

# **Development of Novel Ash Species Hybrids to Introgress Resistance to Emerald Ash Borer from Asian to North American Ash Species**

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*Agrilus planipennis*, a beetle native to Asia and called Emerald Ash Borer (EAB), has been introduced into the Great Lakes region and is rapidly spreading. No resistance has been identified in native North American ash species, so the entire ash resource of the eastern U.S. and Canada is at risk of loss due to EAB. In contrast, outbreaks of EAB in Asia appear to be isolated responses to stress and do not devastate the ash population. It is likely that heritable genetic resistance to EAB is part of the reason EAB damage is less severe in Asia.

Our current work is focused on utilizing heritable resistance to EAB to produce EAB resistant hybrids between North American ash species and Asian ash species. Two years of breeding efforts have produced very few putative interspecific hybrids. Current goals of the breeding program are (1) to identify successful species combinations for hybridization, (2) to identify barriers to interspecific hybridizations, and (3) develop techniques to circumvent hybridization barriers. Additional work is focused on developing markers to confirm hybrid parentage, and for later incorporation into marker-assisted breeding strategies. Seventeen microsatellite marker loci previously published for *Fraxinus excelsior* have been screened against a small sample size panel of the species of primary interest to the breeding program. In addition, ash seed germination studies are ongoing to develop reliable protocols for germinating seeds from difficult to germinate species, and to produce seedlings of Asian species for screening for resistance to EAB in North America.