

## Phorid Fly Field Release Methods

Now that the phorid flies are reared, they are ready to be released into the natural environment to start knocking back harmful RIFA populations. Since 2002, DPI in cooperation with USDA and UF/IFAS has been providing phorid flies for release across the southeastern US.

The field release procedure is relatively simple.

- The first step is finding an appropriate site, one where there are established fire ant mounds and a place that is relatively undisturbed so it can be closely monitored by the release team.
- Once an appropriate site is located, ants are harvested from some of the mounds and placed into plastic boxes.
- Then the phorid flies are released over the ants within the confines of the box. This is done to contain the ants and keep them active and exposed for a limited time – usually about four hours.
- Once there is good parasitization of the ants by the flies, they are placed back into the ground. The sites are checked quarterly to measure establishment levels and area of spread.



*Phorid fly release team members dig shovels full of RIFA from their mounds and place them in plastic boxes where the phorid flies are released over them for a period of time to allow parasitization to occur*

## Resources

### Participate in Phorid Fly Release

Contact your local county extension office at <http://solutionsforyourlife.ufl.edu/map/>



### Biological Control Questions

Contact FDACS-DPI at 888-397-1517 or [www.fl-dpi.com](http://www.fl-dpi.com)

### Chemical Control Information

Contact UF/IFAS at [www.solutionsforyourlife.com/](http://www.solutionsforyourlife.com/)

### Report Possible Pests of Concern

Contact FDACS-DPI at 888-397-1517

### USDA Agriculture Research Service

Suppression Information  
<http://www.ars.usda.gov/fireant/>



**Helpline**  
**888-397-1517**

**[www.fl-dpi.com](http://www.fl-dpi.com)**

*Photos courtesy of USDA and Jeffrey Lotz (FDACS/DPI)*

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## Controlling the Red Imported Fire Ant

### A lot of help from a little insect The Phorid Fly



Division of  
**PLANT INDUSTRY**  
Florida. *Protection through Detection*  
Florida Department of Agriculture & Consumer Services  
Charles H. Bronson, Commissioner

## The Red Imported Fire Ant

The Florida Department of Agriculture & Consumer Services' Division of Plant Industry (FDACS/DPI) recognizes the red imported fire ant (RIFA), *Solenopsis invicta* Buren, as a major pest in Florida. The RIFA first arrived in the US in the 1930s from Brazil, but is now the predominant ant species throughout much of the southeast.

The RIFA can damage agriculture crops, injure people and animals with their stings, and the construction of their earthen mounds can cause major erosion and agricultural land production problems. Their stings cause white pustules on skin and in rare instances may result in allergic reactions that can be fatal. Red imported fire ants also kill or displace many ground-nesting animals, some that are endangered. The red imported fire ant also attacks Florida's non-destructive native ant species, greatly reducing their numbers.



## The Phorid Fly . . . A Natural Solution

Chemical control measures, while costly, have proven effective in managing the RIFA on easily accessible farms and in residential areas. However, reinfestation rates are high with ants migrating from untreated natural areas. In these areas, biological control agents have shown great promise.



A biological control program that would introduce South American phorid flies, a natural enemy of the RIFA, into the US was extensively researched by the USDA. It was determined that the phorid fly, *Pseudacteon* species, a tiny gnat-sized insect, presents no threat to people, plants or animals, including native ants.

### FDACS/DPI's Role

After determining the safety and effectiveness of the biological control, the USDA began releasing phorid flies in north central Florida in 1997. In 2001, the FDACS/DPI, in cooperation with the USDA and the University of Florida's Institute of Food and Agricultural Sciences, began mass rearing phorid flies in the FDACS/DPI Gainesville biological control facility.

An innovative rearing operation was established at the facility that promoted high parasitization rates. In the first year, 450,000 phorid flies were produced. Now over two million flies and three species are produced each year in the Gainesville facility. In addition to supplying flies for field release in Florida, the rearing facility supplies flies for field release and research to other states under the cooperative program.



DPI Biological scientist prepares RIFA attack boxes

## How Phorid Fly Parasitization Works

The phorid flies inject their eggs into the fire ants. When an egg hatches, the maggot finds its way into the ant's head, where it grows for two to three weeks before secreting an enzyme which causes the ant's head to fall off. The maggot eats everything in the head capsule, and uses it as a pupal case.

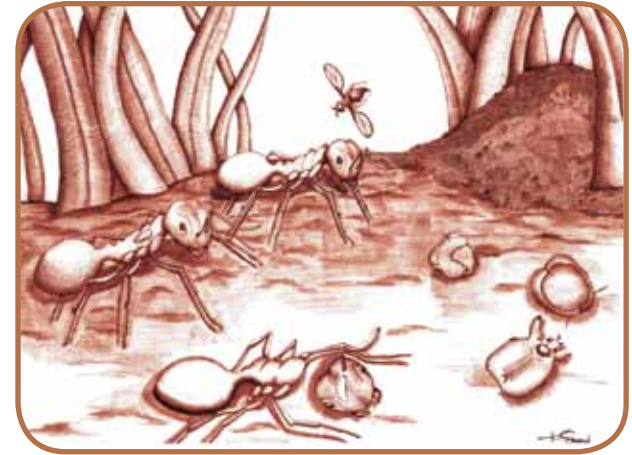


Illustration by Kathryn Shepard (FDACS/DPI)

The phorid flies eventually emerge from the decapitated ant heads to seek out their host species, the RIFA. These flies not only kill individual worker ants by decapitation, but also reduce the foraging behavior of the entire colony by discouraging the ants from leaving their nests when they are aware that the parasitic phorid fly is in the vicinity.



**The US Department of Agriculture estimates US annual losses caused by damage from fire ants at \$5 billion in residential areas, and \$750 million in agriculture areas.**

The RIFA is extremely aggressive and builds mounds up to three feet high. Colonies consist of one or more queens, workers (sterile females) and males. Average colonies grow to 80,000 workers and some colonies contain over 240,000 workers. The average queen may live two to six years, and in Florida, mating flights can occur every month of the year. Fire ant queens may, under normal conditions, fly 12 miles or more during a mating flight – facilitating the spread of this pest in high numbers and for great distances.

To regulate the movement of the red imported fire ant, quarantine zones are established by mutual agreement between federal and state agricultural officials. There is no restriction on movement of regulated articles within Florida; however, interstate movement of Florida nursery stock, soil, hay and used equipment may be restricted because of the RIFA.

**Three species of phorid fly are being reared at FDACS/DPI. Each attacks different size workers at various times of day providing greater opportunities for flies to parasitize ants.**

***Pseudacteon tricuspis* – attacks mid-size worker ant**  
***P. curvatus* – attacks small-size worker ant**  
***P. obtusus* – attacks mid to large-size worker ant**

**It is hoped that a complex of natural enemies will control the RIFA in the infested areas as it has in South America. This will reduce the use of pesticides and allow native ant species to reestablish themselves.**

