

Something wicked this way comes

It's early morning on the boardwalk, beams of sunlight slicing through a misty haze. Deer nibble on dew-covered prairie grasses, and the drumming of a pileated woodpecker resonates through the air. The smell of cypress lingers and air plants are fallen everywhere, strewn like litter upon the ground.

This scenario does not represent Corkscrew yet. But the possibility is very real. The blame falls upon a small, seemingly unstoppable exotic beetle known as the "Evil Weevil," *Metamasius callizona*.

It was first identified in a Broward County bromeliad nursery in 1989; scientists believe the introduction of *M. callizona* occurred with an infested shipment of bromeliads to the United States from Mexico.

While *M. callizona* does not cause extensive damage to bromeliads in its natural range in southern Mexico and Guatemala, Florida offers a place for its uncontrolled growth because of a lack of any natural predators.

Larvae of *M. callizona* cause the death of the bromeliads by mining the plant's stem for food. So far, the only factor controlling the spread of *M. callizona* in the U.S. appears to be a loss of its food source – due to its own destruction of the native bromeliads.

Many bromeliads, specific in their needs and faced with high levels of habitat destruction, are already endangered, so adding a rapidly growing population of voracious, exotic weevils is a formula for disaster.

Florida's Endangered Species list recently added two Tillandsia, both common in Corkscrew, as a direct result of weevil inundation: the Giant Wild Pine (*T. utriculata*) and the Stiff-leaved Wild Pine (*T. fasciculata*). Other Corkscrew species under attack are the Hoary Airplant (*T. pruinosa*) and the Twisted Airplant (*T. flexuosa*).

Unfortunately, experts believe this list will expand as the weevil's food supply dwindles and it is forced to feed on other airplant species.

The only air plants that may be "safe" are so because of their small size. However, this theory may hold true for only some of the very smallest species. Although size plays a key role in the plants' susceptibility to attack by *M. callizona*, which prefer large-stemmed plants, an experiment using captive weevils showed that smaller airplants are often consumed entirely by the beetle. In these cases, the only evidence of a former plant consisted of a small pile of shredded leaves. Such is the case with the twisted and stiff-leaved tillandsia.

The age of a Tillandsia contributes to its size and vulnerability. The weevils target the largest and consequently the oldest of the giant airplants, which comprise the breeding population of the plant colony. Because it takes years to reach maturity, these plants' destruction makes the plant colony unable to reestablish itself after weevil inundation.

No easy solution to this problem exists. Chemical control is out of the question in natural areas for several reasons: (1) it would be extraordinarily expensive, (2) it would be of questionable effectiveness, and (3) it would not be permitted because of likely non-target effects of the pesticides. So biological control is the only option.

Research in Mexico showed *M. callizona* did not reach the densities it did in southern Florida, although there was no shortage of host plants in Mexico. This suggested a natural predator controlled the weevils there, but the research could not identify a specialist as a biological control agent. Work in Honduras, funded by the Florida Council of Bromeliad Societies, found a tachnid fly that was a natural enemy of a closely related weevil, and research is underway to develop culture methods for this fly and to investigate its host range.

Declaration of a plant as an endangered species in Florida does not confer either state or federal research funds, so progress is slow.

How close is *M. callizona*? Since its discovery in Fort

Lauderdale in 1989, it has been eradicating native bromeliad populations in 15 counties, including Collier. It has decimated airplants as far north as St. Lucie County on the east coast and on the west coast as far north as Myakka River State Park in Sarasota and in Manatee County.

In March, 1996, *M. callizona* was found in Immokalee; in April, 1999, in North Naples (Vanderbilt Beach Road and Bluebill Avenue) and in Sunniland (SR 29 and Oil Well Road); and in June, 1999, at Koreshan State Park in Estero.

The actual Evil Weevil has not been found in Corkscrew, Fakahatchee, or Big Cypress. But this spring plant litter indicated it may already be in Fakahatchee and Corkscrew in very small numbers. Look for a fallen *T. utriculata*, sans roots, that has a small hole (a little smaller than the diameter of a pencil eraser) bored at the base where the weevil emerged after its larval stage killed the plant by eating the inside.

