

POTENTIAL DISTRIBUTION OF THE EMERALD ASH BORER (*AGRILUS PLANIPENNIS*)

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Abstract

The emerald ash borer (EAB; *Agrilus planipennis*), native to temperate forests of eastern Asia, has become established in the states of Michigan and Ohio, and the Canadian province of Ontario. In North America, this beetle attacks and kills ash trees (*Fraxinus* spp.); three species (white [*F. Americana*], black [*F. nigra*], and green [*F. pennsylvanica*]) are known to be vulnerable to EAB. Lacking an evolutionary history with this pest, many North American ash species may lack defenses against this herbivore and be particularly susceptible to attack. To determine the extent of EAB potential geographic distribution, we used the Genetic Algorithm for Rule-set Prediction (GARP) to model the ecological niche of this species in its native range, and then projected this model onto North America. Our preliminary analyses indicate EAB potential distribution overlaps > 50% of the geographic range of nine North American ash species. Spread of EAB in North America poses serious socioeconomic and biodiversity consequences such as the loss of urban shade trees and potential elimination of *Fraxinus* spp. across much of their geographic range.