

UMaine Researchers Look for Answers to Growing Fire Ant Populations

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(PhysOrg.com) -- Researchers from the University of Maine are working on solutions to the rapid population growth of invasive stinging fire ants, now showing up in alarming numbers from Massachusetts to Nova Scotia, and beyond — taking much of the fun out of backyard barbecues, nature walks and other outdoor activities.

The aggressive little ants have been in Maine for more than half a century, says entomologist Eleanor Groden, professor in the UMaine School of Biology & Ecology, but “over the last few years, a lot of people who never noticed the ants before are saying that fire ants have taken over their yards. ”

Difficult to manage with traditional methods of control, the fire ant has reached a kind of renaissance in Maine in recent years, rapidly expanding its range and increasing the size of its populations. Fire ants are slowly stinging their way up the food chain, and their success has citizens and scientists alike scrambling for answers.

“These ants are a different species from the fire ants that are causing problems in the southern part of the United States,” says Groden. “These originate from somewhere in northern Europe, whereas the southern fire ants originate from South America. The natural distribution of the European fire ants extends up into the Arctic Circle in northern Europe, so unlike the southern species, we know that these ants are well adapted to our cold climate.”

She suspects the ants' success in recent years is probably due to a combination of environmental factors and genotype. Groden thinks the species has slowly adapted to its new home, remaining relatively inconspicuous as it tweaked its behaviors and biology to meet the challenges of its new environment. It may have recently reached a threshold for success that is allowing it to rapidly expand its population. Groden, a recognized expert with nearly a decade of fire ant research experience, has been consulted about new nests spotted in Massachusetts and in Nova Scotia and Ontario, Canada, in addition to Maine.

With funding from the Maine Agricultural and Forest Research Station and the USDA APHIS PPQ, Groden and biology and ecology research assistants Jen Lund and Tamara Levitsky, and graduate student Kerry Bernard, have been studying fire ant behavior in the laboratory at the University of Maine. They also are working at infested sites on Mount Desert Island, in Wayne and Orono.

They have been tracking the extent of the infestation, its environmental impact, and trying to develop potential methods for control. They are now evaluating a method that involves infecting the ants with a common, naturally occurring fungal pathogen that causes a fatal disease in [fire ants](#).

“The strategy is to work with their own diseases and try to increase the likelihood of them becoming infected,” Groden says. “We’ve learned a lot about this ant to date, more so than we knew five years ago.”

Since learning about the ants' movement patterns and ecology, and what foods they forage on and take it back to their nests to share, Groden and her research team are utilizing these behaviors to expose them to disease-causing spores.

“We draw them to a food bait and in the process, draw them over a

minefield of pathogen spores,” she says. “They seem very willing to do this, and hopefully will carry the spores back to the colony and infect others.”

They now are infusing nesting areas with the pathogen and watching to see if fire ant populations diminish, as appears to happen in a laboratory setting. “What works in the lab doesn’t always work in the field, though,” Groden says, but they will continue to work on a solution to the invasive pests.

Provided by University of Maine

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