

Pest Alert

FDACS-P-01630

Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner of Agriculture

Giant Whitefly, *Aleurodicus dugesii* Cockerell, in Florida

Greg Hodges, Greg.Hodges@FreshFromFlorida.com, Taxonomic Entomologist, Florida Department of Agriculture & Consumer Services, Division of Plant Industry

INTRODUCTION: The giant whitefly was first discovered, in Volusia County, in December 1996 and is now in Seminole, St. Lucie, and Indian River counties. The giant whitefly will infest several kinds of plants, but has been a pest of *Hibiscus* species in Florida. In California, it has been reported to attack more than forty-three plant genera and thirty-five plant families (Lasalle *et al* 1997). The giant whitefly was first discovered in the U.S. in Texas in 1991, California in 1992, Louisiana, and Florida in 1996. The giant whitefly adult is about three times larger (Fig 1.) than the adult of any other whitefly that occurs in the U.S.

BIOLOGY: Female giant whiteflies will deposit eggs in a spiral pattern and at the same time deposit white wax with each egg. The egg spirals (Fig 2) appear as white concentric spirals on the undersides of host leaves. The eggs will hatch into a crawler which is mobile. Crawlers tend to remain within the egg spiral where they settle down and begin feeding via their sucking mouthparts. After settling, the other larval stages (3) all remain at this same location. The 3rd and 4th instar larva secrete long glassy filaments of wax. These wax filaments (Fig 3) may be longer than 10 inches in the laboratory. The wax filaments are usually shorter outdoors because of wind currents which break long filaments. Sometimes these wax filaments will become matted to the leaf underside where contamination of the colony by honeydew will occur, and sooty mold will develop. This contrasts with the usual method a whitefly uses to eject honeydew (excrement) is by a flipping action of the lingula. The lingula (Fig 4) is a tongue-shaped organ within the vasiform orifice (anal structures). The honeydew is usually ejected downward onto the tops of leaves below, where sooty mold is usually prominent on the upper leaf surface, below a whitefly colony.

An adult whitefly will emerge from the 4th instar skin (so-called pupal case) through the T-shaped sutures on the dorsal side of the pupal case. The adult male has long claspers. Otherwise, it appears similar to a female. Adults are relatively docile and congregate on the leaf undersides (Fig 5) where they feed and reproduce. A complete life cycle will require about 35 days under Florida summer conditions of temperature and humidity.

DISTRIBUTION: The world distribution includes Mexico (from where it was first described), Costa Rica, El Salvador, and Guatemala (Lasalle *et al* 1997).

HOST PLANTS IN FLORIDA: Host plants reported in Florida are: *Callicarpa americana* (beauty berry), *Citrus sinensis* (sweet orange), *Clerodendrum speciosissimum* (glory bower), *Coleus scutellarioides* (coleus), *Eranthemum pulchellum* (tropical blue sage), *Gossypium hirsutum* (cotton), *Hibiscus mutabilis* (confederate rose), *Hibiscus rosa-sinensis* (hibiscus), *Morus* sp. (mulberry), *Musa* sp. (banana), *Pyrostegia venusta* (flame vine), *Urena lobata* (Caesar's weed), and *Verbesina virginica* (frostweed).

BIOLOGICAL CONTROL IN FLORIDA: The Florida Department of Agriculture and Consumer Services, Division of Plant Industry has released the nonstinging parasitic wasp *Entedononecremnus krauteri* (Fig 7) to help combat the giant whitefly. Releases have been made in all counties where the whitefly has been found. In order for this parasite to avoid the long wax filaments it has the unique habit of placing eggs into the whitefly larval stages from the upper leaf surface. Follow-up inspection at release sites has confirmed reproduction of the parasite in the field, but reduction in the whitefly populations has not been observed. It is anticipated that considerable time will be necessary for the parasite to catch up



Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

with the whitefly population and cause a reduction in whitefly numbers.

REFERENCES:

- Aylsworth, J. D. 1996. *Whiteflies: Up close and Personal. Ag Consultant. Vol. 52(1):12-13.*
- Lasalle, J., Polaszek, A., Noyes, J.S., and Zolnerowich, G. 1997. *A new whitefly parasitoid (Hymenoptera: Pteromalidae: Eunotinae), with comments on its placement, and implications for classification of Chalcidoidea with particular reference to the Eriaporinae (Hymenoptera: Aphelinidae). Systematic Entomology. 22:131-150.*



Fig 1. Adult giant whitefly is nearly three times larger than the adult of bandedwinged whitefly.
Photo credit: Jeffrey Lotz, FDACS/DPI



Fig 2. Egg spirals on the underside of leaves. Eggs are covered by white wax.
Photo credit: Jeffrey Lotz, FDACS/DPI

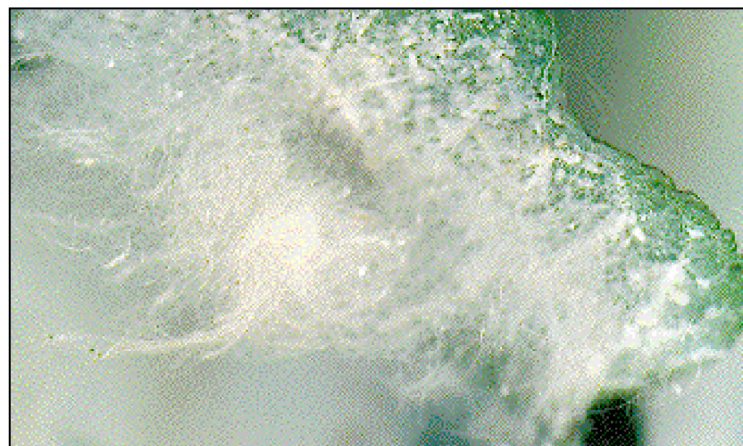


Fig 3. Wax filaments secreted by the larval stages of giant whitefly.
Photo credit: Jeffrey Lotz, FDACS/DPI



Fig 4. Giant whitefly pupal case (4th instar skin) showing tongue-like lingula used for ejecting drops of honeydew.
Photo credit: Jeffrey Lotz, FDACS/DPI



Fig 5. Giant whitefly colonies of adults and larval stages.
Photo credit: Jeffrey Lotz, FDACS/DPI



Fig 6. Adult parasite (*Entedononecremnus krauteri*) of the giant whitefly.
Photo credit: Jeffrey Lotz, FDACS/DPI



Fig 7. Black larval stages of giant whitefly parasitized by *E. krauteri*.
Photo credit: Jeffrey Lotz, FDACS/

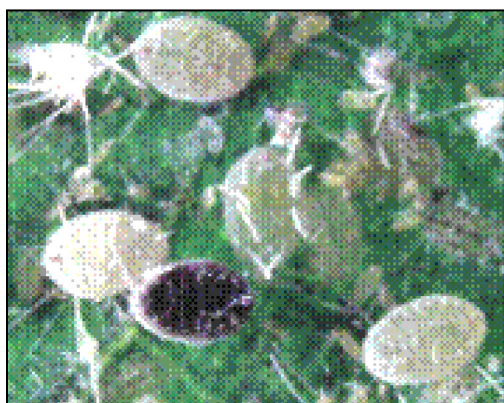


Fig 8. Some un-parasitized larval stages of giant whitefly and one parasitized larva.
Photo credit: Jeffrey Lotz, FDACS/DPI