THE GENUS GREENIDEA (RHYNCHOTA: APHIDIDAE) IN THE UNITED STATES

Author: Halbert, Susan E.

Source: Florida Entomologist, 87(2) : 159-163

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/0015-4040(2004)087[0159:TGGRAI]2.0.CO;2

THE GENUS *GREENIDEA* (RHYNCHOTA: APHIDIDAE) IN THE UNITED STATES

SUSAN E. HALBERT
Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services
Division of Plant Industry, P.O. Box 147100, Gainesville, Florida 32614-7100, USA

ABSTRACT

Two species of the Asian genus *Greenidea* have been introduced into the United States, *Greenidea ficicola* Takahashi and *Greenidea psidii* van der Goot. Synonymy confusion between *Greenidea formosana* (Maki) and *G. psidii* is resolved in favor of *G. psidii*. Both species colonize *Ficus* spp., and *G. psidii* colonizes a few other plants, mostly in Myrtaceae. The two species can be distinguished by the ornamentation on the siphunculi on the apterous forms, and usually also by the arrangement of rhinaria on antennal segment III of the alate forms.

Key Words: Rhynchota, Aphididae, *Greenidea ficicola*, *Greenidea psidii*, *Greenidea formosana*, *Ficus*

RESUMEN

Dos especies del género asiático *Greenidea* han sido introducidas a los Estados Unidos, *Greenidea ficicola* Takahashi y *Greenidea psidii* van der Goot. Se resuelve la confusión en la sinónomia entre *Greenidea formosana* (Maki) y *G. psidii* en favor de *G. psidii*. Ambas especies colonizan *Ficus* spp., y *G. psidii* coloniza otras pocas plantas, mayormente las de la familia Myrtaceae. Se puede distinguir las dos especies en la ornamentación de los sifunculi en las formas ápteras, y usualmente también por el arreglo de las rinarias sobre el segmento III de las antenas de las formas aladas.

The Asian genus *Greenidea* (Rhynchota: Aphididae) belongs to the subfamily Greenideinae (Greenideini). Most species of aphids in this subfamily, including those in the genus *Greenidea*, have long siphunculi with correspondingly long setae. Until recently, no species in the subfamily were found in the Western Hemisphere except *Brasilaphis bondari* Mordvilko (Cervaphidini) (Ghosh 1982) native to Brazil, and a fossil species in Dominican amber (Wegierek 2001). Two species, *Greenidea psidii* van der Goot and *Greenidea ficicola* Takahashi, now have been found in the USA. Both species have the potential to become pests of certain ornamental plants.

Greenidea (*Trichosiphum*) *psidii* van der Goot 1916 (= *Greenidea* (*Trichosiphum*) *formosana* (Maki) 1917), **new synonymy** (? = *Greenidea* (*Trichosiphum*) *guangzhouensis* Chang 1979 (Remaudière & Remaudière 1997)) (= *Greenidea* (*Trichosiphum*) *formosana* subsp. *heeri* D. N. Raychaudhuri, M. R. Ghosh, M. Banerjee & A. K. Ghosh 1973 (Remaudière & Remaudière 1997)) (= *Trichosiphum formosanum* Maki 1918)

Greenidea psidii was reported (under *G. formosana*) in Hawaii in 1993 (Beardsley 1993). In 1998, *G. psidii* appeared in California (Gill 1998). Outside of the United States, *G. psidii* is reported from Bangladesh, China, India, Japan, Java, Loochoo Islands (Ryukyus), Nepal, Philippines, Sumatra, and Taiwan (Blackman & Eastop 1994, 2000). I have a specimen from Brisbane, Australia that also appears to be this species.

Reported hosts of *G. psidii* include *Psidium guajava* L. and other Myrtaceae (*Callistemon*, *Eucalyptus*, *Eugenia*, *Melaleuca*, *Metrosideros*, *Rhodomyrtus*, *Syzygium*, and *Tristania*). It also infests *Ficus* (Moraceae), *Engelhardtia* (Juglandaceae), *Scurrula* (Loranthaceae), *Lagerstroemia* (Lythraceae) and *Nesua ferrea* (Clusiaceae) (Beardsley 1993; Blackman & Eastop 1994, 2000; Gill 1998; Noordam 1994).

There is some nomenclatural confusion about *G. psidii*. The most recent catalogue (Remaudière & Remaudière 1997) lists this species as *G. formosana*; however, the most recent revision of the genus (Noordam 1994), lists it as *Greenidea psidii* van der Goot 1917. The Maki description (*G. formosana*) was listed as having been published on October 8, 1917 in honor of the sixtieth birthday of Mr. Yasushi Nawa. In the 1917 journal version of the van der Goot paper (*G. psidii*), it says he finished his work in 1915 and added corrections in January 1916. It seems likely that the book was published early in 1917, but there is no month listed for the publication date, so according to the International Code of Zoological Nomenclature, the date is assumed to be 31 December 1917 (ICZN 2000, Article 21.3.2). However, both the California Academy of Sciences and the library of the Netherlands Entomological Society have copies of an "Extrait," or separate, that lacks a title

page but appears to have been distributed in 1916. In both cases, "1916" has been written on the book. According to the International Code of Zoological Nomenclature, "Before 2000, an author who distributed separates in advance of the specified date of publication of the work in which the material is published thereby advanced the date of publication" (ICZN 2000, Article 21.8). Thus, the species should be *Greenidea psidii* van der Goot 1916.

Greenidea ficicola Takahashi 1921 (= *Greenidea neoficicola* A. K. Ghosh, M. R. Ghosh & D. N. Raychaudhuri (Remaudière & Remaudière 1997))

Greenidea ficicola (Figs. 1 and 2) was first suspected in the Western Hemisphere when a single damaged alate form was collected in a suction trap sample collected 22-27 XI 2002 from Kendall, Florida, near Miami (Florida State Collection of Arthropods (FSCA) #E2002-5901). No other specimens were found until colonies were located on *Ficus aurea* Nutt. on 18 II 2003 (FSCA# E2003-569). There have been several subsequent finds in the Miami area, including more trap collections. The newly established aphid also has been found in Naples, in southwest Florida (FSCA# E2004-810, 849). In addition to Florida, *G. ficicola* is reported from Australia, Bangladesh, Burundi (recent introduction), China, India, Indonesia, Japan, Malaysia, Nepal, Pakistan, Philippines, eastern Russia, and Taiwan (Blackman & Eastop 2000).

Greenidea ficicola seems to be restricted to *Ficus* spp. throughout most of its range; however, in India, there are reports of infestations on *Psid-*

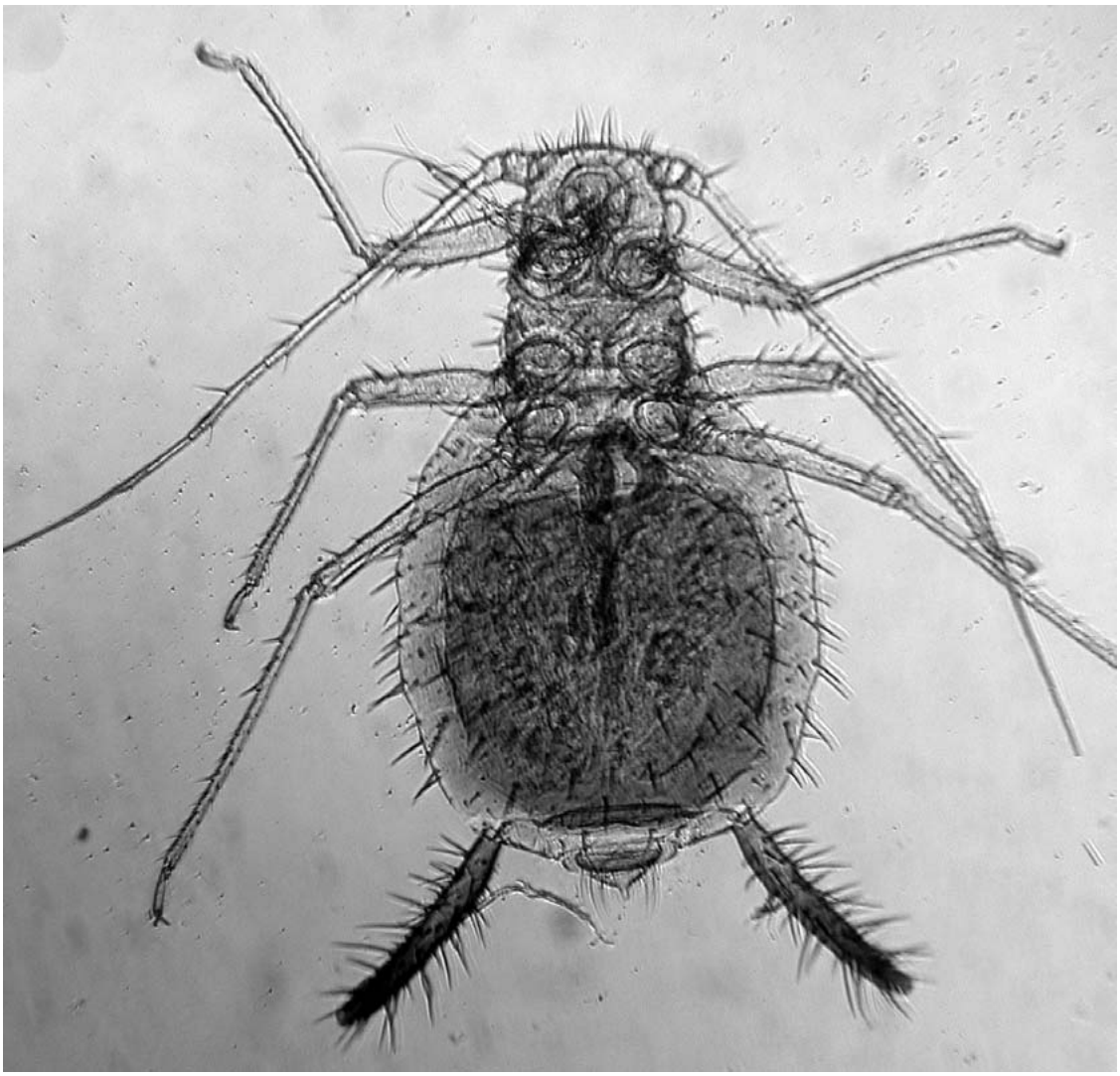

Fig. 1. Adult apterous *Greenidea ficicola* Takahashi.

Fig. 2. Adult alate *Greenidea ficicola* Takahashi.

ium guajava. Noordam (1994) had a collection from *Streblus elongatus* (Miq.) Corner (Moraceae). The record of *G. ficicola* from litchi reported in Blackman & Eastop (2000) is probably spurious (Victor F. Eastop, pers. comm., 12 March 2003). In Florida, we have confirmed field coloni-

zation on *F. aurea* Nutt., *Ficus rigo* (Bailey) Corner, and *Ficus microcarpa* L. f. We were able to rear colonies for several weeks on *Ficus benjamina* L. and *Ficus carica* L. in the laboratory.

Because both species colonize *Ficus* spp., it is important to be able to differentiate between them. A short key is provided:

1a. Apterae with reticulations covering most of the length of the siphunculi (Fig. 3); alatae with 17-21 rhinaria on antennal segment III, in a line and not crowded or touching each other (Fig. 4) . . *G. ficicola*

1b. Apterae with reticulations only at the base of the siphunculi; siphunculi ornamented with irregularly spaced spinules (Fig. 5); alatae with 20-31 rhinaria, some crowded and not in line with the others, often touching (Fig. 6) . . . . . *G. psidii*

Discussion

Both of the newly established species of *Greenidea* have the potential to become pests of certain species of ornamental plants. Both colonize *Ficus*, a genus that includes popular landscape and interiorscape plants, and *G. psidii*

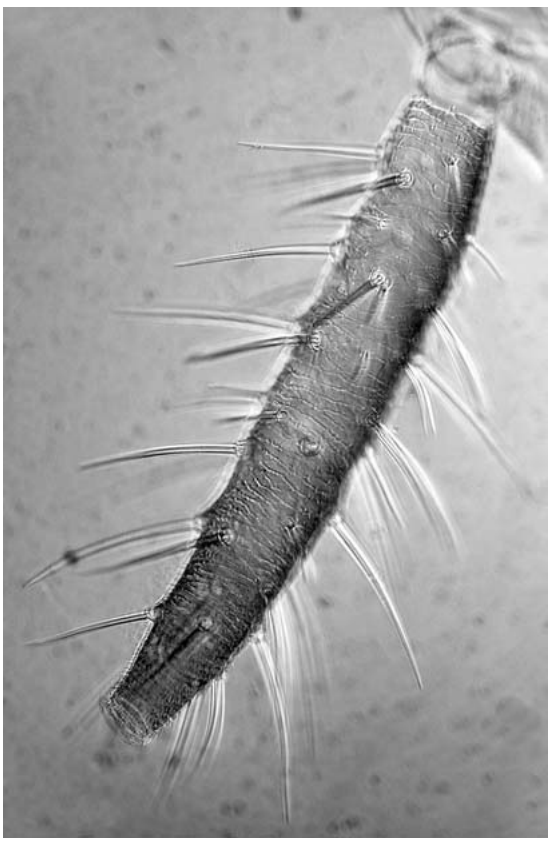

Fig. 3. Siphunculus of apterous *Greenidea ficicola* Takahashi.

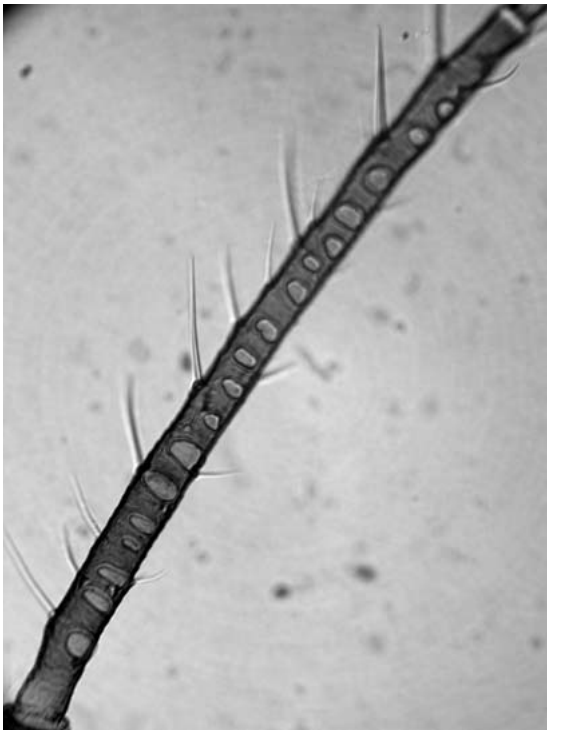

Fig. 4. Antennal segment III of alate *Greenidea ficicola* Takahashi.

Fig. 5. Siphunculus of apterous *Greenidea psidii* van der Goot (= *G. formosana* (Maki)).

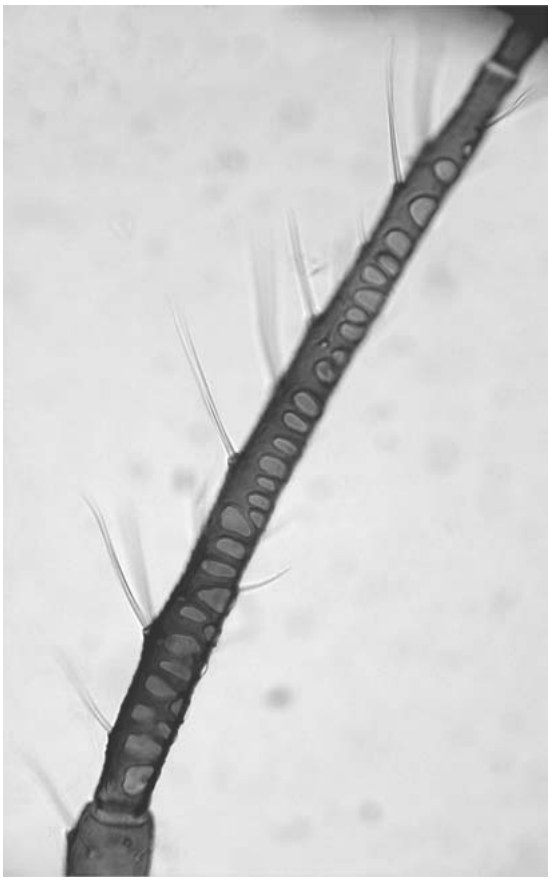

Fig. 6. Antennal segment III of alate *Greenidea psidii* van der Goot (= *G. formosana* (Maki)).

colonizes several species in the Myrtaceae. In the laboratory, *G. ficicola* caused significant leaf drop on *F. benjamina*. *Greenidea psidii* already has been intercepted in Florida in a shipment of *Myrtus communis* L. cut flowers from California (FSCA# E2003-1827). The aphids colonize the buds and new shoots of the host plants. No holocycle is known for either species (Blackman & Eastop 2000), suggesting that freezing temperatures may be limiting, but both species should do well in the neotropics and New World subtropics wherever suitable host plants occur. Interiorscapes, where temperatures do not fall below freezing, also may sustain populations.

Acknowledgments

I thank Rosser Garrison, Raymond Gill and John Sorensen, California Department of Food and Agriculture, for providing specimens of California *Greenidea*, Julieta Brambila (DPI) for technical assistance, Beverly Pope (DPI), Paul Piron (Plant Research International, Wageningen, the Netherlands), and Larry Currie (California Academy of Sciences) for library assistance, Michael Thomas (DPI) for photography and graphics assistance, and Cal Welbourn, Greg Hodges, Michael Thomas (all DPI), Victor Eastop (The Natural History Museum, London), George Remaudière (Museum National d'Histoire Naturelle, Paris), and David Voegtlin (Illinois Natural History Survey) for reviewing the manuscript.

Literature Cited

Beardsley, J. W. 1993. *Greenidea formosana* (Maki), an aphid new to the Hawaiian islands (Homoptera: Aphididae: Greenideinae). Proc. Hawaiian Entomol. Soc. 32: 157-158.

Blackman, R. L., and V. F. Eastop. 1994. Aphids on the world's trees. CAB International in association with The Natural History Museum, Wallingford. 987 pp., 16 plates.

Blackman, R. L., and V. F. Eastop. 2000. Aphids on the World's Crops, Second Edition. John Wiley & Sons, Ltd., New York. 414 pp., 51 plates.

Ghosh, A. K. 1982. Cervaphidini (Homoptera: Aphidoidea) of the world. Oriental Insects 15: 77-97.

Gill, R. J. 1998. New state records: an aphid. California Plant Pest and Disease Report 17: 9.

ICZN. 2000. International code of zoological nomenclature, Fourth Edition. Tipografia la Garangola, Padova. 306 pp.

Maki, M. 1917. Three new species of *Trichosiphum* in Formosa, pp. 9-20. *In* Kikufiro Nagano [ed.], A Collection of Essays for Mr. Yasushi Nawa: Written in Commemoration of his Sixtieth Birthday, October 8, 1917. 186 pp.

Noordam, D. 1994. Greenideinae from Java (Homoptera: Aphididae). National Natuurhistorische Museum, Leiden, The Netherlands. 284 pp.

Remaudière, G., and M. Remaudière. 1997. Catalogue of the World's Aphididae. INRA, Paris. 475 pp.

Takahashi, R. 1921. *Greenidea ficicola* n. sp. Aphididae of Formosa. Part I. Agricultural Experiment Station Government of Formosa, pp. 66-67, plate vii.

van der Goot, P. 1916. Zur kenntnis der Blattläuse Java's. Extrait des 'Contributions à la faune des Indes Néderlandaises, Vol. I, Fasc III'. Gifu, Japan. 301 pp.

van der Goot, P. 1917. Zur kenntnis der Blattläuse Java's. Contributions a la fauna des Indes Néderlandaises, Vol. I, Fasc III. pp. 1-301.

Wegierek, P. 2001. *Quisqueyaaphis heiei* gen. and sp. new (Hemiptera: Aphididae) new species of aphid from Dominican amber. Annales-Zoologici 51: 409-415.