

## An Herb Gone Wild

Pam Smith  
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Morel mushrooms have always been elusive. That's part of their allure. Lately, however, seasoned hunters will tell you something else is afoot.

A cool-season biennial herb called garlic mustard has invaded the forest floor in much of the Eastern and Midwestern U.S.—choking out wide swaths of spring wildflower displays and morel morsels. Insects and wildlife that depend on



native plants are being deprived too, as garlic mustard monopolizes light, moisture, nutrients, soil and space.

The good news is scientists believe they've finally found a natural enemy in the form of a tiny European weevil called *Ceutorhynchus scrobicollis*. University of Illinois ecologist Adam Davis is a member of a USDA Invasive Weed Management research team studying the predator. He's been working since 2004 on the project with scientists from Michigan State University, Cornell University and the Commonwealth Institute of Biological Control in Switzerland.

Garlic mustard was brought to the U.S. from Europe in 1870s as a culinary herb, but it weevils that feed on garlic mustard the plant at several stages in its life cycle, so it is much more effective than other potential predators." Computer simulation models help Davis predict which weevil will be most active.



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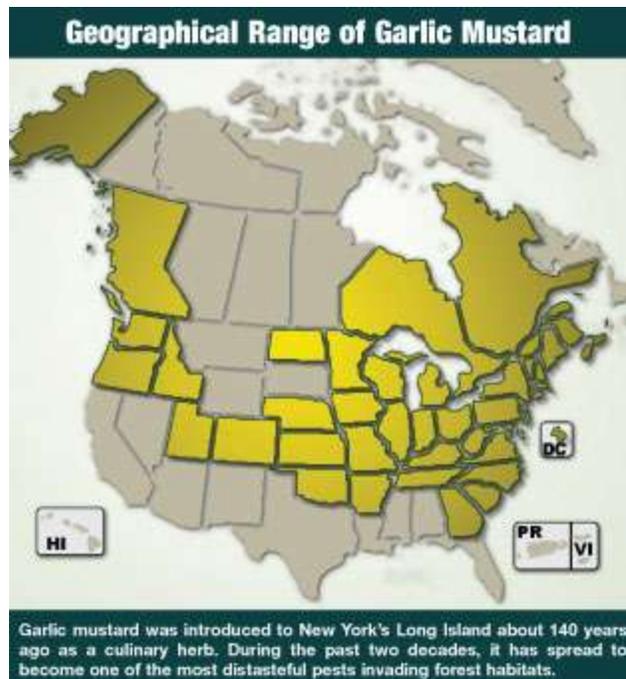
The tiny weevil is about the size of an "o" in 12-point type. Davis says garlic mustard and the weevil coexist in Switzerland without either becoming invasive. In the U.S., the weevil is still being studied in quarantine. It takes years of stringent testing to be sure a biological agent will not become invasive or cause any damage to nontarget species.

"Garlic mustard is in the same family as cabbage, and we must be sure that there's no possibility that it could move from garlic mustard to threaten cabbage or another plant," Davis says.

Once established in an area, garlic mustard spreads quickly. After spending the first year of their two-year life cycle as a rosette of leaves, garlic mustard plants develop the following spring into mature plants that flower, produce seed and die by late June. A single plant can produce thousands of seeds, which scatter as much as several yards from the parent plant. Seeds can remain viable in the soil for years.

Davis says local efforts are often organized to pull second-year plants once their stems start to elongate in May. "Unfortunately, those efforts sometimes actually contribute to the weed spread if the pulling is not early in the season," he notes. Viable seed can develop on plants that have already flowered, even if they've been pulled. New plants can also sprout from root fragments.





He believes garlic mustard seed often hitchhikes with humans and wildlife, especially deer. Garlic mustard can either self-pollinate or be cross-pollinated by a variety of insects. Self-fertilized seed is genetically identical to the parent plant, and that enhances the weed's ability to colonize an area.

"When you have an invasive plant species covering very large acreages, it's almost impossible to manage by hand," Davis says. "There are herbicides that will work on garlic mustard, but it infests millions of acres of forest and has a really long-lived seed bank."