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The Evil Weevil and the No-Name Fly

A new “weevil-killing fly” has the potential to combat larval infestations of *Metamasius callizona*, an exotic weevil that threatens Florida’s *Tillandsia* species.



Metamasius callizona. Photo by J.L. Castner.

by Heidi Rhoades

Just before sitting down at my desk to write this article, I received a phone call from Dennis Giardina of Panther Refuge (Naples) and the designated tree climber for the panther capture team in Big Cypress. His usually upbeat tone was muted with concern, so I braced myself. “Well, Heidi,” he began slowly, “I found a *Tillandsia utriculata* with several cocoons and they’re callizonas.” “Ugh,” I moaned and wagged my head in disbelief. In an instant, I imagined the cypress dome he stood in plundered of its airplants in a matter of a few years. Dennis empathized with my reaction and we shared a brief mourning. I hung up the phone, put my chin in my hands, and sat quietly in grief.

I have been monitoring *Metamasius callizona* since 2002. My first “weevil gig,” as I casually refer to my work, was with the South Florida Water Management District during the fall and winter of 2002 and 2003. Most of my work was done to the east, west, and north of Lake Okeechobee. I found weevils at Fisheating Creek in Palmdale; at Dupuis, and in the Pal Mar natural area in Martin County. The damage in these areas was extensive. Finding my first cocoon and beholding the destruction unleashed by these invasive pests is an experience that has, unfortunately, lost its novelty, but not its emotional impact. To look into a seemingly infinite cypress and pop ash canopy brimming with prehistoric looking bromeliads, and then to look into your hand cupping a cocoon and feel

Our “weevil-killing fly” and potential hero is a new species, in a new genus, previously unknown to science. A formal description of the fly has just been submitted by Monty Wood and Ron Cave to *Florida Entomologist*.

The fly belongs to the family Tachinidae. It is being temporarily described as “tachinid fly cf. *Admontia*” – “cf.” is the abbreviation for the Latin word confer (meaning compare with) and *Admontia* is a genus of tachinid flies to which this new genus is closely related. It was first discovered in Honduras, and has also been found in Guatemala.

The fly larvae preys on weevil larvae, and there is evidence it prefers *Metamasius callizona*, a weevil species causing severe damage to *Tillandsia* populations in Florida.

To learn more about weevils and bromeliads, visit <http://savebromeliads.ifas.ufl.edu/>

its gentle larval movement, is an experience that is terribly difficult to wrap one's mind around. To know what the weevil is capable of doing is to know an ensuing and inevitably slow death for the *Tillandsias* and ultimately the ecosystem of which they are part.

In 2003, I was hired by the University of Florida to survey natural areas and collect seed. My region consisted of federal, state, and county natural areas from Kissimmee State Park to Rookery Bay, Bullcreek Wildlife Management Area to Collier Seminole State Park, and many hammocks and domes in between. Within this swath, I have found weevils at Rookery Bay, Panther Refuge, and Lake June Scrub.

Ray Creel last contributed to *The Palmetto* in September 2002 (V21:4), dropping a bomb when he discovered the evil weevil inhabiting bromeliads in Fakahatchee. This discovery compelled the University of Florida team to focus our efforts largely on monitoring and seed collecting within Fakahatchee. Thankfully, neither Mike Owen, the park biologist, nor I have found any weevil damage since Creel's last report. Owen, whose legendary passion for the park precedes him, continues to keep his eyes peeled for any signs of infestation. Adjacent land areas in the Panther Refuge and Big Cypress, however, have been sites of weevil damage.

My monitoring work continues today due to a federal grant we received; thus, my focus is monitoring in Everglades National Park and Big Cypress. In early February 2005, I monitored "Christian Point," a buttonwood and mangrove forest not far from Flamingo. Nearly a quarter of the *Tillandsia utriculata* appeared to have observable damage (centers falling out easily, a banana yellow hue), and with enough prodding of plants, we found a larva. Since the weevil has not been found in Miami-Dade since 1992 (Hurricane Andrew), I felt it important that this larva receive special care, so I brought it to the Indian River Research and Education Center in Fort Pierce for rearing. Dr. Cave has shared that he believes that the weevil is *Metamasius mosieri*, and we could not be more pleased with this finding.

The biological control agent against the "evil weevil" comes to us in the form of a parasitic fly. Currently the fly (possible genus *Lixophaga*) is being studied by Alonso Suazo (in conjunction with Drs. Howard Frank and Ron Cave, University of Florida) at the School of Agriculture in Honduras. Studies have confirmed that the fly will readily parasitize *Metamasius callizona* and *Metamasius mosieri* with evidence suggesting that it prefers *Metamasius callizona*. The fly is found in Honduras and Guatemala where it resides in high elevation cloud forests and has been very difficult to colonize. The fly was recently received at the Indian River Research and Education Center quarantine center however, all of the individuals have expired.

In the meantime, there is plenty of work that can be done, including more monitoring and seed collection. Native plant enthusiasts can contribute to this effort in several ways: volunteering with local county, state, and federal parks to monitor bromeliad

populations and, if necessary, collect seed. We can also monitor exotic bromeliads sold in local stores and garden centers for pests. There are over 19 exotic weevils that can do the same type of damage as *Metamasius callizona*. With little more than 8% of all incoming cargo inspected, it is vital that we keep our senses alert for any pests that have gained entry into this country. Please, poke around exotics wherever they are found. Though quirky, I have educated a lot of people about the weevil because they observed my snooping with curiosity. Let this be an ice-breaker to begin a dialogue – many people are completely unaware of natives, exotics, and even what "bromeliads" are. I have found that people generally love learning new things and this is an opportunity to share some beneficial trivia. Which brings me to my final pursuit of action: talk it up! Write letters to your representatives, post a bromeliad weevil fact sheet in your supermarket or library, host a workshop, or write an article for the paper. In March 2004, while in Washington, D.C., I lobbied Congressional Representative Alcee Hastings; I am quite sure that even with all of the items he hears daily, the weevil remains on his mind!

Florida would be incomplete and unrecognizable without our armored and shapely air plants. Not only would our forests and swamps suffer aesthetically, but the ecological impact of losing our native bromeliads would be enormous. 🌿



For any field questions or other concerns you may have, please contact Heidi Rhoades at flscrubj@earthlink.net, Dr. Ron Cave at rdcave@mail.ifas.ufl.edu or Dr. Howard Frank at jhf@ifas.ufl.edu.