

DISTRIBUTION OF THE ASIAN CITRUS PSYLLID, DIAPHORINA CITRI KUWAYAMA (RHYNCHOTA: PSYLLIDAE) IN THE CARIBBEAN BASIN

Authors: Halbert, Susan E., and Núñez, Carmelo A.

Source: Florida Entomologist, 87(3) : 401-402

Published By: Florida Entomological Society

URL: [https://doi.org/10.1653/0015-4040\(2004\)087\[0401:DOTACP\]2.0.CO;2](https://doi.org/10.1653/0015-4040(2004)087[0401:DOTACP]2.0.CO;2)

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

DISTRIBUTION OF THE ASIAN CITRUS PSYLLID, *DIAPHORINA CITRI* KUWAYAMA (RHYNCHOTA: PSYLLIDAE) IN THE CARIBBEAN BASIN

SUSAN E. HALBERT¹ AND CARMELO A. NÚÑEZ²

¹Florida Department of Agriculture and Consumer Services, Division of Plant Industry
P.O. Box 147100, Gainesville, FL 32614-7100

²Sección de Entomología, Museo Nacional de Historia Natural, Plaza de la Cultura "Juan Pablo Duarte"
Calle César Nicolás Penson, Santo Domingo, D.N., Dominican Republic

Asian citrus psyllid, *Diaphorina citri* Kuwayama 1907 (Rhynchota: Psyllidae), was described from Taiwan and is native to Asia. It has been known in the Western Hemisphere for several decades in Brazil (Hodkinson & White 1981; Lima 1942). During the past decade, its range has expanded into northern South America and the Caribbean. The focus of this paper is to document the distribution of *D. citri* in the Caribbean Basin.

Burckhardt & Martinez (1989) reported *D. citri* intercepted in France on citrus plants from Honduras and "reconditionné aux Etats-Unis avant d'être importé en France." This report has been difficult to verify. There is no doubt that the intercepted insects were *D. citri*, but the source of the shipment is questionable. The circumstances under which these infested plants spent time being rehabilitated in the United States are not stated. Citrus plants from foreign sources are not allowed in the USA except under strict quarantine conditions (Title 7 (Agriculture), Chapter III, Part 319.19, Code of Federal Regulations). Additionally, *D. citri* was not present in the USA in 1989, so the infestation did not come from the USA. Visiting scientists Ronald Cave (Department of Entomology, University of Florida, pers. comm. 2003) and James Baker (Department of Entomology, North Carolina State University, pers. comm. 2003) spent many months in Honduras in the 1990s and failed to find *D. citri*.

In 1997, specimens of *D. citri* were found on citrus in Corrientes, Argentina, by Sara Cáceres (Florida State Collection of Arthropods (FSCA) accession # E1997-3427). Evidently, the infestation was minor, because the Argentina Department of Agriculture was unaware of the presence of *D. citri* in Argentina in 1998. This low infestation level suggests that *D. citri* had been there prior to 1997 long enough for populations to subside to low levels controlled by local natural enemies.

In 1998, *D. citri* was found in Guadeloupe (Étienne et al. 1998) and in south Florida (FSCA# E1998-1751) (Halbert 1998; Halbert et al. 2003). Since then, movement throughout the Caribbean has been rapid.

In 1999, *D. citri* was found on Abaco Island and Grand Bahama Island, Bahamas, on both *Citrus* spp. and on *Murraya paniculata* (L.) Jack. (FSCA# E1999-1975, 1976, Robert C. Bullock and Robert R. Pelosi, University of Florida). Two years

later, high numbers of *D. citri* were intercepted on citrus fruit from Abaco, Bahamas sent for processing in Ft. Pierce, FL (FSCA# E2001-747, 850, 978, 1135, and 2049, Kenneth L. Hibbard and James J. Walukiewicz, Florida Department of Agriculture and Consumer Services, Division of Plant Industry (DPI) inspectors). These repeated interceptions of *D. citri* indicate beyond doubt that *D. citri* can move on fresh, unprocessed citrus fruit.

Infestations were found in West Bay, Grand Cayman, Cayman Islands in June 2000 (FSCA# E2000-2102, Joan Steer and Sasha Frederick). In 2001, *D. citri* was intercepted in passenger baggage on leaves of *Murraya koenigii* (L.) Sprengel from St. Thomas, U.S. Virgin Islands, probably indicating a population of *D. citri* on that island (FSCA# E2001-696). An infestation was found in Jamaica for the first time in Bodles, St. Catherine on 18 January 2003 (FSCA# E2003-259, Sharon McDonald).

Diaphorina citri was first found in the Dominican Republic in September 2001, but because of its wide distribution in the country, we believe its introduction occurred at least one year before its detection. The specimens from the Dominican Republic are housed at the Museum of Natural History, Santo Domingo, Dominican Republic. All collections are by C.A. Núñez unless otherwise noted. They are labeled as follows: 17 adults on *Murraya paniculata*—Distrito Nacional, Santo Domingo, Ciudad de los Millones, 16-IX-2001; 9 adults on *Citrus sinensis* (L.) Osbeck, Plaza de la Cultura "Juan Pablo Duarte," 20-IX-2001; 6 adults, 1 nymph on *Murraya paniculata*, Ensanche Miraflores, 21-IX-2001; 3 adults on *Citrus limon* (L.) Burm. f., 2 adults on *Citrus reticulata* Blanco, 6 adults on *Citrus limetta* Risso, 5 adults on *Citrus sinensis*, 7 adults on *Citrus maxima* (Burm.) Merr., Urbanización Las Praderas, 22-IX-2001; 7 adults, 3 nymphs on *Citrus aurantium* L., Ensanche Quisqueya, 23-IX-2001; 11 adults on *Murraya paniculata*, 3 adults on *Citrus limon*, 3 adults on *Citrus sinensis*, Province of Santo Domingo, Santo Domingo Oeste, Engombe 26-VII-2002; 6 adults, 9 nymphs on *Murraya paniculata*, Zona Industrial, Herrera, 14-XI-2002; 8 adults, 10 nymphs on *Murraya paniculata*, Santo Domingo Este, Ensanche Ozama, 8-VIII-2002; 7 adults on *Citrus sinensis*, San Cristobal, General Leger Ave., 30-IX-2001; 9 adults on *Murraya paniculata*, Monte Plata, Parque Central, 23-VII-

2002; 6 adults on *Citrus limetta*, 5 adults on *Citrus maxima*, Yamasá, Palmita de los Botados, 23-VII-2002; 13 adults on *Murraya paniculata*, Independencia, Jimaní (near the border of Haiti), 8-X-2002, C. A. Núñez and H. Takizawa.

Diaphorina citri was found in Cuba in 2001. Several specimens from Cuba, also housed at the Museum of Natural History, Santo Domingo, Dominican Republic, are labeled as follows: La Habana city, Playa, on *Citrus sinensis*, 24-VI-2001, Y. Hernández; Guanabo, on *Citrus limon*, 12-IX-2002, L. L. Vázquez; Granma, Bayamo, on *Citrus sinensis*, 10-VIII-2001, L. L. Vázquez.

We have specimens from Puerto Rico collected on 3 December 2002 at Isabela (FSCA# E2003-1439, Ana Escribano). Prior to that collection *D. citri* was reported (no specimens collected) on the coast of Isabela and the mountains of Adjuntas in Puerto Rico in June 2001; both *Citrus* and *Murraya* were infested (Philip Stansly & Robert Rouse, Southwest Florida Research and Extension Center, University of Florida, pers. comm., 2003).

Diaphorina citri was reported for the first time in Venezuela in 1999 in the Peninsula de Paraguaná, State of Falcón (Cermeli et al. 2000). Hosts were reported as *Citrus aurantifolia* (Christm.), *Citrus reticulata*, *Citrus latifolia* Tan., and *Murraya paniculata*.

French et al. (2001) reported *D. citri* in Weslaco, Texas, in September 2001 (FSCA# E2001-3720, J. Victor French). So far, there are no records from other U.S. citrus growing areas of Alabama, Mississippi, Louisiana, Arizona, or California.

There is a report of *D. citri* intercepted from Belize on *Citrus* in baggage at Houston, TX in October 2002 in the USDA/APHIS/PPQ interception database. We do not have any specimens of *D. citri* from Belize.

Finally, we have specimens, of *D. citri* from Mexico. Roy Morris (Bayer Corp., pers. comm., 2003) reported *D. citri* in Cancún, Mexico in April 2002 but collected no specimens. He collected specimens when he returned to the same location in November 2003 (FSCA# E2003-6158). There is an interception report in the USDA/APHIS/PPQ interception database of *D. citri* on *Citrus reticulata* fruit from Mexico in Texas in April 1996.

In Asia, *D. citri* primarily causes damage to citrus as a result of transmission of the pathogens that cause huanglongbing (黄龙病, citrus greening disease). In July 2004, as this paper was going to press, citrus greening disease was reported in Brazil by Fundecitrus. This is the first credible report of the disease in the Western Hemisphere.

SUMMARY

Asian citrus psyllid, *Diaphorina citri* Kuwayama (Rhynchota: Psyllidae), originally is from Asia but has been known in the Western Hemi-

sphere for several decades. In 1998, it was discovered for the first time in the Caribbean Basin both in Guadeloupe and in Florida. Since then, it has spread widely among islands and adjacent mainland countries, including the Bahamas, the Cayman Islands, Jamaica, Dominican Republic, Cuba, Puerto Rico, Venezuela, Mexico, and Texas (USA). Additionally, there were interceptions of *D. citri* from St. Thomas and Belize. In Asia, *D. citri* primarily causes damage to citrus as a result of transmission of the pathogens that cause citrus greening disease. In July 2004, as this paper was going to press, citrus greening disease was reported in Brazil by Fundecitrus. This is the first credible report of the disease in the Western Hemisphere.

ACKNOWLEDGMENTS

We thank contributors who sent us specimens of *D. citri*. We thank Thomas Dobbs, USDA/APHIS/PPQ, Miami, for providing the interception information. We also thank Mark Garland and Greg Hodges (DPI), Gary Miller and Douglass Miller (both US National Museum), and an anonymous reviewer for reviewing the manuscript.

REFERENCES CITED

- BURCKHARDT, D., AND M. MARTINEZ. 1989. Note sur la présence au Honduras d'un redoutable ennemi des citrus: *Diaphorina citri* Kuwayama [Hom. Psylloidea Psyllidae]. Bulletin de la Société Entomologique de France 94: 65-66.
- CERMEI, M., P. MORALES, AND F. GODOY. 2000. Presencia del psílido asiático de los cítricos *Diaphorina citri* Kuwayama (Hemiptera: Psyllidae) en Venezuela. Boletín de Entomología Venezolana 15: 235-243.
- ÉTIENNE, J., D. BURCKHARDT, AND C. GRAPIN. 1998. *Diaphorina citri* (Kuwayama) [sic] en Guadeloupe, premier signalement pour les Caraïbes (Hem., Psyllidae). Bulletin de la Société Entomologique de France 103: 32.
- FRENCH, J. V., C. KAHLKE, AND J. DA GRAÇA. 2001. Asian psyllid found on Texas citrus. Citrus Center 19 (5): 1.
- HALBERT, S. E. 1998. Entomology Section. Tri-ology (May-June 1998) 37 (3): 6-7.
- HALBERT, S. E., C. L. NIBLETT, K. L. MANJUNATH, R. F. LEE, AND L. G. BROWN. 2003. Establishment of two new vectors of citrus pathogens in Florida, pp. 1016-1017 In Proceedings of the International Society of Citriculture IX Congress, ASHS Press, Alexandria VA, USA.
- HODKINSON, I. D., AND I. M. WHITE. 1981. The Neotropical Psylloidea (Homoptera: Insecta): an annotated check list. J. Natural History 15: 491-523.
- KUWAYAMA, S. 1907-8. Die Psylliden Japan I. Transactions of the Sopporo Natural History Society 2 (Parts 1-2): 149-189.
- LIMA, A. M. DA C. 1942. Insectos do Brazil; Homopteros 3, Rio de Janeiro (Imprensa Nacional), p. 101.