LIVING WITH EMERALD ASH BORER: EFFECTS OF INSECT AND HOST DENSITY ON TRAPPING SUCCESS

Jessica A. Metzger[1], Ivich Fraser[2], Andrew J. Storer[1], Damon J. Crook[3], Joseph A. Francese[3], and Victor C. Mastro[3]

[1]Ecosystem Science Center, School of Forest Resources and Environmental Science
Michigan Technological University, 1400 Townsend Dr., Houghton, MI 49931

[2]USDA Animal and Plant Health Inspection Service, PPQ, Emerald Ash Borer Project
5936 Ford Court, Suite 200, Brighton, MI 48116

[3]USDA Animal and Plant Health Inspection Service, PPQ, Pest Survey,
Detection and Exclusion Laboratory, Otis Air National Guard Base, MA 02542.

ABSTRACT

Emerald ash borer (EAB) (*Agrilus planipennis Fairmaire*) (Coleoptera: Buprestidae), an invasive exotic wood-boring beetle native to regions of Asia, was first discovered on ash trees in southeastern Michigan in 2002. Since that time it has spread to and been detected in other areas of Michigan as well as in four additional states including Ohio and Indiana. Detection of EAB in areas of low population density has proven especially problematic. To date, the most effective trapping tool has involved the use of girdled trap trees. Research to develop improved detection tools for EAB has been ongoing since the beetle was first found in Michigan. Research to date has focused on chemical attractants, trap design, trap color, and ideal site selection for traps. This study aims to compare trapping technologies developed by a number of collaborating research groups at sites on a regional scale with a range of ash densities and EAB population densities. Tools tested included girdled trap trees of various ages and designs, incorporation of purple color into trap designs, and the incorporation of potentially attractive chemicals into trap designs. In the 2006 field season, the study included 62 sites distributed throughout Michigan, Indiana, and Ohio. Between 8 and 10 potential survey tools were tested at each site. Traps were established in late spring (May-June) 2006 and were monitored for adult EAB throughout the summer flight season. The health of all trap trees was evaluated in July using U.S. Forest Service protocols. In addition, trap trees were cut at each site and evaluated for the presence of EAB larvae in the fall. Preliminary analyses suggest that the effectiveness of different trap designs varies according to the density of ash at a site and the density of EAB. This study will be expanded and continued during the 2007 field season.