

IS BIOLOGICAL CONTROL A MANAGEMENT OPTION FOR EMERALD ASH BORER IN NORTH AMERICA?

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ABSTRACT

We began research on natural enemies of *Agrilus planipennis* Fairmaire (Buprestidae) in Michigan and China soon after its discovery in North America. From 2003-2004 in Michigan, parasitoids and fungal pathogens reduced *A. planipennis* larval populations by ca. 3 percent, and no egg parasitoids were confirmed. During 2005 in China, a gregarious larval endoparasitoid, *Tetrastichus* sp. (Hymenoptera: Eulophidae), and a solitary egg parasitoid, *Oobius agrili* (Hymenoptera: Encyrtidae), reduced *A. planipennis* populations by 56 percent. These results confirm the need for biological control of *A. planipennis* in North America. To that end, we developed methods

to rear these parasitoids in our quarantine laboratory in Michigan, and have learned both species have high parasitism and reproductive rates, short generation time, and female-biased sex ratio; additionally, *O. agrili* is parthenogenic. These characteristics are indicators of good biocontrol agents. We are currently performing host range studies for these two parasitoid species, a prerequisite to assess the risk vs. benefit of introducing natural enemies for biocontrol. We also recommend continued foreign exploration for other potential natural enemies, and an expanded search to include insect pathogens of *A. planipennis*.