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*Cactoblastis cactorum* Berg (Lepidoptera: Pyralidae),  
a Phycitine New to Florida<sup>1</sup>

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**INTRODUCTION:** The discovery of *Cactoblastis cactorum* Berg in the Florida Keys in October, 1989 raises to at least five the number of phycitine moth species associated with prickly pear cacti (*Opuntia* spp.) in Florida. *C. cactorum* was first identified by Mr. Terhune Dickel, Homestead, FL. The presence of *Ozamia lucidalis* (Walker) in the U.S. is also a new record. It was previously known only from Cuba, Jamaica, and the Dominican Republic (Heinrich 1956). There is further evidence that another unreported species may be attacking *Opuntia* spp. in the Florida Keys. Additional collections and rearings are needed to confirm this.

**DESCRIPTION:** The wing span of the adults ranges from 22-35 mm. The forewings, are grayish-brown, but whiter toward the costal margin (Fig. 1). Distinct black antemedial and subterminal lines present. Hindwings white with some gray terminally. Phycitine adults are often very similar and are not easily identified since scales of specimens are usually rubbed off; however, genitalia can provide positive identification (Heinrich 1956). The larvae of *C. cactorum* are bright orangish-red with large dark spots forming transverse bands (Fig. 2). Mature larvae are 25-30 mm long.

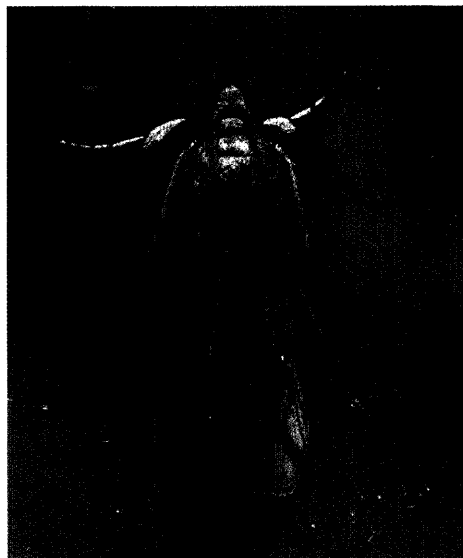


FIGURE 1: *Cactoblastis cactorum*, adult.



FIGURE 2: *Cactoblastis cactorum*, mature larva.

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**KEY TO FLORIDA PHYCITINE LARVAE ASSOCIATED WITH OPUNTIA SPP.:**

- 1. Larvae gregarious, reddish or bluish-purple, feeding in cladodes (pads) . . . . . 2
- 1'. Larvae solitary, not reddish or bluish-purple, feeding in or on cladodes . . . . . 4
- 2. Larvae orangish-red with conspicuous dark spots forming transverse bands (Fig. 2)  
 . . . . . *Cactoblastis cactorum* Berg
- 2'. Larvae dirty-white to bluish-purple with smaller dark spots not forming transverse  
 bands (Fig. 3) . . . . . *Melitara prodenialis* (Walker)
- 3. Larvae dirty-white (Fig. 4) without spots . . . . . *Rumatha glaucatella* (Hulst)
- 3'. Larvae dark . . . . . 4
- 4. Larvae feeding singly in buds or fruits only . . . . . *Ozamia lucidalis* (Walker)
- 4'. Larvae feeding singly on dead tissue but most often feeding on coccids . . . . .  
 . . . . . *Laetilia coccidivora* (J. H. Comstock)



FIGURE 3: *Melitara prodenialis*, mature larva.



FIGURE 4: *Rumatha glaucatella*, mature larva.

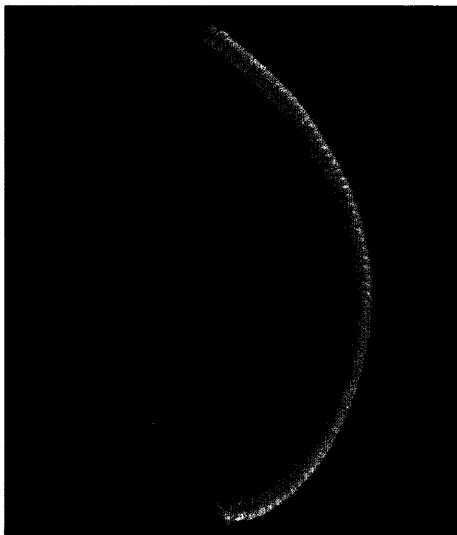


FIGURE 5: *Cactoblastis cactorum*, egg stick.



FIGURE 6: *Cactoblastis cactorum*, cocoon.

**BIOLOGY:** The female lays its eggs in the form of a chain (Fig. 5), the first egg is attached to the end of a spine or spicule and succeeding eggs (140 or more, ave = 75) stacked coin-like to form an egg-stick. On eclosion, the larvae crawl from the egg-stick onto the cladode or pad and burrow into it, usually within a few centimeters of the oviposition site. The larvae feed gregariously moving from cladode to cladode as the food supply is exhausted. During feeding the frass is pushed out of the pad and forms a noticeable heap on the ground. Fully developed larvae usually leave the plant and spin white cocoons (Fig. 6) in the leaf litter, in crevices in the bark of nearby trees, or in similar protected niches. Pupation occasionally occurs in the cladode. The moth emerges and the cycle is repeated. The length of the life cycle in Florida is unknown but probably shorter than in Queensland, Australia, where there are two generations per year (Dodd 1940).

**ECONOMIC IMPORTANCE:** *C. cactorum*, native to South America, was introduced from Argentina into Australia in 1925 to control several North American and South American species of *Opuntia*. In Queensland 16 million acres of severely infested land were reclaimed for agriculture by the action of this insect. It has also been an effective control agent of *Opuntia* spp. in other areas including Hawaii, India, and South Africa. In 1957 it was introduced into the Caribbean, in Nevis, where the control of *Opuntia curassavica* and other *Opuntia* spp. was rapid and spectacular (Simmonds and Bennett 1966). Eggs and larvae, or infested cladodes were sent from Nevis to Montserrat and Antigua in 1962 and to Grand Cayman in 1970 (Bennett et al. 1985). By 1963 it had naturally spread from the Lesser Antilles to Puerto Rico (Garcia-Tuduri et al. 1971) and is now present in Haiti, Dominican Republic, and the Bahamas (Starmer et al. 1987). It now occurs throughout the Florida Keys and as far north as Key Biscayne.

The arrival of *Cactoblastis cactorum* in Florida is viewed with concern because of its potential for adverse impact on native *Opuntia* spp. In the Florida Keys the signal cactus, *O. spinosissima* (Martyn) Mill. and *O. tricantha* (Willdenow) Sweet are rare and are on the "threatened" list. Other native species, *Opuntia cubensis* Britton & Rose, *O. stricta* Haw., *O. humifusa* (Raf.) Rafinesque, as well as exotic species either naturalized or grown as ornamentals in Florida are also at risk. Another concern is the probability that *C. cactorum* will spread north through Florida and west as far as Texas and into Mexico where the fruit and young vegetative parts of *Opuntia* spp. form part of the staple diet of humans and where chopped plants serve as cattle fodder in times of drought. In South Africa, *C. cactorum* significantly reduced growth of spineless *Opuntias* valued as cattle food (Annecke et al 1976).

**CONTROL:** No satisfactory method of chemical control of *C. cactorum* is known. The widespread use of pesticides in the Florida Keys is not recommended because of the occurrence of rare and endangered fauna such as Schaus swallowtail, Florida leaf-wing and Bartram's hair-streak butterflies. Similarly, inundative releases of egg parasites such as *Trichogramma* could have an adverse impact on other desirable Lepidoptera in the Keys.

Preliminary investigations indicate an appreciable level of predation of the pupae and the occurrence of a pupal parasite *Brachymeria* sp. but these are unlikely to control *C. cactorum*.

Classical biological control should be considered. In its native habitat in South America several natural enemies are known including *Apanteles alexanderi* Brethes (Braconidae), *Phyticiplex doddi* (Cushman) and *P. eremnus* (Porter) (Ichneumonidae), *Brachymeria cactoblastidis* Blanchard (Chalcididae), and *Epicoronimyia mundelli* (Blanchard) (Tachinidae). The host range of these natural enemies would have to be determined before the release of any of these for the control of *C. cactorum* could be approved.

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