



OS I-09

## **Vegetation responses to simulated emerald ash borer infestation in *Fraxinus nigra*-dominated wetlands: Implications for management**

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The invasive emerald ash borer (EAB) (*Agrilus planipennis* (Coleoptera: Buprestidae)) is a significant threat to biodiversity and ecosystem processes in North American forests. Forests with a high proportion of ash (genus: *Fraxinus*) - such as the black ash (*F. nigra*) forests of the northern Great Lakes region - are of particular concern, due to the large quantity of forest canopy potentially at risk. A multi-year manipulative experiment to assess the potential short- and long-term effects of ash mortality on co-occurring vegetation was conducted on the Ottawa National Forest, Upper Michigan, USA. Within the overstory, growth rates of residual non-ash stems were unaffected by treatment over three post-treatment growing seasons, while positive understory responses were limited to the short-term treatment type. Mortality of *F. nigra* did not impact overall stem recruitment or regeneration, although species composition is shifting towards *Acer rubrum* (red maple) and *Betula alleghaniensis* (yellow birch) in the seedling layer. The herbaceous community exhibited the greatest response, nearly doubling in areal cover by the end of the study. Major implications for management are two-fold. First, preemptive removal of ash stems from the overstory of ash-dominated forests may reduce or delay positive growth responses from co-dominant species. Second, responses of herbaceous species lagged ash mortality by several years but were dramatic, suggesting that attempts to facilitate woody regeneration by planting should take place soon after EAB infestations are detected to improve chances of success against increased competition with herbaceous species.

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