



Partners News

Partners in Forestry Landowner Cooperative Newsletter July 2006

Notes From the Chair

Joe Hovel

This issue of Partners News highlights the very real recent threat to our forest landscape, the Emerald Ash Borer.

With all the recent buzz on this pest we felt it appropriate to try to address this in the newsletter and more importantly with the enclosure to update your invasive folder. I would like to thank John Schwarzmann, Barb Loar, and Joe Le Bouton for their efforts in making this mailing possible.

Roland, as chair of the public relations committee, is leading plans for a workshop that will emphasize how globalization complicates forest management on our own family forests in northern Wisconsin. Mark your calendar for this workshop, which will be held at Trees for Tomorrow in Eagle River on September 30. Another mailing will be sent prior to registration with the final schedule for the day.

The Wisconsin Public Service Corporation proposal to develop their land holdings in the Upper Peninsula and Wisconsin continues to unfold. Near Merrill, a lengthy public zoning process has halted Naterra's proposed development at Lake Alexander (on WPS lands). WPS has countered by filing suit in circuit court against Lincoln County and two Towns in an attempt to overturn the public process.

Since we originally mentioned this story over six months ago, I have remained steadfast in my view that the proposed developments are NOT compatible with the FERC licenses, which emphasize Public values at these flowages. This lawsuit leaves me very suspect as to how ethically they are working with the public process in the U P. I have continued to call on the affected local governments to promote economic development in a sustainable fashion by attracting value-added, non-polluting forest product manufacturing. I have also asked WPS (UPPCO) to manage these flowage lands for forestry and public recreation, in turn saving their image and avoiding the strain this new infrastructure is sure to place on ailing communities.

As if we are not faced with enough challenges to our forest lands, much of the Northwoods is facing another summer of drought, causing concern for young plantings and more tree diseases.

If you have concerns or contributions for PIF do not hesitate to contact me.

Newsletter Submissions

Have a problem you need addressing? Noticed an issue that needs to be aired? The Partners News can be your venue to answer these questions. All members are encouraged to send any articles, announcements, or items of interest for inclusion in this newsletter. Submissions can be mailed, faxed, or emailed to PIF at:

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Emerald Ash Borer Threatens Northern Forests

Joseph LeBouton

This issue of the Partners In Forestry newsletter we have two items related to the Emerald Ash Borer (EAB). The first is board member Barb Loar's article on the ecological, social, and economic importance of ash trees, and on how to identify the three main species that are found in Wisconsin. The second item is a description of the biology and identification of the insect, and management suggestions, as an insert that can be placed in your PIF Landowners Guide to Invasive Plants and Pests binder for easy reference. The insert was put together by PIF member and Board of Commissioners of Public Lands forester John Schwarzmann.

EAB presents a huge challenge for forestry in Wisconsin, as it does in Michigan, Indiana, and Illinois, and throughout the entire range of ash. It has the potential to kill large numbers of the three different species of ash that occur naturally in Wisconsin, and nothing short of drastic measures are likely to change that. Like Dutch Elm disease that severely reduced the occurrence of American elm nationwide, and Chestnut Blight that did the same for the American chestnut, the Emerald Ash Borer is a serious threat to an important forest species. Enacting management policies to control EAB are further complicated by private property rights, and by the difficulty of coming to an agreement between scientists, land managers, and individual landowners about the best approach to controlling the spread of the insect that causes the disease. Currently, the experience in Michigan is that there is no economical way to eradicate the insect. There is no pesticide that can be aerially applied, and there are no known biological controls on EAB. The only hope is in cutting down all the ash trees within a certain radius of each and every identified EAB infestation site, regardless of who owns those trees. Private property rights advocates understandably struggle with this solution. However, the EAB beetle does not recognize property lines, so one landowner's decision or resistance to eradicating infected ash on his or her property almost certainly condemns the ash trees of all of his neighbors within a square mile to infestation and death. In the absence of a clear decision and a positive way forward that can be understood and accepted by the public and by private landowners, EAB will continue to be a thorny issue.

As serious as it is on its own, EAB is also an indicator of one of the threats posed by global transport of natural resource goods. Foreign species are constantly introduced into North America both intentionally (by florists, greenhouses, gardeners, pet stores, etc.) and unintentionally (by insect-infected pallets on container ships, and by intentional imports that are un-intentionally infected by fungus or insects). Some of those species are relatively harmless and pretty much stay where we plant them. Others are aggressive invaders that our North American ecosystems have not evolved to control. Thus we have the Starling, an aggressive bird intentionally imported from Europe, but which turns out to displace native birds. We also have purple loosestrife, originally imported as an ornamental but which escaped and is taking over wetlands, displacing native plants that are important food sources for native wildlife. There are many examples, but the things they have in common is that these pests arrive on our shores at the hands of people, and the aggressive invasive plants, animals, fish, and insects have the potential to wreak havoc on our forests both ecologically and economically.

PIF is planning a workshop in late September to address the threats and challenges that globalization poses to the sustainable management of our northern forests. Invited speakers will address both economic challenges, including prices and markets, and ecological challenges including exotic invasive insects such as EAB. Details will be announced in the next newsletter. For now, we hope that the two EAB articles are useful to you, and that they start you thinking about the larger issues of how we can protect and manage our northern forests in the face of ecological and economic challenges posed by globalization. Please plan to bring your questions, comments, suggestions, and insights to our workshop on the 30th of September.

Emerald Ash Borer



Fig. 1 Adult insect.

An exotic beetle from Asia was discovered in July 2002 feeding on ash (*Fraxinus* spp.) trees in southeastern Michigan. It was identified as *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae). Larvae feed in the cambium between the bark and wood, producing galleries that eventually girdle and kill branches and entire trees. Evidence suggests that *A. planipennis* has been established in Michigan for at least six to ten years. More than 3000 square miles in southeast Michigan are infested and more than 5 million ash trees are dead or dying from this pest. This exotic pest is also established in Windsor, Ontario, Canada. In 2003, newly

established populations were detected in other areas of southern Michigan and several locations in Ohio. Infested ash nursery trees were also found in Maryland and Virginia.

Identification

Adult beetles are generally larger and a brighter green than the native North American species of *Agrilus* (Fig. 1). Adults are slender, elongate and 7.5 to 13.5 mm long. Males are smaller than females and have fine hairs on the ventral side of the thorax, which the females lack. Color varies but adults are usually bronze or golden green overall, with darker, metallic, emerald green wing covers. The top of the abdomen under the wings is metallic purplish red and can be seen when the wings are spread. The prothorax, the segment behind the head to which the first pair of legs is attached, is slightly wider than the head but the same width as the base of the wing covers. Larvae reach a length of 26 to 32 mm, are white to cream-colored and dorso-ventrally flattened. The brown head is mostly retracted into the prothorax and only the mouth-parts are visible externally. The 10-segmented abdomen has a pair of brown, pincer-like appendages on the last segment.



Figure 2. Galleries excavated by larvae.

Biology

The emerald ash borer generally has a one-year life cycle in southern Michigan but could require two years to complete a generation in colder regions. In 2003, adult emergence began in early June, peaked in late June and early July, and continued into late July. Beetles usually live for about 3 weeks and are present into mid-August. Adult beetles are active during the day, particularly when conditions are warm and sunny. Most beetles remain in protected locations in bark crevices or on foliage during rain, heavy cloud cover, high winds, or temperatures above 32°C (90°F). Beetles feed on ash foliage, usually in small, irregularly-shaped patches along the margins of leaves.

Females can mate multiple times, and egg laying begins a few days after the initial mating. Females can lay at least 60 to 90 eggs during their lifetime. Eggs are deposited individually in bark crevices on the trunk or branches. Eggs hatch in 7 to 10 days.

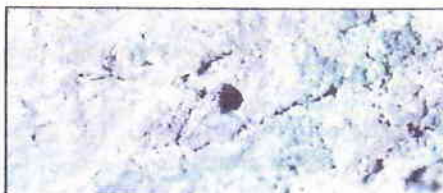


Fig. 3 D-shaped exit holes

After hatching, first instar larvae chew through the bark and into the cambial region. Larvae feed on phloem and the outer sapwood for several weeks. The S-shaped feeding gallery winds back and forth, becoming progressively wider as the larva grows (Fig. 2). Galleries are packed with fine, sawdust-like frass. Individual galleries often extend over an area that is 20 to 30 cm in length, though the length of the affected area can range from 10 to 50 cm or longer.

Feeding is completed in autumn and pre-pupal larvae overwinter in shallow chambers excavated in the outer sapwood or in the bark on thick-barked trees. Pupation begins in late April or May. Newly eclosed adults often remain in the pupal chamber for 1 to 2 weeks before emerging head-first through a D-shaped exit hole that is 3–4 mm in diameter (Fig. 3).

Distribution and Hosts

The emerald ash borer is native to Asia and is known to occur in China, Korea, Japan, Mongolia, the Russian Far East and Taiwan. A Chinese report indicates high populations of the borer occur primarily in *Fraxinus chinensis* and *F. rhynchophylla* forests. Other reported hosts in Asia include *F. mandshurica* var. *japonica*, *Ulmus davidiana* var. *japonica*, *Juglans mandshurica* var. *sieboldiana* and *Pterocarya rhoifolia*. In North America, this borer has only attacked ash trees. Green ash (*F. pennsylvanica*), white ash (*F. americana*) and black ash (*F. nigra*), as well as several horticultural varieties of ash have been killed.



Fig. 4 Infested tree dying from the top down.

Symptoms

It is difficult to detect emerald ash borer in newly infested trees. Jagged holes excavated by woodpeckers feeding on pre-pupal larvae may be the first sign that a tree has become infested. When a tree has been infested for at least one year, the D-shaped exit holes left by emerging adults will be present on the branches and the trunk (Fig 3). Bark may split vertically above larval feeding galleries. When the bark is removed from infested trees, the distinct, frass-filled larval tunnels that etch the outer sapwood and phloem are readily visible on the trunk and branches. An elliptical area of discolored sapwood, usually a result of secondary infection by fungal pathogens, sometimes surrounds larval feeding galleries.

Serpentine tunnels excavated by feeding larvae interrupt the transport of nutrients and water within the tree during the summer. Foliage wilts and the tree canopy becomes increasingly thin and sparse as branches die. Many trees appear to lose about 30% to 50% of the canopy after 2 years of infestation and trees often die after 3–4 years of infestation. Epicormic shoots may arise on the trunk of the tree, often at the margin of live and dead tissue. Dense root sprouting sometimes occurs after trees die.

Emerald ash borer has killed trees of various size and condition in Michigan. Larvae have developed in trees and branches ranging from 2.5 cm (1 inch) to 140 cm (55 inches) in diameter. Stress likely contributes to the vulnerability and rapid decline of infested ash trees. However, emerald ash borer has killed apparently vigorous trees in woodlots and urban trees under regular irrigation and fertilization regimes.

Recommendations

- In commercial woodlots, cut all mature white ash, black ash, and green ash trees above 15 inches in diameter if they are veneer quality or 18 inches in diameter if they are sawtimber. Dead trees lose their commercial value quickly.
- Keep as much space as possible between healthy immature trees. Isolated trees will be harder to find for the insect. Foresters speculate that keeping as low as one ash tree per acre in a woodland comprising other species may help the tree escape infection.
- Do not transport ash firewood. If you must burn ash firewood, only use local sources. Transporting firewood can spread the insects, because the larvae can hide under the bark.
- Look for D-shaped exit holes on your ash trees in your yard. Early detections may enable a small infestation to be eliminated by cutting the host ash trees in a relatively small area.

WHY SAVE THE ASH?

Barbara Loar, Board of Directors, PIF

If the Emerald Ash Borer comes to Wisconsin as it has to our neighbors in Michigan and most recently Illinois, experts say it could wipe out the Ash trees in Wisconsin. To date we have been spared EAB, so we are in a good position to PREVENT this disaster from happening. But, WHY SAVE THE ASH? As property owners, do we know if we have Ash trees... and are they healthy? Emerald Ash Borer favors the white ash, green ash, and black ash. Read on about these trees....

The most common is the American or white ash (*Fraxinus americana*). It is a large deciduous tree (50' to 60'tall) with a straight trunk and pyramidal to oval crown. It is deep green in summer and beautiful shades of maroon and purple in fall. As a landscape tree it is best suited for lawns and park-like settings, as it needs room and sun to grow its best. In forests with other hardwoods it likes moist soils, especially deep well-drained loams. As a native ash, it is more likely to be found in mid- to southern Wisconsin.

The wood of the white ash is yellowish white and fairly light weight. As such it is highly prized for making baseball bats, tennis racquets, hockey sticks, polo mallets, playground equipment, lawn chairs, porch furniture, and garden tool handles. The list goes on: church pews, floors of homes and bowling alleys, oars, keels of small boats, airplanes, and farm wagons. Everywhere that strength and lightness must be combined, white ash is used.

As an urban tree, white ash is a favorite. No tree makes less litter, and, "when a white ash grows old, it is apt to bear great horizontal arms, strong and springy from which a swing may safely be hung."

The green (or swamp) ash, *Fraxinus pennsylvanica*, is most common in moist soils along streams in floodplain forests. It is the most widespread native ash extending east and west almost to the Rocky Mountains. It can be found throughout Wisconsin.

The wood of the green ash has many of the same fine qualities of white ash, and as the latter grows scarcer, green ash supplants it in industry. For example, almost all oars and paddles are now made with green ash, which unfortunately weighs more. Used as fuel, this ash splits easily and has a fuel value 90% that of white oak.

Valued as an urban tree, green ash is adaptable to a wide range of soil types and growing conditions. It is noted for its strong, oval habit and glossy green foliage which turns a brilliant yellow in fall. Green ash is an excellent fast-growing tree for lawn or street planting, and grows to 50' or 60'tall.

Ash Tree Identification



Ash seeds



Mature ash bark characteristics



Ash leaf

Taken from MI State Univ.
Extension Pub. E-2942

(continued on next page)

The black ash, *Fraxinus nigra*, favors deep, cold swamps. It is also known as "hoop ash" and "basket ash." The most northerly of all native ashes, it grows along with tamarack, black spruce, and arborvitae in the Northwoods. On drier soil in the north, it grows with hemlock, balsam fir, hard maple and yellow birch. Farther south, it lines stream beds with elm, soft maple, and willow. It can be found throughout Wisconsin.

Black ash lacks the strength of other ashes, but it has the capacity for splitting easily into very thin, yet tough pieces. Indians used these strips for fish baskets, and the white man made woven chair bottoms and barrel hoops. Although some minor uses were known from washboards to church pews, it has not been a great commercial timber tree. Of interest to me was that black ash growing in supersaturated and oxygen deficient conditions are especially likely to develop BURLS. Some burls as big as washtubs develop on the trunks of old swamp-grown trees. Veneers of black ash burl look like contour maps of mountainous regions. Curly ash, as lumbermen call the burl grains, is cut as veneer and sold to cabinet makers who esteem it as perhaps the MOST beautiful of all American woods.

The black ash is not considered an "attractive" tree for the urban landscape.

SO: WHY SAVE THE ASH?

In the urban landscape, white ash and green ash have replaced the elm as boulevard, backyard, and park trees. They are colorful, hardy, fast-growing, and leave little leaf litter. In the forest, from the north to the south in Wisconsin, ash is considered a lowland hardwood. It provides wood for a wide variety of everyday products from lawn furniture, garden tools, baseball bats and oars, cabinets, baskets, fuel wood, and much, much more.

REFERENCES:

- The Audubon Society Field Guide to North American Trees. Knopf, 1980
- A Natural History of Trees of Eastern and Central North America. Peattie, 1991
- Forest Trees of Wisconsin, Wisconsin DNR, 1990
- International Paper Pocket Guide to Trees. Rushford, 1992
- Landscape Planner. Greenview Nursery, Dunlap, IL 2001
- Wisconsin Forest Management Guidelines, Wisconsin DNR, 2003
- Woodland Management, Wisconsin Woodland Owners Association, 2006

Tax Law Update

An update from the Wisconsin Department of Revenue Sales and Use Tax Report (June 06) may be of interest to members regarding forest management activities. By this time next year, the Farming Exemption will be expanded to include forest land management. The law change announcement reads as follows:

"Effective July 1, 2007, the gross receipts from the sales of and the storage, use, or other consumption of lubricants, non-powered equipment, and other tangible personal property that are used exclusively and directly, or are consumed or lose their identities, in the business of farming will be exempt from Wisconsin sales and use taxes. In addition, the definition of "farming" is expanded to include silviculture."