

Emerald Ash Borer in North America

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Emerald Ash Borer adults emerging from the bark of an ash tree. (USDA-Forest Service photo, http://nrs.fs.fed.us/disturbance/invasive_species/eab)

Emerald ash borer (*Agrilus planipennis*) is another in a long list of invasive insect pests that have impacted our forest ecosystems, thus the aesthetics and management of recreational trails and campgrounds in these systems. This species is having a substantial impact over a significant portion of the eastern United States. Furthermore, the geographical range and magnitude of its impact are increasing.

Importance to Trail Riders

The spread of European Ash Borer (EAB) impacts means that our trail systems and campgrounds in many areas will have increasing numbers of dead trees. Dead trees in appropriate numbers and distribution should be valued as important wildlife habitat. But where they exist in large numbers and high densities resulting from disease and insect epidemics, they greatly degrade the aesthetic value of the trail and camp experience. High tree mortality usually adds to management costs in time and money as the trail and camp manager must strive to maintain safe conditions, in this case, preventing personal injury as well as damage to vehicles, trailers, and camping equipment that might result from falling dead tree limbs as well as whole trees.

The importance of EAB impacts on our forests has caused federal, state and provincial regulatory agencies to enforce quarantines and fines in **Michigan, Illinois, Indiana, Maryland, Minnesota, Missouri, Ohio, New York, Ontario, Pennsylvania, Tennessee, Virginia, West Virginia, Wisconsin, and Kentucky to prevent potentially infested ash trees, logs or hardwood firewood from moving out of areas where EAB occurs.**

Horse campers should be especially aware of state and federal firewood quarantines associated with EAB. Since most people cannot identify ash firewood, quarantines restrict the hauling of all firewood out of regulated areas. This means horse campers should plan to obtain firewood near the camping destination in states both where EAB is established, as well as in many regions where it has not yet been detected. Loggers and sawmills also have restrictions on movement of harvested logs and “raw” forest products.

Trail riders are strongly encouraged to obtain tree identification information and learn to identify ash. For guidance see http://www.anr.msu.edu/robertsd/ash/ashtree_id.html. Be alert for dying or declining ash trees as indicators of infestation. Look for the characteristic D-shaped

adult emergence holes in the bark of dead or declining trees. The beetles are about ½ inch long and metallic green (a color not unique to EAB beetles). Intense woodpecker feeding injury can be another clue to an EAB-infested ash, as woodpeckers are strongly attracted to the larvae. Trail riders could be valuable scouts for landowners and managers by reporting immediately any findings of EAB infestations.

Trail riders are encouraged to check the website <http://www.emeraldashborer.info/> for the latest information on the currently known range of EAB infestations and quarantines.

About the Beast

EAB was first discovered in southeastern Michigan in 2002. It was probably imported in solid wood packing materials arriving by ship or aircraft from its native Asia. Since that time it has been documented to have killed tens of millions of ash trees in Michigan alone. In addition, it has been responsible for mortality of tens of millions ash trees in another 15 states - Michigan, Illinois, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, New York, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Wisconsin. It is also impacting forests in Ontario and Quebec, Canada.

The adult beetles feed selectively on ash foliage but cause little damage. The larvae (the immature stage) feed on the inner bark of ash trees, disrupting the tree's ability to transport water and nutrients. The most common and widely distributed species of ash (black, blue, green, pumpkin and white) have been found susceptible to EAB attack.

EAB follows a one- or two-year life cycle. The larvae (prepupa) remain within the sapwood – bark interface of ash trees during the winter. Pupae and adults emerge in spring through mid-June. Adults mature while feeding on ash foliage for about two weeks, then lay eggs in or on the bark of ash trees from late June into August. Upon

hatching, the larvae bore through the bark to the live tissue between the bark and wood where they feed and ultimately kill the tree.

Presently there are few insecticide options for treating high-value individual ash trees for EAB in developed areas (urban areas and farm and rural home sites) and no practical means for protecting ash in wild forest ecosystems. Natural parasites of EAB obtained from Asia are being tested as potential biocontrols. The discovery of occasional “lingering” ash trees that survived EAB infestations has prompted research into the possibility of some natural resistance within our native ash populations. These and other potential means of EAB control await further research. **Meanwhile, the likelihood remains that mature trees of all ash species within our forests will be lost.**

White ash and green ash have the largest geographical ranges of the ash species and are therefore the most likely to be encountered by trail riders. However, black ash deserves special note because of the cultural value in its use by Native Americans as a traditional material for pack baskets and snowshoe frames. It is presently used for these purposes and for a variety of contemporary Indian basketry. Black ash is limited to wet soils and swampy sites of southeastern Canada and the northern half of the eastern U.S.

Landscape Impacts

What will the loss of ash as a species mean? Both white ash and green ash have been widely used in ornamental plantings, and the cost of removal is a significant financial burden to homeowners and municipalities where EAB occurs. Beyond economic concerns, ash trees will no longer grace our streets, parks and home landscapes. Both white ash and green ash have been used extensively in rehabilitation plantings on disturbed areas such as strip-mined lands. In addition to no longer being usable for this purpose, the loss of ash from established plantings will inhibit forest recovery on disturbed sites.

In natural forests, the loss in timber value alone is already significant. Private landowners and managers of public forestlands must work to adapt new management strategies for removing mature ash ahead of EAB infestation and salvaging dead or dying trees in the aftermath. Ecologically, white ash and green ash are pioneer species that readily establish in open areas following timber harvesting, fire or agricultural abandonment. These species also persist as a component of mature forests, occurring in at least nine ecosystems from spruce in the North to loblolly-shortleaf pine in the South. Seeds of ash are eaten by a variety of birds, from wood ducks to finches, and by squirrels and other rodents. Green ash is an especially important forest species along riparian corridors of the western plains.