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# THE UPSIDE OF THE EMERALD ASH BORER CATASTROPHE: A FEAST FOR WOODPECKERS

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## ABSTRACT

Under the most favorable conditions, woodpeckers reduce larval EAB density as effectively as the best pesticides. Woodpeckers work over the entire core region for free and are always more popular than spray trucks.

In the course of trapping and pesticide trials, we have dissected multiple sections of several to several dozen trees at 24 sites in southeast Michigan. For each of these datasets, we recorded the density of successful emergence holes (exits) and of woodpecker attacks where those resulted in EAB mortality. The calculated woodpecker predation rate ranges from 9-95 percent (mean=44 percent). Preliminary analyses of these data considered two variables that might explain this variation. There was no correlation between site EAB density ( $R^2=0.00$ ;  $P=0.98$ ) or any clear pattern of a density/predation relationship for trees within sites. Categorization of sites by habitat type (street tree, open park, forest) also revealed no relationship between habitat and predation rate (ANOVA,  $P=0.27$ ), although the four sites with >65 percent predation were all in a forest setting.

Our datasets varied in many ways that we have not quantified (tree size, species, stand density, non-Fraxinus tree composition, etc.), so inferences at this stage are problematic. However, the magnitude of the predation rate at some sites suggests that woodpeckers may play an important role in EAB population dynamics. Furthermore, two features of avian predators make it likely that predation may be of increasing importance over time. First, vertebrates often exhibit a functional response as prey density increases. Thus, predation intensity may increase as EAB population increases. Second, any numerical response by woodpeckers responding to increased high-quality prey may require several years to manifest; and again, woodpecker predation may increase over time.

Because woodpeckers are at present the only EAB natural enemy documented to impose more than single-digit mortality and because woodpeckers are already-established native

species, we encourage researchers to examine those features of habitat and woodpecker biology that interact to identify the role and effectiveness of woodpeckers as biocontrols.