

Research Note

NEW RECORDS OF, AND NOTES ON, WHITEFLIES (HOMOPTERA: ALEYRODIDAE) FROM PUERTO RICO¹

The members of the family Aleyrodidae are known as whiteflies, although they are not true flies, nor are all the species white. The adults are very small insects, winged in both sexes, covered with a white waxy dust-like powder. They resemble very tiny moths. They feed on sap obtained from leaves, thus causing direct damage. Several species can transmit virus diseases. The honeydew excreted by whiteflies serves as a growing medium for fungi causing a sooty mold that interferes with plant photosynthesis.

Many species lay their eggs in a characteristic, often spiral pattern. The first-instar nymphs, the only mobile form of the immature stages, are very active, whereas the other stages are sessile, scalelike and covered with waxy secretions characteristic of each species and helpful in the identification of the species. According to Wolcott (1948)² there are 22 species recorded from Puerto Rico.

While searching for parasites as well as hosts of the sweetpotato whitefly, *Bemisia tabaci* (Gennadius) and other whitefly species in the last 3 years, the second author recorded new whiteflies from Puerto Rico and their natural enemies. The parasites as well as their predators will be discussed in another paper in the near future. Voucher specimens, unless otherwise indicated, are deposited at the Arthropod Collections of the Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville.

The new whiteflies recorded from Puerto Rico are:

1. *Aleyrodicus dispersus* Rusell.

This species was collected at Arecibo on

the leaves of the West Indian almond, *Terminalia catappa* L., 19 Nov. 1988; F. D. Bennett.

2. *Aleuroglandulus malangae* Rusell.

Recorded at Río Piedras Agricultural Experiment Station on tanager leaves, *Xanthosoma* sp. as *X. sagittifolium*; and from Juana Díaz at the Fortuna Agricultural Experiment Substation, on tanager leaves, *Xanthosoma caracu* C. Kock and Bouche, recorded as *Xanthosoma* sp. 17 Nov. 1988; F. D. Bennett. Also specimens (P. R. Acc. no. 79-90) were collected at the Isabela Agricultural Experimental Substation, attacking leaves of tanager, on 23 May 1990; S. Medina-Gaud, R. Franqui and F. D. Bennett. Bennett also collected specimens on the same host at Fortuna Agricultural Substation 22 May 1990.

3. *Dialeurodes citri* (Ashmead)

Recorded from Mayagüez, University of Puerto Rico, on orange leaves, *Citrus sinensis* (L.) Osbeck, 2 Dec. 1987; F. D. Bennett also on the same host at Juana Díaz, Fortuna Agricultural Experiment Substation greenhouse 3 Dec. 1987; F. D. Bennett, at the same locality, same host 17 Nov. 1988. This species was found together with *Dialeurodes citrifolii* (Morgan).

4. *Dialeurodes kirkaldi* (Kotinsky)

Recorded from Río Piedras at the Agricultural Experiment Station on jasmine leaves, *Jasminum multiflorum* (Burm.) F. Andr. 18 Nov. 1988, F. D. Bennett. This species is very common and was noted at several other locations, e.g., San Juan, Mayagüez, August 1990, on this species of jasmine.

5. *Metaleurodicus* sp. nr. *pigeanus* Baker and Moles

¹Manuscript submitted to Editorial Board 5 November 1990.

²Wolcott, G. N., 1948. The insects of Puerto Rico. *J. Agric. Univ. P. R.* 32 (1-4): 1-975.

Recorded from the Mayagüez Campus, University of Puerto Rico, on guava leaves, *Psidium guajava* L. 16 Nov. 1987, F. D. Bennett.

Notes of other whiteflies collected

6. *Aleurocanthus woglumii* Ashby- The citrus blackfly.

This serious pest of citrus and other tree crops was recorded by Medina-Gaud et al. (1991)³ for the first time from Puerto Rico. It is considered to be a recent introduction. A biological control program was initiated shortly after its discovery and the parasites *Encarsia opulenta* and *Amytus hesperidum*, imported from Florida in 1989, established and quickly provided control in the areas where they were released.

7. *Aleurothrixus floccosus* (Maskell) - The wooly whitefly.

Recorded from Mayagüez at the Tropical Agriculture Research Station, on the leaves of *Citrus* sp., 2 Dec. 1987, F. D. Bennett; also collected at Corozal Agricultural Experiment Substation on leaves of *Citrus* sp., 16 Nov. 1988, F. D. Bennett; and at Barceloneta on seagrape leaves *Coccoloba uvifera* 20 May 1990, F. D. Bennett.

8. *Bemisia tabaci* (Gennadeus). The sweet potato whitefly.

This species is the subject of biological studies and integrated control projects because of its wide distribution in Puerto Rico. It causes severe damage to several crops and serves as the vector of several virus diseases (Bird & Sánchez, 1971),⁴ including the recent condition known as the silvering of pumpkin, present especially on the southern coast of Puerto Rico (Segarra et al., 1990)⁵. Previously *B. tabaci* was usually a pest of greenhouse plants, some wild plants,

generally protected from direct rain and sun. Martorell (1976)⁶ recorded 12 host plants of this species in Puerto Rico. Apparently, a strain introduced into Puerto Rico from the United States in *Poinsettia* has multiplied and spread to many areas in the island. It is a real pest of tomato and eggplant on the southern coastal plain. Also ornamentals as well as many other wild and cultivated plants, have been attacked by this whitefly since 1987.

Recent records of this whitefly are from specimens collected by F. D. Bennett—at Corozal Agricultural Experiment Substation on *Citrus* sp. leaves 14 Nov. 1988; it was also collected at Guánica on *Euphorbia heterophylla* and from *Gossypium hirsuta*; at Isabela on *E. heterophylla* and *E. californicus*. Also collected at Juana Díaz, Fortuna Agricultural Substation on eggplant, *Solanum melongena*, 22 May 1990; *Chamaescyze hirsuta* on cantaloupe, *Cucumis melo*; tomato, *Lycopersicon esculentum* and on eggplant. Bennett collected it also at Loíza-Medianá on *E. heterophylla* and *Emelia* sp. It was collected at Luquillo on *E. heterophylla* and in Mayagüez on *Chamaescyze hyssopifolia*, *E. heterophylla* and *Lantana camara*. At Río Piedras Agricultural Experiment Station greenhouses, Bennett collected it on "túa-túa", *Jathropa gossypifolia* L.; on tobacco, and on an unknown plant. He listed it also from San Juan on *Chamaescyze hyssopifolia*.

9. *Dialeurodes citrifolii* (Morgan). The cloudy winged whitefly

Recorded from specimens collected at Corozal Agricultural Experiment Substation; on *Citrus* sp. leaves 1 Nov. 1987 and 1 Dec. 1987. Also at Río Piedras Agricultural Experiment Station on leaves of *Citrus* sp.

³Medina-Gaud, Silverio, A. E. Segarra-Carmona y R. A. Franqui, 1991. La mosca negra de los cítricos, *Aleurocanthus woglumii* Ashby (Homoptera-Aleyrodidae) en Puerto Rico. *J. Agric. Univ. P. R.* 75 (3).

⁴Bird, J. and J. Sánchez, 1971. Whitefly-transmitted virus in Puerto Rico. *J. Agric. Univ. P. R.* 55: 461-67.

⁵Segarra-Carmona, A. E., J. Bird, J. Escudero, G. Fornaris-Rullán y R. A. Franqui, 1990. Silvering of *Cucurbita moschata* (Duschene) Poir associated with *Bemisia tabaci* Gennadeus (Homoptera:Aleyrodidae) in Puerto Rico. *J. Agric. Univ. P. R.* 74: 477-78.

⁶Martorell, L. F., 1976. Annotated food plant catalog of the insects of Puerto. *Agric. Exp. Stn. Univ. P. R.*

and *Citrus aurantifolia* (L.) Swingle, 30 Nov. 1987; and at Mayagüez, University of Puerto Rico Campus on orange leaves, *Citrus sinensis* 2 Dec. 1987; and at Juana Díaz Fortuna Agricultural Experiment Substation on soursop leaves, *Anona muricata* L. leaves and on *Citrus* sp., 12 Dec. 1987, F. D. Bennett. *Anona muricata* is a new host record for this species.

10. *Paraleyrodes* sp.

This unidentified whitefly probably including more than one species was collected from Río Piedras, Agricultural Experiment Station on *Citrus* sp. leaves, 30 Oct. 1987 and on lime, *Citrus aurantifolia*, 30 Nov. 1987; also at Corozal, Agricultural Experiment Substation, on *Citrus* sp., and close to the Corozal Police Station on *C. aurantifolia*, 14 and 15 Nov. 1988, respectively, by F. D. Bennett. Dozier (1927)⁷ described *Paraleyrodes naranjæ* Dozier, the only species recorded from Puerto Rico under this genus.

11. *Tetraleyrodes acaciae* (Quaintance)

This species was collected at Río Piedras Agricultural Experiment Station, on the leaves of "túa-túa", *Jathropa gossypifolia*, a new host record, 18 Nov. 1987 at Río Piedras, Univ. P. R., on *Bauhinia* sp. leaves; 28

Nov. 1987, F. D. Bennett. It was first recorded by Wolcott (1941)⁸ on *Desmodium canum* (J. F. Gmel) Schinz and Tell as *Meibonia soupina* (Sw.) Britton.

12. *Tetraleyrodes ursorum* (Cockerell)

Collected at San Juan; on María, *Calophyllum calaba* Jacq., leaves, a new host record for this whitefly, 12 Nov. 1988, F. D. Bennett. This species was described by Cockerell from Puerto Rico on *Coccoloba* sp.

13. *Trialeyrodes floridensis* (Quaintance).

This species was recorded from Juana Díaz Fortuna Agricultural Experiment Substation on *Citrus* sp. leaves, a new host plant record, 3 Dec. 1987, F. D. Bennett.

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⁷Dozier, H. L., 1927. An undescribed white fly attacking citrus in Puerto Rico. *J. Agric. Univ. P. R.* 34 (9): 853-55.

⁸Wolcott, G. N., 1941. A supplement to Insectae Borinquenses. *J. Agric. Univ. P. R.* 25 (2): 33-158.