

ASSESSMENT OF AN APPARENTLY ISOLATED POPULATION OF EMERALD ASH BORER IN UPPER MICHIGAN

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ABSTRACT

Emerald ash borer (EAB) (*Agrilus planipennis* Fairmaire) is an exotic forest pest of ash that is native to Asia. Since its discovery in North America in 2002, it has been found in 13 U.S. states and 2 Canadian provinces and has killed more than 50 million trees in Michigan, Ohio, and Indiana alone. The presence of EAB in Houghton County, MI, was confirmed in August of 2008. This was the northernmost find of EAB in North America at that time and more than 250 miles from the closest known population.

More than 90 ash trees have been destructively sampled to help determine how EAB has spread in Houghton County. Larval density and exit holes were quantified on all sample trees. Preliminary dendrochronological analysis indicates EAB has been present in Houghton County for at least 6 years.

Traditional EAB delimitation surveys involving grids of girdled trap trees and/or baited purple panel traps are costly and time consuming. A visual ground survey using a novel technique was initiated during the summer of 2009 to determine the extent of the ash resource and visual signs and symptoms of EAB

around the Houghton County infestation. Transects were run in the four cardinal and four intercardinal directions for 3.2 km radiating outward from a known infested tree. Basal area by species was assessed with a 10 BAF prism every 161 m, and a 0.04-ha fixed-radius plot was established every 805 m. All trees larger than 5 cm d.b.h. were tallied, and any ash tree found was assessed for vigor, dieback, crown light exposure, canopy position, and signs and symptoms of EAB. Point quarter sampling was also performed at each prism point, and any ash trees within 20 m were assessed within each quadrant. Ground survey located two additional infestations 0.8 km south and 1.2 km southwest of the original EAB find. Another population was located by an earlier ground survey in October of 2008 0.8 km west of the initial find. Transects were run from each of these additional populations, but no new infestations were located.

Destructive sampling and dendrochronology work will continue during the winter of 2009-2010. The rapid assessment of EAB infestations and ash resources using the radiating transects will be further evaluated in 2010.