

NEWS RELEASE

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Native wasp to be used in search for harmful forest pest

DURHAM, N.H.—Forest health managers in the Northeast and mid-Atlantic will soon employ a common native wasp to search for a nasty, tree-killing invasive insect.

It might mark the first time people will use an insect species to search for a forest pest. They plan to use colonies of the ground-nesting wasp *Cerceris fumipennis* to search for the emerald ash borer. Their goal: to protect forest health by speeding up early detection of the EAB through monitoring the wasp's natural predatory behavior. The project could give new meaning to the word "biosurveillance".

The *C. fumipennis*' distribution ranges in the East from southern Canada to Mexico and as far west as the Rockies. It can be found in areas of hard-packed soil and sparse vegetation, such as ballparks, campsites and parking lots. The larvae in the wasp's nest feed on metallic wood-boring beetles, including the emerald ash borer.

A native of Asia, the EAB is an exotic invasive wood-boring insect. It was first detected in the Detroit area in 2002. Since then, it has killed more than 25 million ash trees in the Midwest and Mid-Atlantic. The EAB kills ash trees within a few years after infestation. The mortality rate is nearly 100 percent.

The EAB population continues to spread toward the Northeast through Pennsylvania and Ontario and threatens the entire North American ash family. Efforts to eradicate or control the spread of the EAB population in the United States so far have proved especially challenging.

The U.S. Forest Service considers invasive species one of its top forest threats. Invasive species cost the United States about \$138 billion each year in reduced revenues and values, as well as population control and eradication efforts.

It is widely believed the long distance movement of firewood serves to rapidly speed up the spread of EAB and other forest invasive insects and diseases. Several Midwest states have placed restrictions on the movement of firewood and ash wood products in recent years to reduce the spread of EAB. Anticipating EAB's imminent arrival, the New York State Dept. of Environmental Conservation earlier this month banned firewood movement beyond 50 miles.

Canadian Food Inspection Agency Entomologist Philip Careless, based in Ontario, is credited with the idea of using the *C. fumipennis* to search for the EAB. He said he based the strategy partly on the research of his former professor who began by studying the diversity of beetles the wasp is willing to collect. Careless has studied the *C. fumipennis* and its predatory behavior for more than two years.

Entomologists have been collecting beetles from wasp colonies for a while, added Careless, but this is the first time anyone has used it to locate a pest.

He said he learned from attending insect conferences in the U.S. that forest health managers here were having a difficult time monitoring newly-established EAB infestations. The EAB is not attracted to specific known pheromones like many other insects. In turn, commonly used scent-based insect traps have limited success when employed to search for newly-established EAB infestations.

An EAB monitoring technique frequently used in the United States involves stripping bark off ash trees, a costly and time-consuming method. It also kills the trap trees in the process. A newer method in the works involves deploying purple prism traps high in tree canopies. It is believed the EAB might be attracted to the trap's purple color. Like the bark stripping technique, the prism process is relatively costly and somewhat time consuming, but it spares the tree.

Careless said he thought the *C. fumipennis* biosurveillance method might prove more effective than current techniques in monitoring for EAB. The wasp method is relatively simple and easy to do. It does not harm trees or cost a lot of money. Clear plastic cups and GPS devices are the highest technologies used in the technique that also uses the wasp's natural predatory behavior to search for the EAB.

The method is simple: find a *C. fumipennis* colony, put a clear plastic cup over the entrance hole, and then note what insects the wasp brings back to the colony. If the wasps do not bring an EAB back to the colony within the first forty returns, it is unlikely there is EAB in the area, Careless said.

The *C. fumipennis* has unique facial markings that make it relatively easy to distinguish from other wasps. Its black head has three large yellow blotches across its face.

It takes several years using current methods to detect an EAB infestation after it begins. Careless said the wasp EAB biosurveillance method might speed up detection of new EAB infestations.

"The hope is that we will be able to catch EAB infestations early on, perhaps within the first year or two," said Maine Forest Service Entomologist Colleen Teerling. "If we catch it earlier, it will improve the possibility of eradicating the population," said Teerling, the proposed project principle investigator.

Project participants will come from all six New England states, as well as New York, Pennsylvania, Maryland and West Virginia. Canadian Food Inspection Agency researchers will train the forest health managers in *C. fumipennis* colony locating and monitoring techniques. After the training is completed, participants will locate and monitor *C. fumipennis* wasp colonies to search for EAB in their states. The North Carolina Dept. of Agriculture is also conducting a search this summer.

The Forest Service Northeastern Area State and Private Forestry is providing funding, as well as coordinating training for the cooperative survey effort in New York and New England. It is also developing an on-line database for states to submit their survey data and it will help identify all beetles collected by the wasp.

Even as the *C. fumipennis* promises to be effective for biosurveillance, it does not appear to show much promise in controlling the spread of EAB. "While the *Cerceris* wasp is an excellent biosurveillance tool, it will not be an effective bio-control agent because EAB is so prolific," said Michael Bohne, U.S. Forest Service entomologist.

Careless said he is currently researching how to best deploy wasp colonies on the backs of trucks to use them as mobile biosurveillance tools.

On the Net: <http://www.na.fs.fed.us/nanews/archives/2008/archives08.shtm>