FIRST REPORT OF *CONCHASPIS CORDIAE* (HEMIPTERA: CONCHASPIDIDAE) IN FLORIDA AND THE UNITED STATES

F. W. HOWARD[1], G. S. HODGES[2] AND MICHAEL W. GATES[3]
[1]University of Florida, IFAS, Fort Lauderdale Research & Education Center
3205 College Avenue, Fort Lauderdale, FL 33314

[2]Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Florida State Collection of Arthropods, PO Box 147100, Gainesville, FL 32614

[3]USDA-ARS-PSI-SEL, PO Box 37012, c/o Smithsonian Institution, NMNH, MRC 168, Washington DC, 20013-7012

We report for the first time the presence in Florida and the continental United States of *Conchaspis cordiae* Mamet (Hemiptera: Sternorrhyncha: Conchaspididae) (Fig. 1), an adventive scale insect species from the West Indies.

Conchaspis cordiae was described by Mamet (1954) from specimens collected in 1919 on black sage (*Cordia* sp.), and in 1917 from "mahogany" on St. Croix, U.S. Virgin Islands. It was reported also from West Indies mahogany (*Swietenia mahagoni* Jacquin) and seagrape (*Coccoloba uvifera* L.) in the Dominican Republic (Panis and Martin 1976), and has been collected in Puerto Rico and Haiti (Douglass R. Miller, personal communication). It has not been reported as a pest, and nothing is known about its biology.

Florida Department of Agriculture and Consumer Services inspector Ms. Lynda Davis made the first U.S. collection of *C. cordiae* on West Indies mahogany on November 26, 2003, in Hialeah (Miami-Dade County, FL). On February 8, 2005, Ms. Jeanette Wofford, Arborist, Department of Public Works, Cooper City, FL, called the attention of the senior author to extensive infestations of scale insects on West Indies mahoganies in Cooper City. Specimens collected from both these cities were identified as *C. cordiae* by the second author.

Having determined that it was possibly a serious pest, we conducted a preliminary survey in urban areas from Miami-Dade County to a site about 70 km north of this in southern Palm Beach County, examining West Indies mahoganies from the ground at 16 sites where at least 10 of these trees were in close proximity. Infested branches as high as 8 m from the ground were pruned with a pruning pole for obtaining specimens. Trees with infestations that we could not see or collect specimens from, i.e., restricted to branches higher than 8 m, were thus excluded from the survey. Specimens of *C. cordiae* from each locality were mounted on microscope slides and their identifications confirmed by the second author.

Based on these observations, at least one West Indies mahogany was infested with *C. cordiae* at 62.5% of the 16 sites examined, including the northernmost (26°22'N) and southernmost (25°45'N) and the easternmost and westernmost sites (80°07'W and 80°25'W, respectively) (Table 1).

To compare West Indies mahogany and several closely related species as potential hosts of this scale insect, we examined mature trees of species in the family Meliaceae at the Fort Lauderdale Research and Education Center in Davie, FL. These included 196 West Indies mahoganies, and trees interspersed with them including 14 Honduras mahoganies (*S. macrophylla* King), 29 mahogany hybrids (*S. macrophylla* × *S. mahagoni*), four African mahoganies (*Khaya nyasica* [Stapf] ex Baker f.), two tropical-cedars (*Cedrela odorata* L.), and two neem trees (*Azadirachta indica* A. Jussieu).

These observations provided two indications that West Indies mahoganies and the *S. macrophylla* × *mahagoni* hybrid are preferred hosts: (1) Infestations were found on 40.8% of the West Indies mahoganies, and 41.3% of the *S. macrophylla* × *mahagoni* hybrids, compared with 14.2% of the Honduras mahoganies, and (2) Large patches of dense populations of up to 30 mature female *C. cordiae* per cm^2 along with numerous first and second instars were visible on branches of most of the infested West Indies mahoganies and the *macrophylla* × *mahagoni* hybrids. In contrast, infestations on Honduras mahoganies were sparse and consisted of relatively few individuals per tree. One of the African mahoganies was lightly infested. No scale insects were found on Spanish-cedar or neem trees.

Conchaspis cordiae was observed on bark and not on other plant parts such as leaves or fruit capsules. Infestations were concentrated on twigs and branches up to about 6 cm in dia. Only occasional scale insects were observed on larger branches and main trunks, where they occurred in bark fissures.

Conchaspididae with about 30 described species is a small tropical family related to Diaspididae. Previously, two species have been reported in Florida: (1) *Conchaspis angraeci* Cockerell, native to the Caribbean and found on orchids and other ornamental plants (Merrill & Chaffin 1923), and (2) *Asceloconchaspis milleri* Williams,

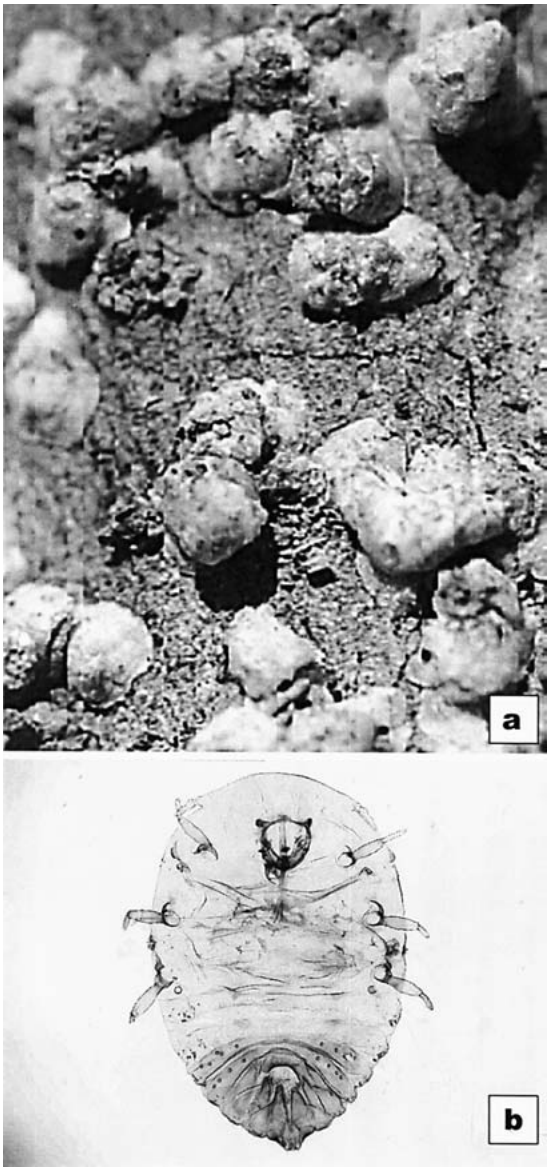

Fig. 1. West Indies mahogany scale, *Conchaspis cordiae* Mamet. (a) close-up of infestation on bark of West Indies mahogany, *Swietenia mahagoni* Jacquin, showing scale covers of mature females; (b) mature female mounted on microscope slide; the presence of functional legs in the adult female distinguishes most Conchaspididae from Diaspididae.

which was described from specimens collected in Miami on pigeonplum, *Coccoloba diversifolia* Jacquin (Williams 1992) and is not reported outside the type locality.

Previously, scale insects were rarely found on West Indies mahogany in Florida. The potential impact of this new pest on urban landscapes and the natural environment of southern Florida is not clear. We have observed heavy infestations on young West Indies mahogany seedlings, indicating that this scale insect is potentially a nursery pest. Although heavy infestations of mature trees appeared to have resulted in death of branches in only a few cases, possibly long-term infestations could result in serious damage or curtailment of growth. West Indies mahogany is a native tree in hammocks in the Florida Everglades and on the Florida Keys. It is listed as a threatened species in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Although its wild populations have been diminishing, it is one of the most popular shade trees planted in urban areas of southern Florida. Honduras mahogany has replaced West Indies mahogany as the most important tropical timber tree in the world (Mayhew & Newton 1998). Under different conditions, Honduras mahogany could possibly be more susceptible to this scale insect than our observations indicated.

Parasitoid exit holes were observed in about 5-8% of the scale coverings of mature female *C. cordiae* in samples from three sites in Broward County. Five specimens of a minute wasp were reared from *C. cordiae* in the laboratory. This species was identified as *Marietta* sp. (Hymenoptera: Aphelinidae) by the third author. We have initiated studies to elucidate the biology and ecology of *C. cordiae* and develop management options for it.

We propose the vernacular name "West Indies mahogany scale" for *C. cordiae*. This name reflects that West Indies mahogany appears to be a major host of this insect, that there are no other scale insects consistently found on this tree species, and that the scale insect itself is native to the West Indies.

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Summary

Conchaspis cordiae Mamet (Hemiptera: Conchaspididae) is reported for the first time in Florida and the Continental U.S. and found to be widely distributed in the urban areas of southeastern Florida. West Indies mahogany (*Swietenia mahagoni*) and a mahogany hybrid (*S. macrophylla* × *S. mahagoni*) apparently are preferred hosts. Honduras mahogany (*S. macrophylla*) and African mahogany (Khaya *nyasica)* were marginal hosts. *Marietta* sp. (Hymenoptera: Aphelinidae) was identified as a parasitoid of this species.

TABLE 1. LOCATIONS OF SITES IN SOUTHEASTERN FLORIDA WHERE *Conchapsis cordiae* WAS IDENTIFIED ON *Swietenia mahagoni* DURING SURVEY MARCH 10-SEPTEMBER 4, 2005.

County	Community	Coordinates	Collecting date
Palm Beach	Boca Raton	26°22'N 80°12'W	14-VI-2005
Broward	Fort Lauderdale	26°09'N 80°07'W	4-IX-2005
Broward	Plantation	26°09'N 80°16'W	19-V-2005
Broward	Sunrise	26°08'N 80°15'W	19-V-2005
Broward	Davie	26°05'N 80°14'W	15-III-2005
Broward	Dania Beach	26°04'N 80°11'W	07-VII-2005
Broward	Cooper City	26°03'N 80°25'W	10-III-2005
Miami-Dade	Unincorporated	25°91'N, 80°18'W	26-V-2005
Miami-Dade	Miami Lakes	25°54'N, 80°18'W	7-VI-2005
Miami-Dade	South Miami	25°45'N, 80°23'W	7-VI-2005

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