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Source: Florida Entomologist, 87(4) : 593-596

Published By: Florida Entomological Society

URL: [https://doi.org/10.1653/0015-4040\(2004\)087\[0593:FRFDAH\]2.0.CO;2](https://doi.org/10.1653/0015-4040(2004)087[0593:FRFDAH]2.0.CO;2)

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# FIRST RECORDS FOR *DIEUCHES ARMATIPES* (HETEROPTERA: RHYPAROCHROMIDAE) IN NORTH AMERICA

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*Dieuches armatipes* (Walker), a moderately large lygaeoid that occurs throughout Africa, has been discovered recently in several Florida counties. Previously, it had been intercepted by the U.S. Department of Agriculture, APHIS/PPQ, at several Florida ports-of-entry. In Africa, *D. armatipes* feeds on peanuts (*Arachis hypogaea* L.) during the harvesting process; thus, this species has the potential to become a serious pest in northern Florida. In this paper, we give the first United States records of *D. armatipes*, review the literature, provide a diagnosis, and discuss its pest potential.

Henry and Froeschner (1993) gave the first New World records of *D. armatipes* from the West Indies, based on collections from Dominican Republic, Grand Cayman, Jamaica, and St. Kitts. It also has been collected in St. Croix and Cayman Brac (R. M. Baranowski 2003, pers. comm.). In the Old World, *D. armatipes* is distributed throughout Africa and as far north as Spain (Andalucia) (Eyles 1973).

In his world review, Eyles (1973) redescribed *D. armatipes* and included a key to all species of *Dieuches*, photographs of adults, and illustrations of genital capsules, parameres, and spermathecae. At present, 132 species of *Dieuches* are known (Eyles 1995). Henry and Froeschner (1993) redescribed the adult of *D. armatipes* and included dorsal and lateral photographs of an adult female to help distinguish it from other rhyparochromid species in the United States.

## Diagnosis

*Dieuches armatipes* (Fig. 1) is distinguished from other rhyparochromids in Florida primarily by its large size (up to 11.5 mm long). Additionally, it may be recognized by the following characters: dark brown to nearly black, antennal segment IV dark brown with a wide subbasal white band, corium with a large isolated subapical white marking, relatively large eyes, labium ending between midcoxae, lateral pronotal margins lamellate, and forelegs incrassate and armed with two rows of spines.

## Collection Records

The following acronyms and abbreviations are used: RMBC—Richard M. Baranowski collection, Homestead, Florida; FSCA—Florida State Collection of Arthropods, Gainesville, Florida; VGC—

Vince Golia collection, Boynton Beach, Florida; JECC—J. Eric Cronin collection, Gainesville, Florida; ABSC—Archbold Biological Station collection, Lake Placid, Florida; MV—mercury vapor; BL—black light.

In Florida, *Dieuches armatipes* has been intercepted with various commodities imported through Ft. Lauderdale, Miami, and West Palm Beach; it also has been intercepted in Puerto Rico and Texas (T. Dobbs 2003, pers. comm.). The first specimen (female) collected in the United States has the following label data: Florida, Palm Beach Co., Delray Beach, Country Lake, 2-VII-1992, dead in pool, Vince Golia (RMBC). The following are label data from other material collected in Florida (Fig. 2): PALM BEACH COUNTY. 1 (sex unknown), Delray Beach, 9-VIII-1994, MV light, V. Golia (RMBC); 1 same but ♂ (FSCA, #E2002-5964); 1♂, Delray Beach, Country Lake, 28-VI-1995, MV light, V. Golia (VGC); 1♂, same but 26-VIII-1995 (VGC); 1♂, same but 9-IX-1995 (FSCA); 1♀, same but 23-V-1996 (FSCA); 1♀, same but 12-VIII-1997, BL (VGC); 2♂ 1♀, Boynton Beach, Nautica Sound, 26-V-2001, V. Golia, MV Light (FSCA). ALACHUA CO. 1♀, Gainesville, 27-V-1999, BL trap, J. E. Cronin (JECC, FSCA #E1999-1561); 1♀, Gainesville, 10014 SW 87 Terrace, 18-IX-2002, BL, Lyle J. Buss (at Univ. of Florida); 1 same but ♂ (FSCA). POLK CO. 1♂, Winter Haven, 5-XII-2002, in a citrus tree, in a Jackson trap with trimmed lure bait, Martha A. Simpson (RMBC, FSCA #E2002-5918); 19 adults and nymphs, Winter Haven, 23-XII-2002, on ground under and between citrus trees, J. Brambila and S. E. Halbert (FSCA, #E2002-6120 through 6122). ST. LUCIE CO. 1♂, Ft. Pierce, 30-V-2003, on ground under fallen sabal palm frond, Ken Hibbard (FSCA, #2003-2291). HENRY CO. 1♂, LaBelle, Duda Farms, 25-VIII-1-IX-2000, aphid suction trap, M. Terrell (FSCA); 1♀, same but 13-19-X-2000 (FSCA). HIGHLANDS CO. 2♂, Lake Placid, Archbold Biological Station, 10-X-1997, MV light, Mark Deyrup (ABSC); 1 (abdomen missing), Lake Placid, ABS, 24-VI-2001, MV, V. Golia, (VGC). LEVY CO. 1♂, 1♀, Williston, 25-VIII-2003, in a peanut field, A. Drew, S. Krantz, and S. E. Halbert (FSCA, #E2003-3803).

## Biology

In Africa, *D. armatipes* has been collected under *Mimosa*, a legume that could be its native host, although direct observation of feeding on its



Fig. 1. Dorsal view of an adult *Dieuches armatipes* (Walker).

seeds was not reported; it also has been collected under stones and along the roadside at 1,200 meters above sea level in mixed grasses and herbs (Eyles 1973). This species reportedly feeds on harvested peanuts, a legume introduced from South America into Africa in the 16th century (Hill 1975). In Grand Cayman, West Indies, *D. armatipes* has been collected under coastal plants (R. M. Baranowski 2003, pers. comm.).

In Florida, *D. armatipes* has been found on dry sandy soil in leaf litter under and between citrus trees and under weeds between rows of trees. The only seeds apparently available at the collection site were those of native sandspurs, *Cenchrus brownii* Roemer & J. A. Schultes (Poaceae); puncture vine, *Tribulus terrestris* L. (Zygophyllaceae); and *Citrus* sp. (Rutaceae). We observed *D. armatipes* feeding on sandspur and puncture vine seeds in captivity. The bugs were maintained in the laboratory in plastic Petri dishes with dry sand, green and mature seeds, a vial with cotton and water, and dry, curled citrus leaves from the ground. Adults lived up to 4 weeks and were observed drinking, feeding, mating, and molting. A male and a female were collected in a peanut field

in Levy Co. In captivity, they fed on shelled and unshelled peanuts. Eggs were deposited in a moist cotton ball, as well as on the peanuts, peanut stems, and on dry leaves. Nymphs fed on shelled and unshelled peanuts.

#### Pest Potential

According to Eyles (1973), *D. armatipes* is a serious pest of harvested peanuts in Africa. When the plants are inverted to expose the peanuts to the air for drying, or when stored outdoors in heaps, these bugs pierce the pods and suck the oil from the nuts, causing them to shrivel and to become rancid and bitter, and sometimes reducing the percentage of germination by one-half (Risbec 1941). Currently, there is no record for *D. armatipes* occurring in the panhandle of Florida, the major peanut production area. However, it has been found in a peanut field in Levy Co., in north central Florida. Harvested peanuts in the drying stage have received little scrutiny for pests as a result of mechanical harvesting and threshing practices. In Florida, the peanut plants are turned over in the field and left to dry for 3 to 4



(1973) quoting Risbec (1941), the latter author indicated that it was only reared in association with this species. Indeed, *Cephalonomia* wasps are known only to parasitize pupae or larvae of small Coleoptera in cryptic situations (Krombein 1979). The effectiveness of natural enemies in mitigating the pest status of *D. armatipes* is not known since most, if not all, of its known natural enemies are generalist predators. Classical biological control should be pursued with great caution. Modification of harvesting, drying, storing, and shipping methods could minimize losses in the event that this species becomes a pest in Florida.

We thank Martha Simpson (USDA/PPQ, Winter Haven) for guiding us to the collecting site in Polk Co., Vince Golia (Boynton) for sharing his records and specimens, Thomas Dobbs (USDA/PPQ, Miami) for interception data, Thomas J. Henry for improving this manuscript, Greg Hodges and Greg Evans for reviewing early drafts of this work, Michael Thomas (DOACS/DPI) for the photograph, Beverly Pope (DOACS/DPI) for assistance in library research, Katrina Vitkus (DOACS/DPI) for producing the map, Joseph Funderburk (University of Florida, IFAS, Quincy) for assistance in the survey in north Florida, Richard K. Sprenkel (University of Florida, IFAS, Quincy) for sharing information on Florida peanut harvesting and processing practices, and Stefanie Krantz (DOACS/CAPS, Gainesville) for her interest and assistance in this project. We are grateful to Dr. Richard M. Baranowski (University of Florida, TREC, Homestead) for sharing specimen data and for verifying the identification of this interesting species. This is Entomology Contribution #965, Bureau of Entomology, Nematology, and Plant Pathology, FDACS-DPI.

## SUMMARY

*Dieuches armatipes* (Walker), previously known to occur only in Africa and the West Indies, has become established in Florida. At present, the northernmost occurrence of *D. armatipes* is Gainesville. This species feeds on a variety of seeds on the ground. It has serious pest potential in northern Florida because it has been observed to feed on peanuts.

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