

DISPERSAL AND IMPACT OF THE MILE-A-MINUTE WEEVIL: A TWO-YEAR STUDY IN SOUTHEASTERN PENNSYLVANIA

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ABSTRACT

Mile-a-minute weed (*Polygonum perfoliatum*) was introduced to the United States in the late 1930s and has spread to 11 states ranging from Massachusetts to West Virginia. Mile-a-minute germinates early in the spring, outcompetes other plants in a variety of habitats, and seeds prolifically. The USDA approved the release of the curculionid weevil *Rhinoncomimus latipes* Korotyaev, the mile-a-minute weevil, for biological control of this annual invasive weed in 2004. Weevil adults feed on mile-a-minute foliage; the larvae feed within nodes and may cause sufficient damage to reduce seed production. The weevils are active from early spring through multiple hard frosts in the fall and complete at least four generations. Weevils have been released in Delaware, Maryland, New Jersey, Pennsylvania, and West Virginia and have established at every release site.

Three 50-m-diameter release arrays in southeastern Pennsylvania were monitored to track weevil dispersal and impact on mile-a-minute. The weevils established at all release sites and populations increased in 2006 compared to 2005. Within 14 months, weevils had dispersed to mile-a-minute patches up to 800 m from the release. Seed cluster production was lower in 2006 than in 2005 at all three Pennsylvania sites and at several New Jersey release sites. The ability to establish populations, coupled with a high reproductive rate and dispersal capacity, bodes well for the potential of the weevil to be an effective biological control agent for mile-a-minute. Further research is needed to learn more about the weevil's efficacy as a control agent and about the best methods to conduct releases and incorporate the weevils into an integrated weed management program.