

A. Grant Data:

Category: Northeast Regional IPM Competitive Grants Program (RIPM)
Title: Integrated Pest Management of Pest Ants in the Urban/Suburban Landscape
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States Involved: Maine, New York, Delaware
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B. Non Technical summary

Ants in the exterior urban/suburban landscape can cause considerable problems associated with: a) nuisance and health problems of stinging or biting species, 2) exacerbation of plant pests by homopteran-tending species, and 3) contributions to interior nuisance and structural problems from outside nesting invaders. One of these ants, the European fire ant is an invasive species that has become a serious pest in many coastal communities in Northern New England over the past 17 years. Populations have also developed at several locations in Massachusetts, Vermont, and New York. A limited amount of information is available on the distribution and management of this species, and with increasing concern for the development of more environmentally friendly techniques to manage insect pest, we developed this project. We proposed to investigate 1) the potential management of *M. rubra* populations around buildings and homes, 2) Survey PCOs, homeowners, master gardeners etc. in the NE to determine the most commonly encountered pestiferous species in the landscape, and 3) develop and distribute region specific information on pestiferous ant species and options for “least toxic” management options.

C. Introduction

Ants in the landscape have been under-estimated in comparison with ants as structural pests. The invasion of fire ants, *Solenopsis invicta*, in the South changed the focus of ants as landscape pests and to their effect on public health and the economy. However, another fire ant, *Myrmica rubra*, is slowly invading the Northeast and it is of great concern among the affected home and business owners and the potentially affected communities. Densities of this aggressive, stinging ant can average 1.4 nests/m² with 300 to 10,000 foragers per nest, literally driving people out of their yards and displacing native fauna. A need exists for an effective, yet safe means for managing populations of this pest and to prevent further spread.

Toxic baits with delayed activity have been found to be effective for managing pestiferous ant populations because ants recruited to the bait collect the toxicant and have time to feed it to the rest of the colony before they succumb to its effects. Deploying baits in bait stations reduces the non-target environmental and health and safety risks associated with broadcasting baits.

A broader knowledge of the ants that are considered as landscape pests in the Northeast, including the European fire ant, will help us to develop managing strategies to control them and reduce the effect on the affected communities. Until now, there is neither a comprehensive database of the landscape ants considered as pests by homeowners, private and public facility

managers, as well as, national and state parks in the Northeast, nor a centralized source of information for management of these insects.

D. Objectives

Research

- R1)** Develop and evaluate “least toxic” strategies for homeowners and businesses for management of European fire ant, *Myrmica rubra*, using bait station strategies.
- a)** Determine the effective land area serviced by individual bait stations
 - b)** Determine the time required for successful transfer of bait from foragers to the rest of the colony
 - c)** Field test the optimal bait strategy for management of *M. rubra*

Extension

- E1)** Survey pest control operators in participating states and extension workers throughout the NE region to determine the most common reported species of ant causing problems for home owners, businesses and schools
- E2)** Develop a web-based key to the common ant pests in the Urban/ Suburban landscape in the NE region
- E3)** Develop and distribute web-based and printed materials for home owners and businesses (Including control Operators) on common pestiferous ants in the Urban and Suburban landscape and its management

E. Approach

F. Progress

Research: We have preliminary results of the effective area serviced by bait stations. The data for this objective is being collected and in the process of being analyzed. The determinations of time required for successful transfer of food around the colony is also being evaluated. Data from various food sources and their distribution through a colony over time is being collected. Field test for management of *M. rubra* is being conducted in Mount Desert Island. We are screening four active ingredients formulated as baits, using bait stations and broadcast applications to evaluate their efficiency.

Extension: Extension activities are underway and conducted parallel to research activities. For the survey, each state received 500 ant sampling-kits before seasonal ant activity began.

In Maine all 500 kits were distributed between Pesticide Operators (20%), Master Gardeners (10%), Extension Offices (65%), and directly to public (5%). To date Maine has received 16% of the kits back with samples of various ant species from 80% of all the counties. The ant samples are analyzed and the sender is contacted, usually within a week. We answer concerns; give information about the ant biology and management options by phone, e-mail, or standard mail. We have set up an e-mail account Ants.IPM@Maine.edu to channel the information on ants and ant control. We have received 56 questions in this e-mail address (between 3/16/07 and 8/8/07) all of them were answered and in some cases several e-mails followed up. Other extension activities include talks and presentations at PCO meeting, field days with master gardeners, tradeshow for lawn professionals, and presentations to School IPM groups. A fact sheet about *M. rubra* history, behavior, identification and management was

published (http://creatures.ifas.ufl.edu/urban/ants/Myrmica_ruba.htm); a flier with information on management of European fire ant was developed and is being handed to stakeholders that are having problems with this ants. Additional outreach through the media include two local newspaper articles and a TV interview on ant biology and management.

In the state of New York we have received 146 ant samples corresponding to 20 counties in New York State and 5 in Maryland. Thirty-two counties are participating in the survey and the Insect Diagnostic Laboratory at Cornell University is expecting more samples. Mailers were distributed among extension agents, master gardeners, pest control operators and homeowners. Several meetings were conducted such as field days including horticulture and turf.

In the state of Delaware all 500 kits were distributed. We have received 220 ant samples in total, which are being processed. This sample processing is expected to continue during the rest of the year. Extension talks directed to Master gardeners around the state have been given on all counties in Delaware.

G. Results

The European fire ant field season begins on April and continues to mid September, for this reason the field experiments are still underway and data is still being collected as planned. Some preliminary analysis has been conducted but they are not ready to be released.

H. Impacts

We have been very successful raising awareness of the differences between beneficial and pestiferous ants in the landscape. Since the term “pest” is very subjective for most of the ant species, we are providing our stakeholders information about ant behavior, benefits that ants provide in managed ecosystems and consequences of control actions necessary for clients to make informed decisions about controlling ants in the landscape. In the case of *M. rubra*, since it is an aggressive invasive pest, we are educating the public on specific-ant behavior, ecological effects of invasion, and control tactics. Among the management techniques recommended we make sure to include both cultural methods, and chemical methods. However, much of our emphasis is focused on prevention.