

## **Abstract**

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Emerald Ash Borer (*Agrilus planipennis*) is an exotic invasive beetle that affects all species of true ash trees (*Fraxinus* species) in New Jersey. EAB was first detected in New Jersey in the summer of 2014. The full extent of EAB infestation in New Jersey is not yet known. The present research built a spatially explicit probabilistic EAB dispersal (SPEABD) model to predict high risk EAB infested zones across New Jersey. Specifically, SPEABD estimated the EAB spread using biological flight dispersal and human induced dispersal using vector grid landscape in Geographic Information System (GIS) environment. Potential dispersal and urban ash health trajectories from SPEABD model were linked to calculate estimated loss value of urban ash trees in New Jersey. The cost-benefit analysis is used to evaluate economic impact of EAB for three management scenarios. These management plans include no action, replace all ash trees and treatment of ash trees.