

COUNTY OF SAN DIEGO

AGRICULTURAL COMMISSIONER'S OFFICE

New Agricultural Pest for Southern California

Glassy-winged sharpshooter (*Homalodisca coagulata*)

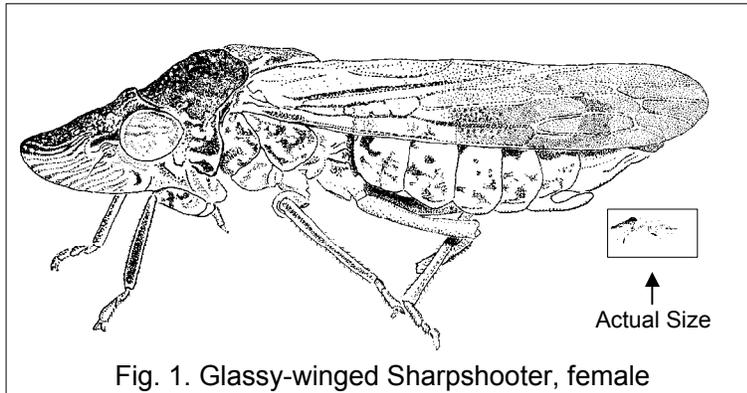


Fig. 1. Glassy-winged Sharpshooter, female

Economic Importance: Originally from the southeastern United States, Glassy-winged sharpshooter (GWSS) is a large leafhopper which has piercing, sucking mouthparts. In California, there is concern since this species is a vector of certain plant diseases (see below).

GWSS is a vector of the bacterium, *Xylella fastidiosa*, also called phony peach disease, Pierce's disease of grape and various other scorch leaf diseases. In southern California, a

different strain of this bacterium called **Oleander leaf scorch** causes necrotic conditions to leaves of Oleander. The bacteria clog the xylem (water transport) tubes of the plant causing the tips of the leaves, and, in advanced stages, the entire plant to turn brown and die. Studies have shown that GWSS transmits the disease in our area. The disease appears confined to parts of Orange County and near Palm Springs in Riverside County and likely occurs elsewhere in southern California. GWSS has recently been shown to transmit **Pierce's disease** to grapes in the Temecula area of southern California. Like Oleander leaf scorch, Pierce's disease kills the host. Since GWSS has become abundant in certain areas of southern California, there is concern that GWSS will pose a serious economic threat to the viticultural industry if it spreads to the wine producing areas of central and northern California.

Hosts: At least 73 species of plants in 35 families are known to be favored by GWSS. In the eastern U. S. both adults and larvae feed on stems and leaves of sunflower, hollyhock, okra, lambsquarters, cotton, corn, cowpeas, oak, ash, silktree, crapemyrtle, and peach. Larvae of the first and second instar apparently do not survive well on woody plants. Adults and older larvae prefer feeding on stems and twigs rather than leaves of plants. Adults are often found feeding alone, but large populations have been observed on a single plant. In California, GWSS has been taken on Citrus, Oleander, *Pinus*, Eucalyptus, Sycamore, and *Prunus*. Nick Nisson, Entomologist for the Agricultural Commissioner's Office in Orange County has seen adults line up along terminal twigs of leafless, dormant peaches, as well as on apricot, and carrot wood. He has also observed that the sharpshooter is abundant in orange groves during the summer. Populations can be so heavy that their white excrement gives the

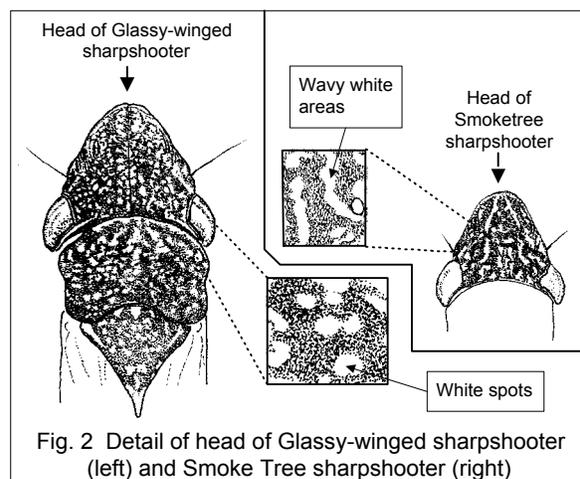


Fig. 2 Detail of head of Glassy-winged sharpshooter (left) and Smoke Tree sharpshooter (right)

appearance of whitewash conditions to leaves and ground beneath. Eggs are commonly inserted in leaves. During the winter, many of the sharpshooters migrate to other plants. Egg masses can easily be found in leaves of the ornamental trees of magnolia and carrot wood, for example.

Identification: GWSS is easily distinguished from all other species but one, the **smoke tree sharpshooter**, by its large size (Fig. 1). The male is 11-13 mm long while the female is between 11-14 mm. The general color is brown to black. The upper part of the head and thorax are brown or black with numerous ivory or yellowish spots (inset, Fig. 2). GWSS is readily separated from its near relative, the smoke tree sharpshooter, *Homalodisca lacerta*, by series of uneven creamy white spots; a series of sinuous marks are found in *H. lacerta* (see insert, Fig. 2). Some females of both sharpshooters can be seen in the field with a pair of chalky white spots on the middle of each wing. These white spots, called brochosomes, are the result of the female leafhopper "packing" dried excrement on minute spine-bearing portions of each fore wing using their hind legs. The purpose of this behavior is unknown although from a distance, sharpshooters vaguely resemble bird droppings. If this is true, the insects may derive protection from potential predators.

Life History: In the eastern U. S., the species has been reported as overwintering as adults in wooded areas. In the spring, adults gradually migrated to new hosts until populations built up in March and April. Eggs were laid in April in leaves of herbaceous plants or sometimes in leaves of woody plants. They were laid in clusters in the lower epidermal layer of leaves. In the summer, populations fed on herbaceous plants and occasionally congregated in large numbers on weakened peach trees. After summer hosts dried up, the sharpshooters moved to woody hosts during August, September, and October, at which time populations were greatest in peach orchards. Overwintering habits of large populations on oak are as follows: during cold snaps the insects dropped to the ground overnight, then gradually returned to oak to feed as the temperature rose during the day. In insectary studies females mated only once. Eggs hatched in 12 days. The larval stage averaged 59.5 days in the first generation. The second generation was carried to the fourth larval molt, which was completed in 33.5 days. In the third generation, the larval stage was completed in 72.2 days. Adults lived an average of 60 to 64 days among generations. There appeared to be two complete generations and a partial third annually. In California, GWSS overwinter as adults and begin laying eggs in February. A second generation begins in June with adults overwintering until the following year.

Distribution: Glassy-winged sharpshooter occurs in the eastern United States. It is prevalent in the Southeastern U. S. (Florida, Georgia, North Carolina, South Carolina, Mississippi, Alabama, Texas, Missouri, and Arkansas), but has been taken from Wisconsin and northern Mexico. This species was noticed for the first time in California with a specimen sent in by Santa Barbara County Entomologist Jerry Davidson. Farm Advisor Phil Phillips made the find on *Eucalyptus* spp. in Ventura, Ventura County, on 7 March, 1994. After further investigation this new pest was also found to be established in Fontana, San Bernardino County (28 February 1994), and specimens discovered that had been collected in January 1990 in Irvine, Orange County area. Presently GWSS occurs throughout Los Angeles and has been taken as far north as Kern County.



Fig. 3. Glassy-winged Sharpshooter, adult female

Comments: This leafhopper probably entered California in nursery stock, as eggs, which are difficult to detect but are frequently intercepted during agricultural quarantine inspections. GWSS appears to be more common than our native smoke tree sharpshooter; at least this last species is taken less frequently compared to GWSS.

Additional Literature:

Gill, R. J. 1994. New state records—Glassy-winged sharpshooter. Calif. Plant Pest & Disease Report 13(1-2):8-11.

Varela, L. G., R. J. Smith, P. A. Philips. 2001. Pierce's disease. Univ. Calif. Agric. Nat. Resources Publ. 21600.

Prepared by Rosser W. Garrison, Entomologist, Los Angeles County Agricultural Commissioner's Office, 11012 South Garfield Ave., South Gate, CA 90280.revised 25 July 2001