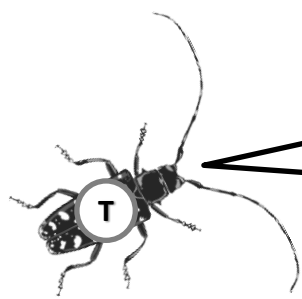
MAPLE MATH

When ALB was discovered in Worcester, many trees had to be cut down. In fact, they're still cutting them down! So far, 30,000 trees have been destroyed. Here's a math problem you can solve that will help you visualize how much that really is:

A mature maple tree weighs about one ton. An adult blue whale weighs about 200 tons. How many blue whales' weight in trees have been cut down in Worcester?

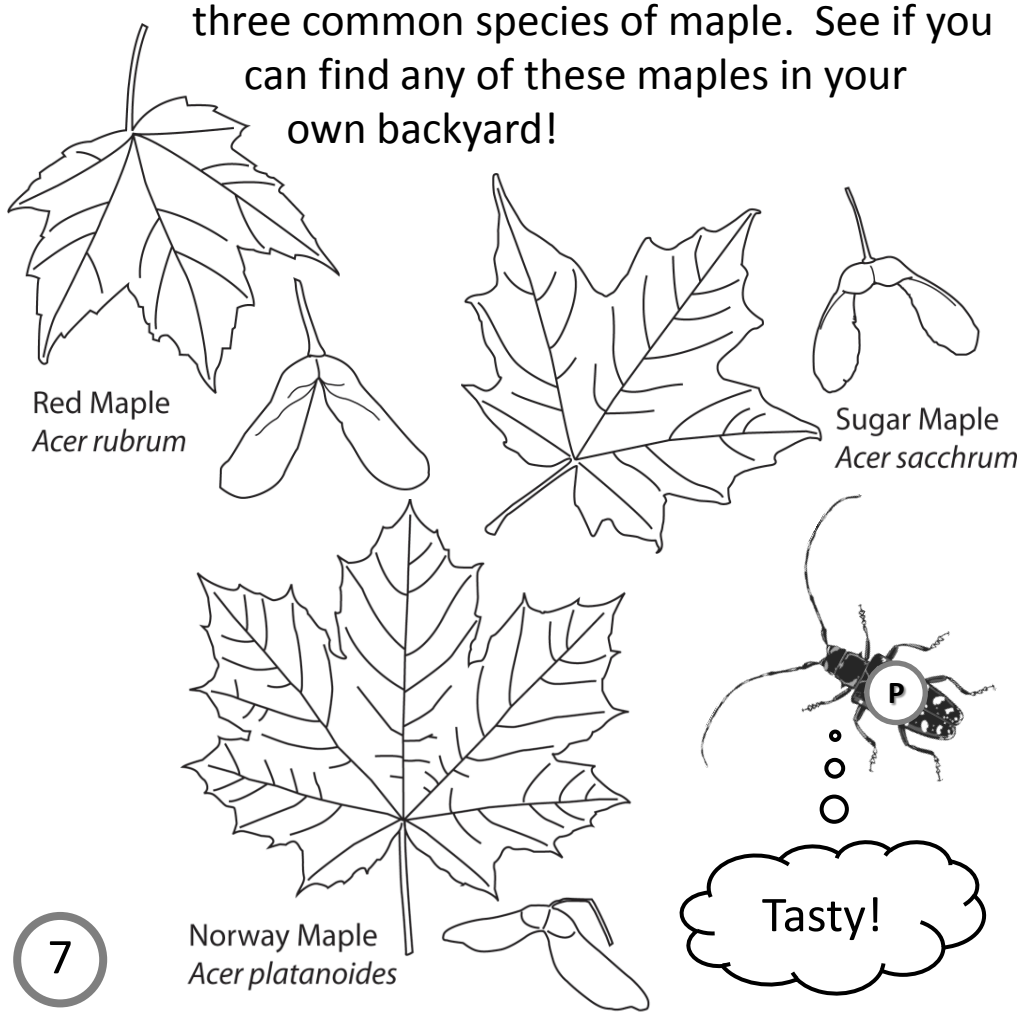
Not difficult enough? Here's a bonus question:

Only 6 maple trees were cut in Boston because of ALB. How many Boston infestations would it take to equal the weight of just one blue whale?



Whales may weigh a lot more than maples, but I'm sure they don't taste half as good!

Maples are an important part of our native forests. Their fall foliage is beautiful, and they provide the sap from which maple syrup is made. Maples have **opposite** branches, like your arms. Their leaves are **palmate**, meaning the leaf veins spread like the fingers from the *palm* of your hand. The seeds are sometimes called **pinwheels** because they spin like tiny helicopters as they drop down from the trees. Here are the leaves and seeds of three common species of maple. See if you can find any of these maples in your own backyard!



DOWN

1. An ALB larva turns into this in the spring.

2. ALB eggs are laid under this part of the tree.

3. This booklet is about the Asian Longhorned _____.

4. This type of species causes damage to the native environment.

6. The continent where ALB originally came from.

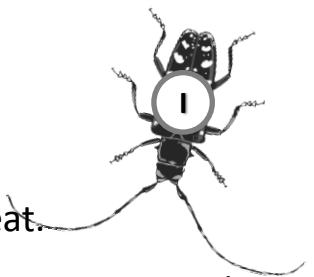
9. What ALB feeding eventually does to host trees.

10. Use local firewood, don't bring it from ____.

11. Size of the exit hole made when adult ALBs come out of the tree.

14. The pest you've been learning about!

ACROSS



3. ALB have this body color.

5. ALB have long _____.

7. The primary host tree ALB loves to eat.

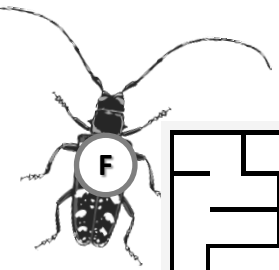
8. The life stage of ALB that causes the most internal damage to trees.

12. Maple trees have _____ branches.

13. Trees provide this on a sunny day.

15. The ALB is this type of six-legged animal.

ALB larvae create winding tunnels in the heartwood of host trees. Follow this ALB larva on its path to becoming a pupa:



ENTER

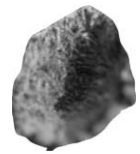
EXIT

ALB DAMAGE - EXTERNAL

Some of the damage ALB causes can be recognized on the outside of the tree:

Dime-sized exit holes, made by ALB adults coming out of the tree.

Oviposition sites, made by female ALBs laying eggs into the tree.



Can you spot the ALB damage on this tree trunk? Find the exit hole and oviposition site on the cross-section on the previous page.
What stage of ALB do you think causes the most damage , and why?

ALB DAMAGE - INTERNAL

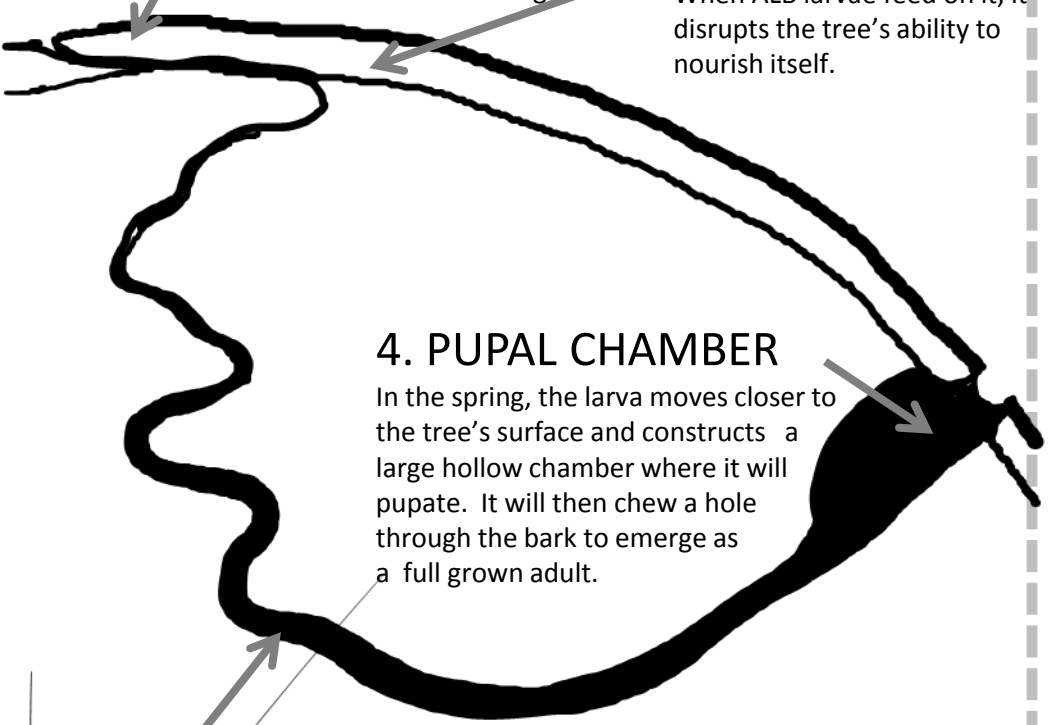
ALB larvae are incredibly destructive, but most of the damage they cause happens on the inside of the tree, where we can't see it. This cross-section of a tree shows the path of destruction a larva causes as it grows and feeds.

1. BARK

ALB eggs are laid underneath the bark. Once they hatch, the larvae begin feeding.

2. CAMBIUM

This thin layer is where the tree transports nutrients and sugars. When ALB larvae feed on it, it disrupts the tree's ability to nourish itself.



4. PUPAL CHAMBER

In the spring, the larva moves closer to the tree's surface and constructs a large hollow chamber where it will pupate. It will then chew a hole through the bark to emerge as a full grown adult.

3. SAPWOOD/HEARTWOOD

This part of the tree is made of dead wood and is important for transporting water and keeping a large tree sturdy. ALB larvae bore into this part of the tree during the winter, causing structural damage.

FIREWOOD AND ALB

ALB spends a lot of its life as a larva inside the wood of the tree. People are now being urged to buy and burn local firewood instead of bringing it from home. These two facts are related!

Bringing firewood from home risks spreading any pests that might be inside that firewood to your destination!

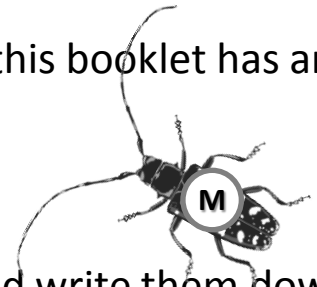
Think of the pests as if they were cold viruses. You wouldn't give a used tissue to your friend, because then they would catch your cold!

Thomas B. Denholm, New Jersey Department of Agriculture, Bugwood.org

Which places do you think are most at risk for getting ALB and other pests from firewood?

CRACK THE CODE!

Each page of this booklet has an ALB with a letter, like this:



Find them all and write them down here, then use them to reveal the messages on the following page:

Page 1: ____

Page 2: ____

Page 3: ____

Page 4: ____

Page 5: ____

Page 6: ____

Page 7: ____

Page 8: ____

Page 9: ____

Page 10: ____

Page 11: ____

Page 12: ____

Page 13: ____

Page 14: ____

Page 15: **M**

Page 16: ____

Page 17: ____

Page 18: ____

HOST TREES

Maples are ALB's primary host, meaning it is their favorite type of tree to feed on. However, it is not the only kind of tree they attack! Use the decoder on the right to discover some other trees that are sometimes attacked by ALB.

? ☺ 👎 👽 ◆ = **M A P L E**

☼ 🌎 ✋ ★ 🗲 = ___ ___ ___ ___ ___

◆ 👽 ? = ___ ___ ___

🗲 ♫ ✋ ☸ ◆ ★ 🗲 ◆ ☸ ✂ 👂 〰 ✂ =

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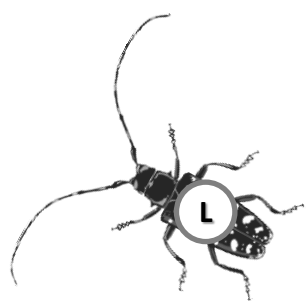
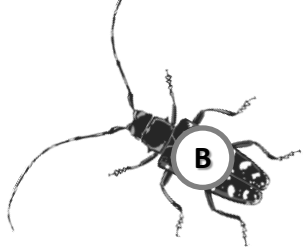


A = ☺
B = ☼
C = ★
D = ☹
E = ◆
F = ▽
G = 🡄
H = 🗲
I = 🌎
J = 🕷
K = ●
L = 👽
M = ?
N = 👂
O = ♫
P = 👎
Q = ☠
R = ✋
S = ☸
T = ✂
U = 〰
V = ✷
W = ☽
X = ⁂
Y = ❤
Z = 🏝

ALB LIFE CYCLE



As it grows, an Asian longhorned beetle undergoes a process called '**complete metamorphosis**,' just like butterflies.

There are 4 **stages**:

EGGS are laid by adult beetles in the summer and fall. They hatch about 2 weeks later.

The **LARVA** feeds on trees in the summer and fall, and will hibernate inside the tree during the winter.

The **PUPA** develops inside the tree during the spring.

ADULTS are active in the summer and early fall.

What other insects can you think of that go through complete metamorphosis?

Using the code on the preceding page, discover 3 important messages:

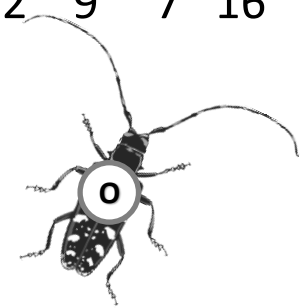
__	__	__		__	__	__	__	
6	4	3		9	6	8	1	

				__	__	__	__	__!
				8	2	9	9	1

					,												
__	__	__	__		__	__	__	__									
11	5	14	8		15	5	17	9									

__	__	__	__	__	__	__	__	__!									
13	12	2	9	10	5	16	11										

__	__	__	__	__	__		__	__	__!								
2	9	7	16	2	8		6	4	3								

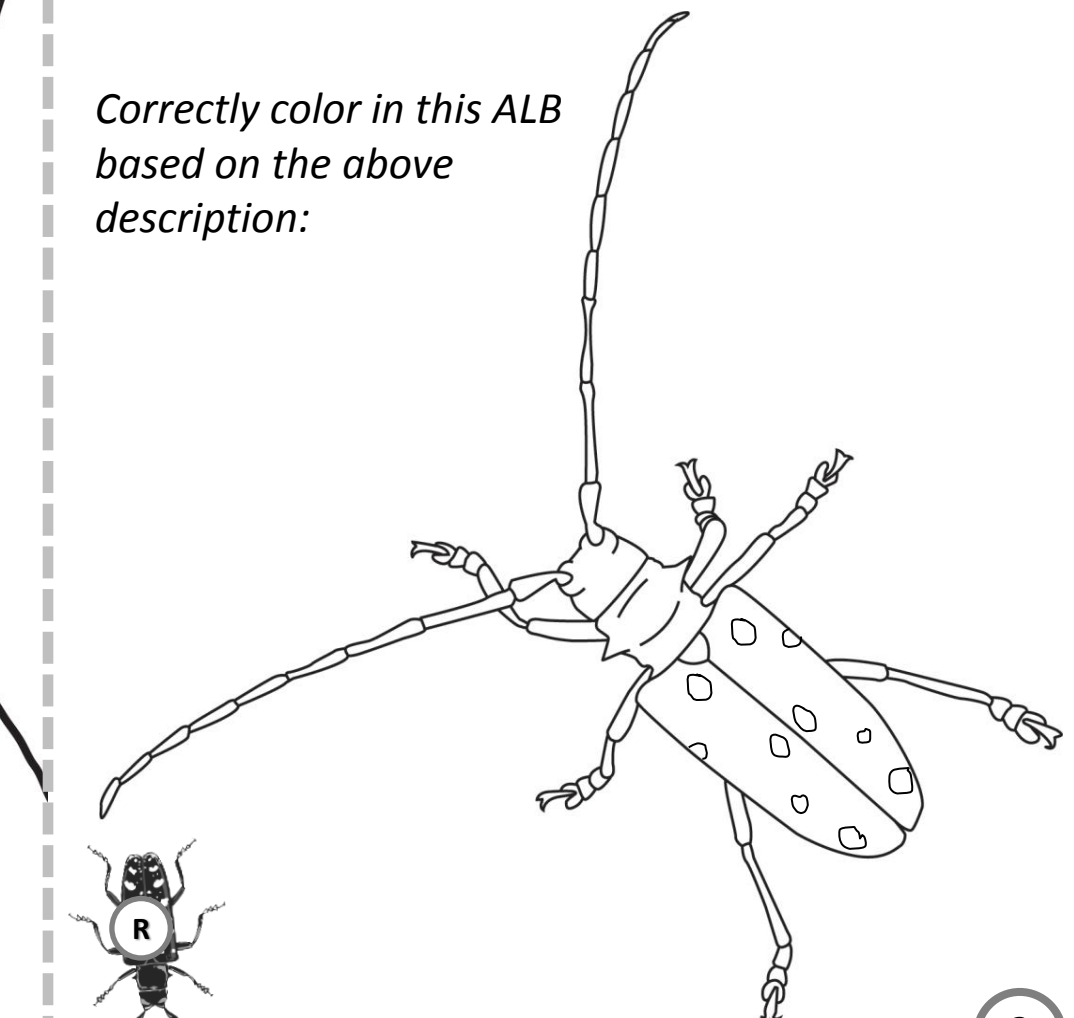


Name one big difference between these two

MEET THE ALB

The Asian longhorned beetle is **black** in body color. It has **symmetrical white spots** on its wing cases. It has long, **black and white striped antennae**, and it has **blue feet**.

Correctly color in this ALB based on the above description:



INTRODUCTION

Not all alien invaders are from another planet! The **Asian longhorned beetle** (ALB) arrived in North America as larvae in wooden pallets or crates from **Asia**. This beetle prefers to eat **maple** trees but will attack other hardwoods such as **elm**, **willow**, **horsechestnut**, **birch**, **sycamore**, and **poplar**. When ALB attacks a tree, it eventually kills it.

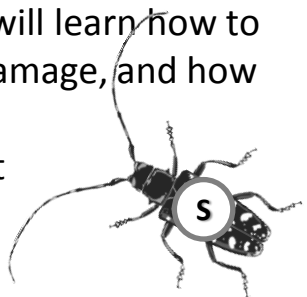
ALB is an **invasive** species, which means it causes damage to the **native** environment - the trees and animals that already live there. Losing trees means losing the shade they provide, the lumber they produce, maple syrup, and even colorful fall leaves.

ALB was first found in New England when it was discovered in Worcester, Massachusetts in August 2008. It is thought that the infestation was there for over ten years before it was found. Because of this, over 30,000 trees have since been cut down in Worcester.

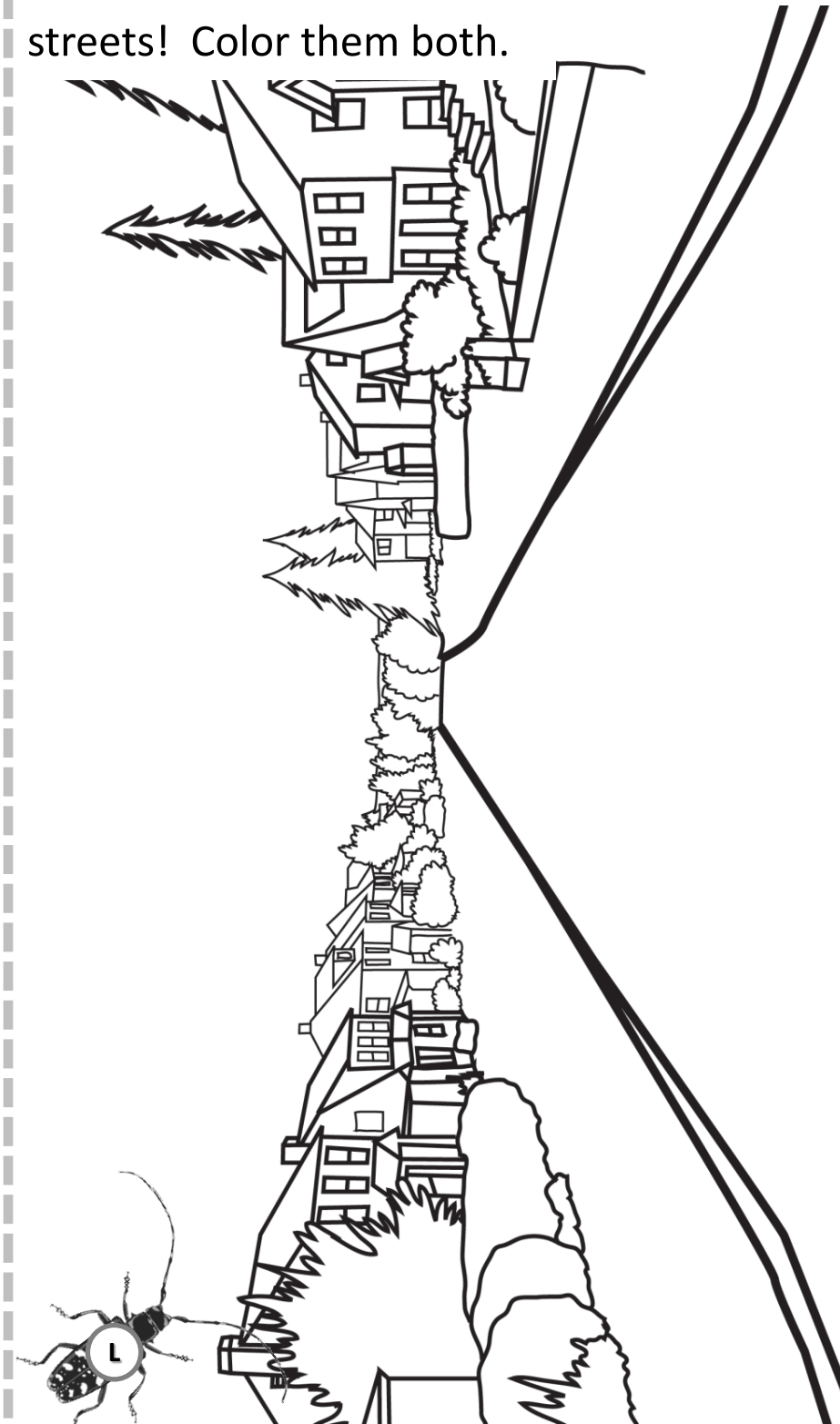
In July 2010, a second ALB infestation was discovered in Boston MA. Because this infestation was discovered so early, only 6 trees were lost.

It is clear that public awareness of ALB is an important weapon in the fight to keep ALB from destroying our native woodlands. If this insect is discovered early, the damage and loss of trees can be minimized.

By completing this activity book, you will learn how to recognize Asian longhorned beetle, its damage, and how to prevent this invasive pest from destroying one of New England's most precious resources: our forests.



streets! Color them both.



If you think you've seen this invasive pest in Connecticut, call

The Connecticut Agricultural Experiment Station:

(203) 974-8474

Or email **CAES.StateEntomologist@ct.gov**

For anywhere else in New England:

(866) 702-9938

For more information on
Asian Longhorned Beetle, visit:
www.beetlebusters.info

PURDUE UNIVERSITY

This booklet was adapted from a Purdue University Entomology Department publication.

THE ASIAN LONGHORNED BEETLE ACTIVITY BOOK

Learn all about this invasive alien invader!