



Figure 1. Giant whitefly adult.

# Giant Whitefly

## *Aleurodicus dugesii* Cockerell

(Homoptera: Aleyrodidae)

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**Introduction.** In May 2002, a sample of red hibiscus leaves heavily infested with a whitefly previously not known to occur in Hawaii was collected on Oahu at the Honolulu International Airport. It was identified as the giant whitefly (GtWF), *Aleurodicus dugesii* Cockerell by B. Kumashiro, Hawaii Department of Agriculture (HDOA) Taxonomist and confirmed by J. Dooley of U.S. Department of Agriculture - Animal and Plant Health Inspection Service (USDA-APHIS) in California.

This whitefly is a tropical species native to Mexico and also occurs in Costa Rica, Guatemala, and the U.S. In the U.S. it was first found in California in 1992 (Gill 1992) and in Florida in 1996 (Nguyen & Hamon 2002). It has also been recorded from Arizona, Louisiana, and Texas.

**Description.** The adult GtWF (Figure 1) measures up to 4 mm (3/16") long and is larger than most whitefly species, hence its name. The eggs are laid in spiral patterns (Figure 2) on the undersides of leaves and hatch into an immature stage called nymphs. The nymphs are oval-shaped and produce an abundance of long, white, waxy filamentous material which can cover the leaf and can be observed from afar (Figure 4).

The giant whitefly is similar in appearance to the spiraling whitefly, *Aleurodicus dispersus* Russell (Figure 3), which has been in Hawaii since 1978. Both whiteflies commonly infest hibiscus and plumeria. The GtWF can be distinguished from the spiraling whitefly by its highly patterned wings which are positioned tent-like over its body. The spiraling whitefly has only a few light markings on its wings and are held in a flattened position.



Figure 2. Spiral egg pattern of the giant whitefly.



Figure 3. Comparison of the adult giant whitefly (left) and spiraling whitefly (right).



Figure 4. Hibiscus leaf with white flocculence produced by the giant whitefly (inset).

**Damage.** Like other whiteflies, GtWF adults and nymphs damage plants by removing sap through their needle-like mouthparts which are inserted into plant tissue. Heavy infestations usually result in the decline of plants. Regular watering and fertilizing will help to maintain good plant health. Both adults and nymphs also excrete a sticky liquid called honeydew which falls on lower leaves and promotes growth of black sooty mold. Large amounts of white flocculence produced by GtWF nymphs are wind-blown and create nuisance problems by its sticking to outdoor plants, furniture, and other items.

**Hosts.** GtWF infestations have been found on hibiscus, fiddlewood, plumeria, sundrops, hau, avocado, citrus, guava, cinnamon, coconut, and orchid tree.

**Distribution.** In Hawaii, infestations have been found on Oahu in 2002, Kauai and the Big Island in 2003, and on Maui in June 2004.

**Biological control.** During the spring and summer of 2002, GtWF nymphs were found to be parasitized by a tiny (1 mm) wasp identified as *Encarsia guadeloupeae* Viggiani (Figure 5). This wasp was purposely introduced from Trinidad in 1980 for biological control of the spiraling whitefly. After developing in the whitefly nymph, an adult wasp emerges from a hole cut in the nymphal casing (Figure 6). This wasp species has provided only a low level of control. In March 2003, another parasitic wasp, *Idiopus affinis* LaSalle & Polaszek (Figures 7 & 8), was found on a GtWF-infested fiddlewood tree in Pearl City. This wasp apparently arrived in Hawaii along with the GtWF. It was one of three parasitic wasps introduced into California for biological control of GtWF. Subsequent surveys indicate that the wasp is widespread on all islands with GtWF and is providing excellent control of the whitefly. Both wasp species parasitize only whiteflies and will not harm people or other plants.

**Other control methods.** If needed, applications of a strong stream of water from a garden hose will help to reduce whitefly numbers. It will dislodge nymphs and improve plant appearance by washing off flocculence and honeydew. Applications of insecticidal soap may also help to reduce whitefly infestations. Broad spectrum insecticides are not recommended because of their harmful effects on natural enemies.



**Figure 5.** *Encarsia guadeloupeae* Viggiani adult.



**Figure 6.** Empty giant whitefly nymphal casings with *E. guadeloupeae* exit holes.



**Figure 7.** Giant whitefly adult (left), *Idiopus affinis* adult wasp (right).



**Figure 8.** Empty giant whitefly nymphal casings with *I. affinis* exit holes.

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