

PEST ALERT

Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Adam H. Putnam, Commissioner of Agriculture

Exophthalmus similis Drury (Coleoptera: Curculionidae), a Jamaican citrus pest newly discovered in the Bahamas

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INTRODUCTION: In June, a photograph of a strikingly-colored weevil (Fig. 3) collected in the Bahamas by Suzanne Wainwright-Evans was circulated by e-mail and eventually found its way to me. I identified it as a member of the genus *Exophthalmus* and forwarded the photograph to C.W. O'Brien for specific identification. He identified it as *E. similis* Drury, previously considered endemic to Jamaica and a citrus pest there.

The genus *Exophthalmus* Schönherr includes more than 70 species, 36 of which occur in the Greater Antilles (Woodruff 1985). Five species are known from Jamaica and all are considered to be citrus pests (Woodruff 1985). They and other citrus root weevils inflict \$2 million-a-year losses on the citrus crop in Jamaica (Robinson et al. 2002).

The two specimens collected by Ms. Wainwright-Evans were found 15 June 2011 on Paradise Island (Fig. 5), an islet just off the coast of New Providence Island, near the city of Nassau. The weevils were feeding on a seagrape tree (*Coccoloba uvifera* L.) (Fig. 5). One oviposited on a leaf while under observation (Fig. 4). The genus *Exophthalmus* has not been recorded from the Bahamas, nor was it found during a recent survey of the beetles of the Bahamas (Turnbow and Thomas 2008). Its presence on New Providence places it two-thirds closer to Florida than it was in Jamaica, and reveals the existence of a pathway for its movement.

IDENTIFICATION: *Exophthalmus similis* can be distinguished from all other known Bahamian weevils by its large size (15-31mm) and bold color pattern (Fig. 1-2). The only weevil that is similar in size to *E. similis* in the Bahamas is *Rhynchophorus cruentatus* (Fabricius), recorded from Andros Island (Turnbow and Thomas 2008), but it is black and red and without scales. In Jamaica, *E. similis* is quite similar to *E. vittatus* (L.), but differs in having a produced elytral humeral angle (Fig. 1) and the lateral stripe (Fig. 2) as long as the dorsal stripes.

Exophthalmus belongs to a group of genera that also includes, among others, the economically important *Diaprepes* Schönherr, *Pachnaeus* Schönherr, and *Lachnopus* Schönherr. The taxonomy of this group is notoriously difficult and generic limits are unclear (Vaurie 1961, O'Brien and Kovarik 2001, Franz 2010).

BIOLOGY: The known biology of *Exophthalmus* species, reported primarily by Dixon (1954) and Wolcott (1929), is similar to that of *Diaprepes abbreviatus* (L.) and other root weevils. Eggs, which are laid in masses between two leaves of the host plant, hatch in about a week and the larvae fall to the ground and burrow into the soil. There they feed on the roots of the plant for 7-8 months, undergoing up to 16 molts, before pupating at a depth of about two feet. The adults emerge at the beginning of the Jamaican rainy season in March, at about the same time the citrus flushes new leaves.

Dixon (1954) called Jamaican *Exophthalmus* weevils "the most important local pests of citrus." The larvae are responsible for the most serious damage, "when in sufficient numbers [they] may completely girdle the main roots with the effect of arresting the flow of mineral salts to the higher parts of the host plant. The leaves of such plants develop a chlorotic appearance, turn yellow and wilt" (Dixon 1954).

Like *Diaprepes abbreviatus*, *Exophthalmus* species are general feeders. Dixon (1954) supplied an extensive list of host plants for Jamaica, including peanuts, coco plum, tropical almond, mango, papaya, cassava and breadfruit, as well as citrus. In the Bahamas, *E. similis* was collected on seagrape and oviposited on the leaves of that plant (S. Wainwright-Evans 2011, in litt.).

DISTRIBUTION: *Exophthalmus similis* is known only from Jamaica, and now, New Providence Island in the Bahamas.

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REFERENCES:

- Dixon, W. B.** 1954. Fiddler beetles. Natural History Notes, Natural History Society of Jamaica 69: 157-183 (mimeographed).
- Franz, N. M.** 2010. Redescriptions of critical type species in the Eustylini Lacordaire (Coleoptera: Curculionidae: Entiminae). Journal of Natural History 44: 41-80.
- O'Brien, C. W., and P. W. Kovarik.** 2001. The genus *Diaprepes*: its origin and geographical distribution in the Caribbean region. Pp. 1-7 in Futch, S. H. (editor). *Diaprepes* short course. Lake Alfred (FL): Citrus Research and Education Center, University of Florida Institute of Food and Agricultural Sciences.
- Robinson, D. E., R. Young, E. Y. Morrison, and A. Mansingh.** 2002. The impact of botanical formulations on the feeding activity, fecundity and fertility of the citrus root weevil, *Exophthalmus vittatus* Linné. Pp. 247-252 in Mansingh, A., D. E. Donald, T. H. Yee, R. Delgoda, D. E. Robinson, E. Y. Morrison, and H. I. Lowe (editors). Utilization of natural products in Developing Countries: Trends and needs. The Natural Products Institute, University of the West Indies. Kingston, Jamaica.
- Turnbow, R. H., and M. C. Thomas.** 2008. An annotated checklist of the Coleoptera (Insecta) of the Bahamas. Insecta Mundi 0034: 1-64.
- Vaurie, P.** 1961. A Review of the Jamaican Species of the Genus *Exophthalmus* (Coleoptera, Curculionidae, Otorhynchinae). American Museum Novitates 2062: 1-41.
- Wolcott, G. N.** 1929. Notes on the life-history of *Exophthalmus* [sic] *quadrivittatus* Olivier (Coleoptera). Proc. Ent. Soc. Washington, vol. 31, pp. 21-26.
- Woodruff, R. E.** 1985. Citrus weevils in Florida and the West Indies: preliminary report on systematic, biology, and distribution (Coleoptera: Curculionidae). Florida Entomologist 68: 370-379.



Figures 1-2. *Exophthalmus similis* Drury. 1) Dorsal view. 2) Lateral view.
(Photography credit: Lyle Buss, UF)



Figure 3. *Exophthalmus similis* Drury on seagrass leaf on Paradise Island, Bahamas.
(Photography credit: Suzanne Wainwright-Evans)



Figure 4. *Exophthalmus similis* Drury egg mass on seagrass leaf on Paradise Island, Bahamas.
(Photography credit: Suzanne Wainwright-Evans)



Figure 5. View of habitat in which *Exopthalmus similis* Drury was found on Paradise Island, Bahamas. Beetles were captured on seagrass plants in the foreground. (Photography credit: Suzanne Wainwright-Evans)