

# FIREWOOD MOVEMENT AND THE EMERALD ASH BORER

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### Introduction

For decades, chestnut blight, Dutch elm disease, and the gypsy moth have wreaked havoc on the forests of North America. Today, another round of invasive pests including the Sirex wood wasp, Asian longhorn beetle and the emerald ash borer (EAB) are demonstrating their negative impacts. In particular, the EAB (*Agrilus planipennis* Fairmaire) is having far reaching consequences for rural and urban forest managers, owners and users. Because the spread of EAB in the U.S. has been linked to the movement of firewood from infested to non-infested areas, the consequences to firewood producers, marketers, and users is significant. This report addresses the current status of EAB and firewood movement in the United States including quarantines, regulations, and options for the firewood industry.



Source: David Cappaert, Michigan State University, Bugwood.org

### The Spread of EAB

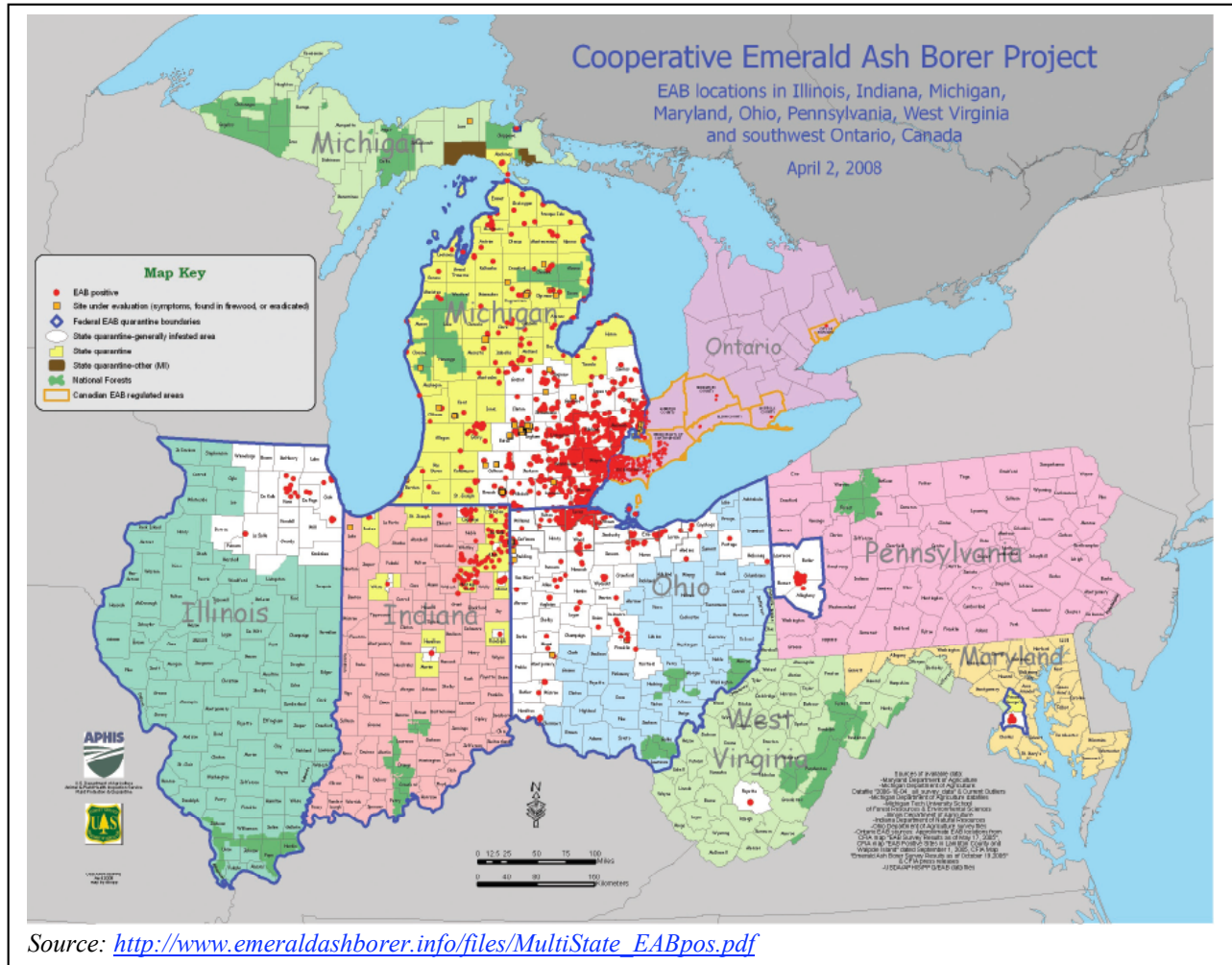
The emerald ash borer (EAB) is a small, half-inch long metallic-green beetle native to Asia. The beetle was discovered near Detroit, Michigan, and neighboring Windsor, Ontario, in the summer of 2002. The borer probably arrived in the U.S. sometime in the early to mid-1990's on solid wood packing material carried in cargo ships or airplanes originating in Asia. Since 2002, EAB has been found in Ohio and Maryland (2003), Virginia (infestation eradicated in 2004), Indiana (2004), northern Illinois (2006), and western Pennsylvania and south-central West Virginia (2007). In Michigan alone, one estimate is that the EAB has damaged or destroyed nearly 20 million ash trees. The potential economic impact nationwide could be in the billions of dollars.

The spread of EAB has likely been due to the movement of infested ash material including trees (nursery stock), logs (from woodlots to sawmills), yard waste (tree branches and trimmings), and firewood. Fortunately, tree nurseries, sawmills, and commercial waste haulers can be identified, contacted, and educated about EAB and the dangers of moving infested material. However, firewood poses a bigger challenge. In addition to the commercial firewood industry, there is a long list of individuals who “handle” firewood as cutters and/or users. For example, urban homeowners, rural landowners, second-home or cabin owners, campers, hunters and others can easily, and unknowingly, move infested firewood.<sup>1</sup>

#### Ash Infested with EAB Still Suitable for Products

The adult beetles of emerald ash borer feed on ash foliage but cause little damage. The larvae—or immature stage—feed on the inner bark of ash trees (*Fraxinus* spp.), disrupting the tree's ability to move water and nutrients. Since the larval feeding galleries are confined to the outer ½ inch or so of the tree, the vast majority of the wood in an infested ash tree is untouched by the EAB. Lumber, dimension parts, railroad ties, and other ash products can be manufactured from dead or dying trees.

<sup>1</sup> According to Robert Heyd, Michigan DNR, a quarantine was placed on ash nursery stock immediately after the discovery of EAB in the state. Subsequently, the majority of “outlier” infestations of EAB have been traced to firewood movement. (Pers. Comm., March 26, 2008)



## EAB Quarantines

In order to slow the spread of EAB, quarantines have been adopted in infested states. State quarantines make it illegal to move ash trees, ash logs, ash branches, other ash “materials”, and all hardwood (non-coniferous) firewood out of a quarantined area. For example, if county A is under a state quarantine and neighboring county B is not, then ash materials and hardwood firewood could NOT be moved from county A to county B unless a compliance agreement is in place (see sidebar).

In addition to quarantines administered by a state agency, Federal quarantines also have been imposed. Federal quarantines are in effect in Michigan (Lower Peninsula), and statewide in Ohio, Indiana, and Illinois. These quarantines prohibit the movement of ash materials and hardwood firewood and hardwood chips across state borders (between states).<sup>2</sup> As an example, a logger in northern Illinois cannot legally move ash logs to a mill in southern Wisconsin because the entire state of Illinois is under a Federal quarantine (unless a compliance agreement is in place stipulating the terms of import).

<sup>2</sup> Federal EAB quarantines also exist in selected counties in Maryland, Pennsylvania, and West Virginia.

## The Firewood Issue

As noted above, firewood movement presents a unique situation because so many people “handle” firewood. Also, the average firewood “mover”—including users and homeowners—cannot distinguish ash wood from other species of hardwood such as oak, hickory, or maple. Therefore, due to the potential risk, EAB quarantines regulate “all hardwood firewood,” not just ash. In a nutshell, the regulation against moving “all hardwood firewood” out of a quarantined area is the dilemma, and the challenge, for the firewood industry.<sup>3</sup>

### “Don’t Move Firewood” Campaigns

If you drove through the Mid-western states during 2006, you might have seen roadside billboards targeting campers, hunters, vacationers, and other outdoor enthusiasts. Billboard messages such as “Don’t Move Firewood” and “Pack Marshmallows, Not Firewood” were aimed at individuals who typically think nothing of throwing some wood in the back of their pick-up or SUV to burn at a campsite, perhaps many miles from home. In addition to billboards, ongoing publicity efforts via radio, television and newspapers in the Mid-west encourage the burning of firewood in the vicinity where it was cut (within 50 miles, for example, or within the same county).

Many states have adopted specific regulations restricting firewood movement (in addition to the State and Federal quarantines). For example, Indiana has banned the movement of all hardwood firewood originating from a quarantined county into any Indiana state park, reservoir, or state forest. Illinois has a similar restriction pertaining to state Department of Natural Resources’ properties.

Even states without a confirmed “find” of EAB are moving aggressively to prohibit firewood movement. The Minnesota State Legislature passed a law in 2007 restricting firewood entering Department of Natural Resources-administered land to only firewood approved by the DNR. Approved firewood includes wood sold by the DNR, wood

#### Compliance Agreements and EAB

A common question from wood-using industries is, “Are there any exceptions to the regulations prohibiting moving ash wood from a quarantined area to a non-quarantined area?” Fortunately, the answer is “yes” and comes in the form of a “compliance agreement.” Simply stated, a compliance agreement is a written agreement between state and/or federal government and a business involved in growing, handling, or moving regulated articles (ash wood for example) in which the business agrees to comply with specific provisions. These provisions—or safeguards—enable normal “commerce” to continue without an undue risk of spreading the EAB. For example, a logger, shipper, or wood utilization firm in a quarantined area can use a compliance agreement to legally and safely move ash products. Using Ohio as an example, over 100 forest product-related firms in the state currently are “compliant” with EAB quarantine regulations. Specific information on compliance agreements is available from the appropriate State Department of Agriculture (in some states the State Department of Natural Resources has regulatory authority).

<sup>3</sup> For more information on EAB federal regulations and quarantine notices, see the USDA Animal and Plant Health Inspection Service (APHIS) web site at: [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/emerald\\_ash\\_b/quarantine.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/quarantine.shtml).

obtained from an approved vendor or clean, dimensional lumber. Persons interested in becoming a firewood supplier to the Minnesota DNR may apply on-line for inclusion on the “approved DNR vendor” list. Private individuals and vendors can apply as long as the wood is sourced within Minnesota and within 100 miles of the DNR facility where it will be used.

In Wisconsin, the DNR has a rule prohibiting visitors from bringing firewood into Wisconsin state parks and onto other state-managed-lands from locations farther than 50 miles away. Kentucky state park campgrounds banned out-of-state firewood in 2007.

National Forests have also gotten into the “leave your firewood at home” campaign. The Superior and Chippewa National Forests in Minnesota and the Chequamegon-Nicolet in Wisconsin (as examples) prohibit transport or use of firewood gathered outside of the state. Following the discovery of EAB in Pennsylvania in 2007, the Allegheny National Forest (ANF) banned all firewood originating from outside a 4-county area surrounding and/or encompassing the ANF. Specific regulations on other national forests in the eastern region of the U.S. can be found by contacting the headquarters or district office for a specific forest.<sup>4</sup>

### **What Can the Firewood Industry Do?**

Fortunately, there are options for firewood manufacturers, transporters, and dealers. As noted in the sidebar, compliance agreements can be used by the firewood industry.<sup>5</sup> Basically, a compliance agreement spells out the specific steps that must be taken by the producer to safely and legally move firewood (and other ash materials) out of a quarantined area.

Four options are available to the firewood industry—specifically firewood “dealers” or processors—to become “compliant” regarding firewood and EAB.<sup>6</sup>

- *Remove all bark and an additional ½ inch of wood.* This treatment is self-explanatory. A debarker could be used to remove the bark and the outer ½ inch of sapwood. Logs with bumps, crooks, forks, etc., make it very difficult, however, for a debarker to remove 100 percent of the bark. If this option is selected, processors need to demonstrate that no bark remains on any firewood shipped from their facility.
- *Follow a kiln drying treatment.* This treatment is only an option for material three inches or less in diameter or thickness (primarily for lumber). The kiln, temperature recording equipment, humidity sensors and temperature sensors must be approved by the U.S. Department of Agriculture, Animal Plant Health Inspection Service (APHIS).

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<sup>4</sup> <http://www.fs.fed.us/r9/>

<sup>5</sup> Federal EAB compliance agreements are not available to firewood manufacturers who are outside of an EAB quarantined area.

<sup>6</sup> Firewood producers interested in shipping interstate out of a quarantined area can call the U.S. Department of Agriculture, Animal Plant Health Inspection Service (APHIS) hotline number at 1-866-322-4512.



- *Fumigate according to a treatment schedule.* This must be done by a licensed fumigator and the fumigator must already have a compliance agreement with USDA APHIS. This option is rarely used by firewood processors.
- *Heat treatment.* Heat treatment procedures can use steam, hot water, kilns, or any other method that raises the temperature of the center of the wood to at least 160 degrees F (71.1 C) and holds the center temperature for at least 75 minutes. As with kiln drying, the heat treatment equipment must be approved by USDA APHIS. Many firewood processors are using this option to treat their wood and become “compliant.”

### General Recommendations for Industry

In addition to compliance agreements, the firewood industry must be diligent in a number of other ways, even if EAB is not currently at their doorstep.

Know the quarantine areas. Firewood producers must keep up-to-date on new EAB discoveries and the location of quarantine areas. Even if the beetle is not in a business’s county of operation—or even state—the firm will be impacted if wood is shipped into a quarantined area (once in the quarantine area the wood becomes “regulated” so re-sale to a non-quarantined area would be a problem). The best one-stop source for EAB information, including maps of EAB infestations, is: <http://www.emeraldashborer.info/index.cfm>.

Know the product “flow.” It’s important to know where logs come from and where firewood products are shipped. As noted above, a firewood businessperson could be hundreds of miles from a quarantine area and still encounter legal, safety, marketing, or other problems. Ignorance of the law is not an excuse.

### Indiana Hardwoods

According to Dave Hudgins, Indiana Hardwoods in Chandler, Indiana, was the first producer in the Hoosier State to receive USDA firewood certification. Hudgins, a co-owner of Indiana Hardwoods, explained that completing the certification process and compliance agreement that allows him to ship firewood out of a quarantine zone was not a difficult task.

“We started our firewood business about two years ago—before there was a statewide quarantine”, said Hudgins. “Because we already had dry kilns for our hardwood lumber business, we specialized in kiln-dried firewood—about 18 percent moisture content—packaged in 0.75 cubic foot bundles and sold either in a plastic bag with a handle or stretch wrapped. Our markets were in a half-dozen or so states.”

In December 2006 the entire state of Indiana was placed under an EAB quarantine, prohibiting the movement of hardwood firewood out of Indiana. Hudgins contacted USDA APHIS who visited the mill and took measurements of the internal (core) temperatures of the firewood in his kilns. Hudgins typically dries his firewood for three days in stackable wire mesh baskets with the ambient air temperature reaching about 200 degrees F. The USDA measurements found that after two days of drying the core temperature of his firewood met or exceeded the required 160 degrees F for 75 minutes.

“After USDA determined that we were in compliance with their regulations, we were issued our USDA certification stamp,” said Hudgins. “The stamp goes on all the paperwork sent with the wood we ship out-of-state.”

As far as re-inspections by USDA, Hudgins noted, “An inspector will drop by the mill on occasion just to make sure we’re still meeting the government requirements. It’s not a problem for us since we run a good operation.”

See <http://www.indianahardwoods.net/firewood.htm> for more information on Indiana Hardwoods’ firewood operation.

Think beyond EAB. There are many different forest product quarantines currently in effect. Gypsy moth, Asian longhorn beetle, and sudden oak death are examples of pests that have resulted in quarantines. EAB is just one of many insects and diseases that can negatively impact firewood and other wood-using businesses.

If in doubt, seek help. Contact the appropriate Department of Agriculture for advice and assistance with EAB or other pests. The State Forester's office can also point individuals in the right direction. At the Federal level, assistance is available from USDA APHIS, (<http://www.aphis.usda.gov/>).

### **Role of the Firewood User**

Even if the firewood industry complies 100% with federal and state quarantine regulations, the spread of the EAB will continue at a rapid rate if firewood users—homeowners, campers, hunters, and others—ignore the threat. While EAB only spreads a few miles a year on its own, it can travel 55 miles per hour in a vehicle when it hitchhikes a ride. Keeping EAB out of non-infested areas provides “time” for research, planning, and forest management to limit future impacts.

A recent study by The Nature Conservancy (TNC) provides insight into the “Don't Move Firewood” media campaigns and related publicity efforts since 2002. The study included four focus groups and surveys of 600 adults (300 in both the Midwest and Northeast) regarding their firewood habits. Key findings from study participants include:

- 31% thought invasive species were NOT a serious threat;
- 69% had heard something about not moving firewood;
- 90% would be “very or somewhat willing” to use only local firewood;
- 9% of firewood users move wood over 100 miles;
- 10% of firewood users transport wood from one location to use in another location 5 or more times per year;
- Two-thirds would support (“strongly” or “somewhat”) paying slightly more for firewood if they knew it was free from pests;
- 81% would support (“strongly” or “somewhat”) regulating the transport of firewood into state parks or state lands;
- 58% would support (“strongly” or “somewhat”) regulating firewood transport across state lines;
- 46% would support (“strongly” or “somewhat”) a state tax on firewood for use in combating the spread of invasive species;

In short, the TNC study provides optimism that media campaigns and related publicity and educational efforts can change the behaviors of many firewood users. The study also provides a dose of reality that controlling the spread of invasive pests is not an easy task. For example, even though 90% of survey participants are very or somewhat willing to use only local firewood, 10% of respondents are not willing to do so. This presents an obvious problem since non-compliance by a few can completely undermine the conscientious efforts of the majority.

## The Bottom Line

It will take a continued pro-active approach by both the firewood industry and firewood users to curb the spread of EAB. To date, positive progress has been made, but much work is yet to be done.

Because of regulations and quarantines, the by-gone days of unfettered firewood trade between counties, states, and even regions might be a practice of the past. If the movement of firewood continues to be correlated with the spread of EAB, then more stringent Federal and State regulations and penalties will likely be forthcoming. Even if a satisfactory and economical control for EAB is discovered, other exotic pests that are artificially spread by firewood will pose problems, and must be addressed.

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