

EMERALD ASH BORER INFESTATION RATES IN MICHIGAN, OHIO, AND INDIANA

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ABSTRACT

The goal of this study was to obtain an estimate of the infestation rate of ash trees with emerald ash borer (EAB) (*Agrilus planipennis*, Fairmaire; Coleoptera; Buprestidae), across its primary infestation zone of southern Michigan, northeast Indiana, and northwest Ohio. A two-stage, two-phase stratified statistical sample was performed on a 31-million-acre area, across two sampling zones; a more heavily sampled 12.7-million-acre core zone, primarily in southeastern Michigan (the primary quarantine zone at the time), and a more lightly sampled area northwest and south of the core area.

Based on this sample, in the core area 21 percent of the ash were estimated to be infested with EAB, about 8 percent were dead with signs of EAB, about 13 percent were alive with signs of EAB. In the outer area, 13 percent of the ash trees were estimated to be infested with EAB, about

2 percent were dead with signs of EAB attack, and about 11 percent were alive with signs of EAB. U.S. Forest Service Forest Inventory and Analysis (FIA) estimates for the forested portions of the sampled area are that there are about 287 million ash trees (d.b.h. ≥ 2 inches). Based on our survey estimates, there are about 30.8 million ash trees in nonforest conditions in the survey area. Using the area-wide estimate of a 16.89 percent infestation rate, about 53.6 million ash trees in both forest and nonforest conditions were estimated to be infested with EAB by 2007. The approximate estimate of sample standard deviation of the infestation percent is 4.3, about 25 percent of the 16.89 percent mean infestation rate. The 95 percent confidence interval for the number of EAB infested trees in the survey area is from 24.7 million to 82.7 million trees.