MULTI-STATE COMPARISON OF TRAPPING TOOLS AT SITES WITH LOW EMERALD ASH BORER DENSITY

Jordan M. Marshall[1], Andrew J. Storer[1], Ivich Fraser[2], and Victor C. Mastro[3]

[1]Michigan Technological University, School of Forest Resources and Environmental Science, Houghton, MI 49931

[2]USDA APHIS PPQ, Emerald Ash Borer Project, Brighton, MI 48116

[3]USDA APHIS PPQ PSDEL, Otis ANGB, MA 02542

ABSTRACT

Developing tools for detecting emerald ash borer (EAB) (*Agrilus planipennis* Fairmaire) has been a major focus of research efforts in recent years as the search for an effective detection survey methodology continues. The objectives of this study were to (1) compare the effectiveness of EAB detection trapping tools at low density sites in Indiana, Michigan, Missouri, New York, Ohio, Pennsylvania, Virginia, and Wisconsin, (2) identify the most effective of available trapping techniques for capturing EAB at low density, and (3) develop monitoring and trapping recommendations for managers in locations with and without confirmed EAB populations.

Trapping tools were compared within 79 sites, including a girdled trap tree with a plastic wrap trap, green prism trap hung at 13 m, purple prism trap at 1.5 m, purple prism trap at 6 m, and a double-decker purple prism trap in an opening 30 m from an ash tree. All prism traps had an 80: 20 manuka oil: phoebe oil lure. Traps were checked every 2 weeks and all adults were collected.

Green prism traps at 13 m captured the greatest number of EAB adults, but this was not significantly different from the purple prism traps hung at 6 m. There was a significant positive relationship between tree vigor and percent dieback with EAB adults captured for the green prism traps. Because the green traps are hung at 13 m in the canopy, trees with higher vigor ratings (i.e., poor health and less canopy) and greater percent dieback have greater amounts of sunlight penetrating the canopy and reaching the traps.

The detection of EAB adults was not independent of the different trap type used. The purple prism trap at 6 m and the double-decker trap had the highest rates of detection. It is important to note that whichever traps are incorporated into a survey program, none of these tested traps have 100-percent detection ability. The traps in this study were placed at sites where EAB had previously been detected and populations were known to exist. Even at sites where EAB is known to exist, none of the traps used in this study detected it at every site.