

# EFFECTS OF EMERALD ASH BORER (*AGRILUS PLANIPENNIS*) ON FOREST ECOSYSTEMS

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## ABSTRACT

The effects of emerald ash borer (EAB) (*Agrilus planipennis* Fairmaire) on forest ecosystems are being studied through a collaborative research program involving U.S. Forest Service Northern Research Station (Research Work Unit 2) and Ohio State University. In more than 250 monitoring plots in forests in Ohio and Michigan representing a gradient of EAB infestation duration, we are monitoring the decline and mortality of thousands of ash (*Fraxinus* spp.) trees, the responses of both native and invasive plant species, changes in species composition and forest structure, and effects on other organisms and ecosystem processes. The plots are located in forest stands of different ages and in different habitats to include all five ash tree species native to the region (*F. americana* L., *F. pennsylvanica* Marshall, *F. nigra* Marshall, *F. profunda* Bush, and *F. quadrangulata* Michx.). Annual monitoring began in 2004 and continues to the present.

Our research has resulted in several key findings. Mortality of mature ash trees in a forest stand may reach 98 percent within 6 years of infestation by EAB and is not affected by the density, basal area, or species composition of ash trees. In areas that have been infested the longest, only 0.8 percent of mature ash trees remain alive while many ash seedlings and approximately one-third of ash saplings are alive. EAB persists at low densities in these stands. Invasive plant species are present in most plots, however, their percentage cover is generally low. These plants may increase in abundance due to canopy gaps that result from ash mortality. EAB may impact other species, including woodpeckers, carabid beetles, and native parasitoid wasps in these forest ecosystems.