

DOES FOREST COMMUNITY STRUCTURE INFLUENCE SUSCEPTIBILITY AND RESPONSE TO EMERALD ASH BORER?

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ABSTRACT

The ability of invasive species to invade native landscapes may be influenced by community composition. Emerald ash borer (*Agrilus planipennis*) has already caused considerable mortality of ash in southeast Michigan forests and is now invading forests in northwest Ohio. However, the ecological impact of this mortality is unknown. The objectives of this research are to 1) characterize effects of community composition and structure on forest susceptibility to emerald ash borer invasion, and 2) quantify community response to ash (*Fraxinus* spp.) decline and death. Invaded stands are being characterized by quantifying density and basal area of ash and other woody species, percent canopy cover, and soil moisture along a gradient from dry upland sites to low wetland sites. Degree of emerald ash borer colonization is being quantified by estimating ash canopy dieback and counting D-shaped emergence holes and woodpecker attacks on the boles of infested trees. Community response to ash decline and death is focused on species replacing ash in the canopy, sapling release, and seedling establishment, as well as exploitation of canopy gaps by invasive plants. Plots are being mapped via GIS to provide opportunities for study of long-term effects of emerald ash borer on successional trajectories. This study will increase understanding of impacts of invasive insects on forested ecosystems, and enhance implementation of emerald ash borer containment and eradication efforts.