

Forest Managers Use Wasps to Search for Invasive Beetle

The Challenge

In 2002, a large infestation of the invasive emerald ash borer (EAB) was discovered in communities in and around Detroit, MI. This beetle kills ash trees within a few years after initial infestation with a mortality rate of nearly 100 percent.

Since EAB was first discovered in the United States, infestations have been detected in locations far removed from the original detection point. So far, EAB has killed or caused the removal of tens of millions of ash trees in the Midwest, Mid-Atlantic States, and Southern Canada.

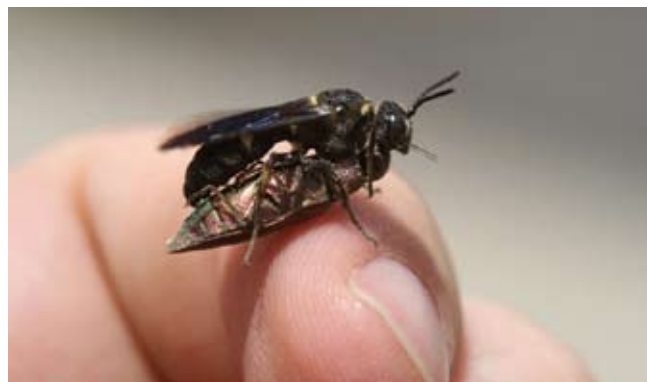
Managing EAB depends in part on successfully detecting and monitoring this insect. Finding EAB early helps reduce the beetle's spread via the movement of firewood and other wood products. However, no efficient, reliable method of early detection exists for EAB or other beetles of the Buprestidae family. Current EAB detection methods, including visual surveys and traps, are labor intensive, expensive, and sometimes kill trees.

The Solution

Researchers at the University of Guelph in Ontario recently discovered that a native ground-dwelling wasp, *Cerceris fumipennis*, stocks its nests with a variety of buprestid beetles, including EAB, if the borer is present. Field experiments were made to find out if this wasp could be used for biosurveillance—the process of monitoring one species to search for another species. This technique proved to be superior to other detection methods.

Northeastern Area State and Private Forestry entomologists from the Durham Field Office recently teamed with Canadian Food Inspection Agency Researcher Philip Careless and Maine Forest Service entomologist Colleen Teerling. Their goal was to help interested State and Federal partners use *C. fumipennis* to search for and detect EAB.

NA employees are part of an international team that is using a native wasp to detect the presence of the invasive emerald ash borer.



*A *Cerceris fumipennis* wasp carries its prey while resting on a finger. (Photo by Mike Bohne, U.S. Forest Service)*

This international team worked to:

- Transfer *C. fumipennis* biosurveillance methods to regional forest health specialists and surveyors.
- Locate *C. fumipennis* colonies in areas of high risk for EAB in New England and New York.
- Observe selected *C. fumipennis* nests, collect buprestid prey items, and monitor them for the presence of EAB.

Resulting Benefits

- Instructors held biosurveillance training in Lincoln, MA, in July 2008 and 2009. State forest health staff from New York and New England attended as did U.S. Forest Service and USDA Animal and Plant Health Inspection Service employees.
- Cooperators detected 242 active *C. fumipennis* colonies in New York and New England States.
- Fifty-five species in 11 different genera of Buprestidae were recorded from colony collections, with at least five new State Buprestidae records.

Sharing Success

- The Maine Forest Service initiated an “adopt-a-colony” biosurveillance program using volunteers, including Girl Scout troops and entomology clubs.
- The U.S. Forest Service is now providing additional resources and training to expand biosurveillance operations.



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