

EMERALD ASH BORER AFTERMATH FORESTS: THE FUTURE OF ASH ECOSYSTEMS

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ABSTRACT

The effects of emerald ash borer (EAB) (*Agrilus planipennis*) on forest ecosystems are being studied through a collaborative research program between the U.S. Forest Service and The Ohio State University. We are monitoring ash demographics, understory light availability, EAB population dynamics, native and non-native plants, and effects of ash mortality on other organisms and ecosystem processes in monitoring plots in forests in Ohio and Michigan.

In long-infested plots where 99.9 percent of ash trees have died, there are many established ash seedlings (191/ha) but very few new ash seedlings (<0.1/ha). Saplings too small for EAB to colonize are present (6/ha), but larger ash saplings and trees are very rare (<1/ha). The few large ash trees that have survived in these forests are being examined in collaboration with other FS and OSU researchers for possible resistance

to EAB. In contrast, more recently infested plots with many live ash trees experienced a mast seed year in 2008, and the density of new ash seedlings averaged 35,000/ha in 2009. EAB population data from purple traps suggest that EAB populations peak, crash, and then persist at low densities in aftermath forests, probably surviving on ash saplings as they reach susceptible size.

As ash trees die in infested stands, understory light levels may increase gradually in stands without adequate mid-story or sapling trees of other tree species. Non-native plant species are generally present in ash ecosystems, with individual species distributions dependent on geography, habitat, and land use history. Invasive plant species may be facilitated by increased understory light in EAB aftermath forests.