

## **Battle planned to rid 'Glades of exotic bug**

### **Weevils devastating bromeliad population**

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It'll be the Battle of the Exotic Bugs in the Everglades as the Honduran fly *Lixadmontia franki* takes on the Mexican bromeliad weevil *Metamasius callizona*.

Scientists from the University of Florida and South Florida Water Management District will release about 100 of the Honduran flies Friday at the Loxahatchee National Wildlife Refuge in an attempt to control the weevil, which is devastating bromeliad populations in 22 of Florida's 67 counties.

Probably imported in a shipment of bromeliads from Veracruz, Mexico, *M. callizona* was discovered in Florida in 1989 at a Fort Lauderdale bromeliad nursery.

"It spread and it spread and it spread," said Howard Frank, a professor of entomology with the University of Florida's Institute of Food and Agricultural Sciences. "It's just trashing bromeliad populations at state parks, at county parks, at federal preserves. Bromeliads are dropping out of trees. It's horrible."

The weevil arrived in Lee County in October 1990.

"I don't think it's nearly as bad here as it was," said Betty Ann Prevatt, treasurer of the Caloosahatchee Bromeliad Society. "Sometimes different pests will run their course in an area. But they're definitely still here."

It's also definitely still all over South Florida.

Due entirely to the Mexican weevil, two bromeliad species, the giant airplant and the cardinal airplant have been listed as endangered.

Other favorite targets of *M. callizona* are the endangered West Indian tufted airplant and the threatened Northern needleleaf, twisted airplant and leatherleaf airplant.

Although adult Mexican weevils feed on bromeliad leaves, the real villains are the larvae, which tunnel into the plant's stem and feed on tissue as they grow.

"Ironically, you don't see the damage until the plant is almost dead," Prevatt said. "Most of the time, the plant still looks OK. Then, when the larva has run its course, it builds a cocoon, comes out as an adult, and the cycle keeps going and going."

What was needed was a way to break the cycle, and IFAS entomologist Ron Cave found a candidate in Honduras.

"He was out in the woods collecting insects of various kinds, when he stumbled across weevils and larvae in bromeliads," said Frank, for whom the Honduran fly was named. "He didn't think much of it, but I e-mailed him and asked if there could be some kind of parasitoid on the larvae. He looked, and, yes, indeed, there were fly larvae on the weevil larvae. I couldn't believe it. It was wonderful."

Cave had discovered *L. franki*, and the researchers raised the insect in Honduras before bringing its pupae to Florida.

"We started in the late 1990s trying to bring them to Gainesville, and it didn't work out at all," Frank said. "It was a struggle. We couldn't get the light quite right, or we couldn't get the humidity quite right, or we couldn't get the food quite right."

"It didn't work out until 2004 or 2005, when we got a new quarantine facility in Fort Pierce. By July and August this year, we were pretty good at it."

As is the case with the weevil, fly larvae are what do the damage: Adult female flies place larvae near entrance of tunnels made by weevil larvae.

Then the fly larvae enter the tunnel and attack the weevil larvae.

Researchers decided to release the flies at Loxahatchee for several reasons.

"It still has lots of bromeliads under attack by lots of weevils," Frank said. "There's no point in doing it if the weevils have already wiped out most of the bromeliads."

"We were also concerned about the survival of the flies in nature. They come from Honduras, in the mountains, and it's cool up there. Where is it cool in Florida in the summer? In swamps. There's lots of water to lower temperatures, and they have ideal moisture conditions for flies. Loxahatchee has all that."

Frank and his team have already released Honduran flies at Northwest Equestrian Park in Hillsborough County and Big Cypress National Preserve.

Updates on the success of those releases will be given Friday at the release.

"The evaluation of the results is the project of my Ph.D. student Theresa Cooper," Frank said. "She began a year ago, and she'll look at three years of data on what the fly is doing, whether it reduces the weevil population or not. At this point, I'm optimistic."



## **MORE ON THE WEEVIL**

Mexican bromeliad weevil

- Scientific name: *Metamasius callizona*
- Discovered in Florida: 1989 in Fort Lauderdale
- Size: 0.4 to 0.6 inch
- Related species: *Metamasius mosieri* (Florida bromeliad weevil), a native of Florida, Cuba and the Dominican Republic; it is not an environmental threat. *Metamasius hemipterus* (silky cane weevil), native of the West Indies, Central and South America, first reported in Florida in 1984, is an important pest of sugarcane, bananas and ornamental palms.
- Management: Treat Mexican weevil infestations with a reduced concentration of an insecticide labeled for beetle adults and grubs.