SCIENTIFIC NOTES

TWO BEETLES NEW TO THE EVERGLADES THAT ATTACK SUNFLOWER (COLEOPTERA: CURCULIONIDAE AND CERAMBYCIDAE)

Sunflower (*Helianthus annuus* L.) has been under investigation as a source species of parasites and predators in the Everglades. Since limited commercial sunflower production occurs in adjacent coastal areas, as well as elsewhere in Florida, and since the crop appears commercially promising (Green, V. E., Jr., W. G. Genung, and G. B. Killinger, 1979, Soil and Crop Sci. Soc. of Florida 38: 28-32), it also has seemed advisable to keep a careful record of all phytophagous insects attacking the crop (Genung, W. G. and V. E. Green, Jr., 1979, The Sunflower 5(2): 10-1, 29-30, 32). Herein, are discussed observations on recent occurrence in the Everglades of 2 known pests of sunflower, common to *Helianthus* spp. and other Compositae in other areas.

The cockle-bur billbug or cockle-bur weevil (*Rhodobaenus tredecempunctatus* Illiger) was observed in rather light but general infestation in sunflower (*Helianthus annuus* L.) in an 0.6 acre plot area at the Agricultural Research and Education Center, Belle Glade in early May 1980. During the more than 30 years of entomological observations in the area we have not previously noted this curculionid in the Everglades Agricultural Area. Previously, we have been familiar with this species on several wild composite host plants in north and central Florida and elsewhere in the southeastern U.S. The most likely source of infestation in the Everglades would seem to be ragweed (*Ambrosia artemisifolia* L.); however, inspection of several ragweed stands gave negative results. Cockle-bur (*Xanthium pennsylvanicum* Walr.) is of very rare occurrence in the area as an adventive introduction. The largest number of the conspicuous red and black adult weevils observed in walking alternate rows of the sunflower planting on any one date was 17 individuals alone or in copula. However, signs of activity on the plants indicated considerable movement of the beetles within the planting. There appeared to be no varietal differences in infestation. Nearly 9% of plants had feeding or oviposition signs on 4 June. External and internal rot deterioration seemed to be associated with attack by this weevil.

On 2 June, a single specimen of the cerambycid (*Dectes texanus* LeConte) was observed in the same sunflower planting. Only 2 plants, both near where the beetle was observed, were found with signs of girdling activity. Three years previously a single example of this gray-vestitutured, stream-lined, longhorned beetle was collected from ragweed about 300 yards from the site of this sunflower planting. It is very similar in color and size to another cerambycid (*Mecas cana* Newman) that has been observed on sunflower, ragweed, and other Compositae on adjacent sandlands (Genung and Green 1979. The Sunflower 5(2):10-1, 29-30, 32). *D. texanus* is fairly common to plentiful on cockle-bur and ragweed in north and west Florida, but these are our only observations of it in the Everglades or adjacent coastal area. Only one additional plant was found with typical girdling signs by 13 June.

These 2 species are known pests of sunflower in other commercial production areas, (Satterthwait, A. F., 1948 Jour. Econ. Ent. 41:625-27), (Rog-

ers C. E., 1977. Environ. Ent. 6:833-838) and both deposit eggs within stems, axils of leaves, or leaf petioles. Larvae work their way to the stems where the larvae are among a large complex consisting of members of the families Cerambycidae, Curculionidae, and Olethreutidae that bore in the pith and xylem.

We believe that both *R. tredecempunctatus* and *D. texanus* are recent arrivals in the Everglades. Since the relationships of weeds to both phytophagous insect species and parasites and predators have been of long standing interest to the senior author, the most likely hosts of the 2 species within the area have been under frequent inspection by him and various associates and it is believed that even low level populations would otherwise have been previously revealed. Insects and other pioneering animals and plants new to the Everglades Agricultural Area have been penetrating the area at rather variable rates of time since the drainage of these lands and we know of several species that have become established in the area only over the last 3 decades. (Authors unpublished observations on penetration of the Everglades by species native to Florida, but exotic to the organic soils area).

We wish to thank Dr. R. E. Woodruff, Taxonomic Entomologist, Div. of Plant Industry, Fla. Dept. of Agriculture and Consumer Services and Dr. Joan A. Dusky, Weed Scientist, AREC, Belle Glade, FL. for reviewing this note and making suggestions for its improvement.—WILLIAM G. GENUNG, Professor (Entomologist) (deceased 6 April 1982), Agricultural Research and Education Center, Univ. of Fl. Institute of Food and Agricultural Sciences, P. O. Drawer A, Belle Glade, FL 33430 USA, and VICTOR E. GREEN, JR., Agronomy Department, Univ. of Florida, IFAS, Gainesville 32611 USA.

FACTORS AFFECTING THE ORIENTATION OF *DIALEURODES CITRI* (HOMOPTERA: ALEYRODIDAE) ON PERSIMMON LEAVES—

Adults of the citrus whitefly, *Dialeurodes citri* (Ashmead), on Japanese persimmon, *Dyospyros kaki* L.f., congregate almost exclusively on the bottom sides of leaves. The purpose of the present tests was to determine whether *D. citri* adults orient themselves on leaves of *D. kaki* in response to light, gravity, or factors in the leaves.

The test apparatus consisted of a whitefly-infested green leaf cut from *D. kaki* and suspended by its petiole in a 0.9 liter (1 qt) clear glass canning jar. The original 47 whitefly adults were replaced midway through the ca. 1 h experiment with ca. 100 fresh whiteflies. The first set of tests was conducted out-of-doors in an open shade that also covered the infested plant. The second set of tests was performed under laboratory conditions, either in darkness or with vertically oriented incandescent light shining up from the floor (ca. 1 m below insects).

In both sets of tests, the same general procedure was followed. The jar (with whiteflies and leaf inside) was gently shaken for several seconds to unsettle the whiteflies. Following that, the jar was not moved for 5 min, during which time the whiteflies generally assumed stable distributions on the leaf and on the surface of the jar. After 5 min, the distributions of the