

Alert:

Tracking the Cactus Moth, *Cactoblastis cactorum* Berg., as it flies and eats its way westward in the U.S.

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In 1989, Terry Dickel, a member of the Lepidopterists' Society, was collecting moths on a sheet at night on Big Pine Key, Florida. He collected a very large phycitine he had never seen before in his extensive surveys of the Florida Keys. He contacted Dale Habeck at the University of Florida at Gainesville who recognized that it was the first U.S. record for *Cactoblastis cactorum* Berg.

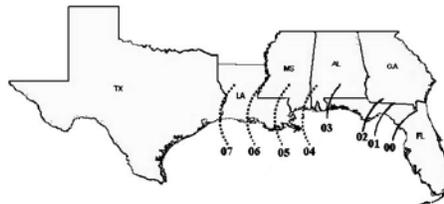
The cactus moth, as *C. cactorum* is commonly known, is historically notorious as a voracious feeder on cacti in the genus *Opuntia*, prickly pear cacti (Figs. 2-5, 9; see pp. 4). The moth is the classic example of a successful weed biological control program. It was introduced from Argentina into Australia in the mid 1920's for the biological control of invasive and non-native *Opuntia* (Figs. 7-8). *Cactoblastis cactorum* was then intentionally spread from Australia into other countries with prickly pear problems. The moth was released into Nevis, an island in the Caribbean, in 1956 where it also destroyed native and non-native *Opuntias*; this action would impact the U.S. in the future.

Dickel's find of *C. cactorum* in the Florida Keys may have been the result of the moth naturally dispersing across the Caribbean, or it may have been introduced unintentionally on horticultural prickly pear cacti imported into Florida (Pemberton 1995).

Scientists at the U.S. Department of Agriculture and the University of South

Florida have followed the northward movement of the cactus moth. By 2002, the cactus moth had eaten its way from the Florida Keys to Folly Island, South Carolina, on the Atlantic eastern coast and to St. George Island, Florida, on the Gulf coast (Hight, *et al.* 2002).

The late-instar bright orange-red, black-spotted caterpillars eat any prickly pear cactus with flat pads (*Platyopuntiae*), and in Florida have been found eating *O. stricta*, *O. pusilla*, *O. humifusa*, *O. cochenillifera* and *O. ficus-indica* (Figs. 3-5). The caterpillar also attacks endemic, rare Floridian cactus, like *O. corallicola* and *O. triacantha*. The Nature Conservancy has tried to protect cacti by physically removing the egg sticks (Fig. 1). Adult females of the cactus moth lay eggs stacked one on top of the other so that they resemble the spines of cacti.



Projected spread of *Cactoblastis cactorum* along the Gulf Coast. Solid lines represent observed spread and dashed lines represent potential spread at 100 mi/year (160 km/yr).

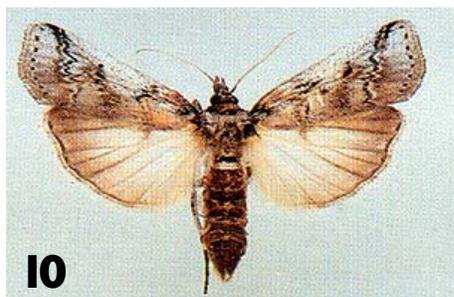
A meeting was held December 9-10, 2003, in Miami, Florida, hosted by USDA, APHIS (Animal, Plant, Health Inspection Service), the U.S. Geological

Survey, and the USDA, ARS (Agriculture Research Service) to discuss the westward movement of the cactus moth beyond Floridian borders. This moth is predicted to move into the western states and south to Mexico once it reaches Texas.

The cactus moth is currently feeding on *O. stricta* along the Gulf of Mexico, and in 2003 it was found as far west as Pensacola, Florida. If the moth continues its westward spread at the recent rate of 100 miles/year, then the insect is expected to arrive at the Texas border by 2007 (see map). The USDA in Florida will not be able to track it beyond Florida due to budgetary constraints and lack of a research mandate for this species.

We call upon the members of the Lepidopterists' Society who live and/or collect in Alabama, Mississippi, Louisiana, and even Texas to keep watch for this moth when they are collecting in the field. To aid in that endeavor we are providing photographs of the immatures and adults of the two most common species that occur in the southeastern U.S. (Figs. 2-6, 9-10) [see also Neunzig 1997]. If you think you have collected either a larva or an adult of *Cactoblastis cactorum* in states along the Gulf of Mexico, please contact Alma Solis at asolis@sel.barc.usda.gov before sending material for identification.

continued on pp. 7



1. Egg stick on cactus pad; 2. Group of early-instar larvae devastating cactus pad [note white color of larvae]; 3. Group of late-instar larvae on cactus pad [note red color of larvae]; 4. Single late-instar larva on cactus pad; 5. Cactus moth larvae feeding inside cactus pad; 6. Late-instar larvae of *Melitara prodenialis* (H. D. Hight); 7. *Opuntia* sp., photographed in Sonora, Mexico (M. A. Solis); 8. *Opuntia stricta* plant attacked by *Cactoblastis cactorum* (S. D. Hight); 9. Adult moth of cactus moth (M. A. Solis); 10. Adult moth of *Melitara prodenialis* (from Neunzig, 1997).

Tracking the Cactus Moth...

In 1990, Habeck & Bennett produced a circular on *C. cactorum* with a larval key for Florida species on *Opuntia*. We provide a corrected, updated larval key below.

For in-depth information on *Cactoblastis cactorum*, please refer to the results of a previous meeting held in 2000 (Anon. 2000).

Acknowledgments

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Key to Florida Phycitine Larvae Associated with *Opuntia* spp.

1. Orangish-red with conspicuous dark spots forming transverse bands (Figs. 2-4) *Cactoblastis cactorum*
- 1'. Dirty-white to bluish-purple not forming transverse bands 2
2. With small dark spots (older larvae turning purplish) (Fig. 6) *Melitara prodenialis*
- 2'. Withoutspots 3
3. Dirty white; gregarious *Rumatha glaucatella*
- 3'2. White to dark gray color; larvae solitary *Ozamia lucidalis*

Note: The original key included Laetilia coccidivora (J. H. Comstock). Larvae of L. coccidivora are often found feeding on scale insects, not on Opuntia plant pads. L. Laetilia coccidivora larvae are much smaller, only 8-12 mm long, in comparison to 20-30 mm long for the species included in the key above. The wingspan of L. coccidivora adults is 10-18 mm and that of C. cactorum is 22-35 mm.