

## SURVIVAL OF EMERALD ASH BORER IN WOOD CHIPS

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### ABSTRACT

Tremendous numbers of infested ash trees are being removed for control and ultimate eradication of the exotic emerald ash borer (EAB), *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae) which was discovered in southeastern Michigan and Windsor, Ontario in 2002. Quarantine regulations have been imposed which restrict movement of all life stages of the beetle in ash trees, limbs or cut firewood, ash logs and untreated ash lumber with bark attached, uncomposted ash wood chips and bark chips larger than one inch in diameter, and any other articles determined to present a risk. The greatest threat to the success of the eradication plan is artificial spread of EAB as a result of improper disposal or movement of infested material. The Michigan Department of Agriculture has implemented an incentive program for ensuring infested ash material is chipped within the core infested area by providing collection yards for ash trees and free access to a large grinder. The fate of EAB life stages in chip piles and bark chips used for incineration or landscaping, however, is unknown.

We conducted a study to determine survival of EAB in chips of different sizes. In late October 2002, eight heavily infested ash trees were felled and transported to a collection yard with a large grinder. Samples from each tree were dissected to determine larval density. Half of the remaining portions of each tree were ground into 1" chips and the other half into 4" chips. We collected samples of 1" and 4" chips from each tree using large plastic boxes (approximately 60 x 45 x 45 cm). The remaining chips were combined into a 1" chip pile or a 4" chip pile. No surviving EAB larvae were found in the sample box material, which was thoroughly hand-sifted. We also inspected the remaining chips in the two chip piles. No chips containing larvae were found in the 1" pile, whereas eight large chips in the 4" chip pile were found to contain live EAB larvae.

We prepared 49 sentinel chips by chiseling small sections of wood (approximately 5 x 8 cm) containing live overwintering larvae from infested ash logs and attaching a long section of nylon rope to each chip. The sentinel chips were buried at different depths within the two chip piles. In addition, temperature-recording dataloggers were buried in each chip pile. The chip piles were enclosed in screen tents and held outdoors until May 2003. Sentinel chips were removed from the chip piles and inspected for surviving larvae. Three prepupae were found in the one-inch chip pile, and three in the four-inch chip pile. Temperatures within the chip piles tracked ambient temperatures closely indicating that little or no heat was generated from composting within the relatively small chip piles. No EAB adults were captured in the screen tents. Overall, the results suggest that

if chips are to be stored for any length of time, they should be ground to a one-inch size to adequately destroy all EAB larvae. Larger chips should be incinerated promptly.