

California Pest Rating Proposal for
***Cactoblastis cactorum* Berg: Cactus moth**

Lepidoptera: Pyralidae

Current Rating: Q

Proposed Rating: A

Comment Period: 10/12/2026 – 11/26/2026

Initiating Event:

Cactoblastis cactorum was reported on prickly pear cactus (*Opuntia* sp.) in an open space park in San Diego County on the citizen science web site iNaturalist. Samples taken from this location were identified by the California Department of Food and Agriculture as another moth, *Metoppleura potosi*, which is known to be present in California. As *C. cactorum* has not been through the pest rating proposal system, a pest rating proposal is needed.

History & Status:

Background: *Cactoblastis cactorum* is reported to only feed on cacti in the genus *Opuntia*; *Cylindropuntia* (chollas) species are not reported hosts. Within *Opuntia*, this moth has a broad host range (Mahr, 2001). The host list includes: *Opuntia arechavaletae*, *O. cochenillifera*, *O. compressa*, *O. corallicola*, *O. engelmannii*, *O. ficus-indica*, *O. humifusa*, *O. leucotricha*, *O. lindheimeri*, *O. megacantha*, *O. megapotamica*, *O. pusilla*, *O. quimilo*, *O. robusta*, *O. stricta*, *O. spinulifera*, *O. streptacantha*, *O. tomentosa*, *O. triacantha*, *O. tuna*, *O. vulgaris* (Solis et al., 2004; Varone et al., 2012; Zimmermann et al., 2000).

The adult female *C. cactorum* lays eggs one on top of another in an “egg stick” (Habeck and Bennett, 1990; Zimmermann et al, 2000). The hatched larvae burrow into the cactus pad. They feed

gregariously for two to four months (the period is shorter at higher temperatures), and then pupate (Habeck and Bennett, 1990). The site of pupation varies and includes hollowed-out cactus pads and soil and leaf litter at the base of the cactus (Habeck and Bennett, 1990; Mann, 1969). There are two to three and possibly as many as four generations per year, and generations are reported to overlap (Folgrait et al., 2013; Zimmermann et al., 2000).

Early evidence of *C. cactorum* feeding includes fresh frass and mucilage emerging from holes in the cactus pad; later, dried frass can be seen adhering to the damaged pads and the pads can become translucent as they are hollowed-out from the feeding (Habeck et al., 2013).

Cactoblastis cactorum is native to South America. It was introduced to Australia in the 1920s for biocontrol of *Opuntia* that had taken over large areas of land, preventing its use for agriculture (Zimmermann et al., 2000). The moth was reported to be very successful in reducing the area covered by cactus. The success of this biological control effort led to introductions of the moth elsewhere, including the Caribbean, where *Opuntia*, including native species, was considered a weed.

Concern about negative impacts by the moth on native and crop *Opuntia* arose relatively late.

Cactoblastis cactorum was first found in the Continental United States in Florida, in 1989, presumably having spread from the Caribbean (Habeck and Bennett, 1990). In the southeastern United States, it spread at a rate of approximately 40 kilometers per year (Johnson and Stiling, 1998; Zimmermann et al., 2000). It was recognized that this moth pose a threat to *Opuntia* in the Continental United States and Mexico.

Abundant literature indicates that *C. cactorum* feeds on and kills native *Opuntia* in the United States. For example, it is reported to kill the endangered *Opuntia corallicola* in Florida (Stilling and Moon, 2001). Damage to pads does not necessarily translate to death of a plant. In a six-year study of impacts of *C. cactorum* on *Opuntia* populations in Florida, 78% of *Opuntia* plants were attacked over the six year, but the majority (76%) survived and these showed, on average, positive growth (Jezorek, 2011).

According to Stiling and Moon (2001), mortality is higher among young *Opuntia* plants. This is also supported by Klein (2002), who stated that *C. cactorum* “cannot kill off woody cactus stems and is therefore not effective against the woody tree cacti such as prickly pear (*Opuntia ficus-indica*).” This species of cactus is reported elsewhere to be a host, and Klein’s statement is interpreted as meaning that mature cactus plants are more resistant to attack.

Some authors have suggests that parasitoids that normally attack other (presumably native) cactus-feeding insects have exerted some degree of control on *C. cactoblastis* in the United States. Morrison et al. (2025) reported the spread of this moth to be slowing in southern Texas, which is an area with abundant *Opuntia*, and they proposed this was due to pressure from such parasitoids. Paraiso et al. (2011) reported two species of *Trichogramma* parasitizing *C. cactorum* eggs in the field in Florida, *T. fuentesi* and *T. pretiosum*. Of the eggs surveyed by them, parasitism rate (percentage of eggs parasitized) among the parasitized egg sticks was as high as 18%. However, the overall egg parasitism rate they observed was only 0.2%

Cactoblastis cactorum has been successfully eradicated in Mexico, though the situation appears to have been fairly ideal. In 2006, infestations were found on two islands, Isla Mujeres and Isla Contoy, both of which are less than two square miles in area. The eradication effort was reportedly quite extensive and included a public awareness campaign, extensive surveys and monitoring (including trapping with a sexual pheromone), removal of all *Opuntia* except for 27 sentinel plants, removal of egg sticks, chemical control, sterile insect technique involving release of sterile moths produced in a USDA insectary in Tifton, Georgia, United States, and regulatory actions (Bello-Rivera et al., 2001). By March 2008, there had been a calculated three life cycles without a *C. cactorum* detection in the area, and the infestation was declared eradicated (Bello-Rivera et al., 2001).

Worldwide Distribution: **Africa:** South Africa; **Caribbean:** Widespread; **South America:** Argentina, Paraguay, Uruguay, Brazil; **North America:** United States (California, Florida, Georgia, South Carolina, Texas) (Klein, 2002; Mahr, 2001; Mann, 1969; Solis et al., 2004).

Official Control: *Cactoblastis cactorum* is a quarantine pest in Mexico and the United States, and it is a pest on the A1 list in Chile (EPPO global database).

California Distribution: *Cactoblastis cactorum* is not known to be present in California.

California Interceptions: *Cactoblastis cactorum* has not been intercepted in California.

The risk *Cactoblastis cactorum* poses to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** *Cactoblastis cactorum* feeds on *Opuntia* species. In addition to some species commonly grown in California as landscaping and food plants that are known hosts of this moth, there are native *Opuntia* species as well, some of which are likely hosts. The Mediterranean climate of California is likely suitable for this moth. Therefore, this moth receives a **High (3)** in this category.
 - Low (1) Not likely to establish in California; or likely to establish in very limited areas.
 - Medium (2) may be able to establish in a larger but limited part of California.
 - **High (3) likely to establish a widespread distribution in California.**
- 2) **Known Pest Host Range:** *Cactoblastis cactorum* is known to feed on *Opuntia* species. Therefore, it receives a **Low (1)** in this category.
 - **Low (1) has a very limited host range.**
 - Medium (2) has a moderate host range.
 - High (3) has a wide host range.
- 3) **Pest Reproductive and Dispersal Potential:** *Cactoblastis cactorum* can fly and it could be moved with infested *Opuntia* plants and pads. There are reportedly several overlapping generations per year in warm climates. Therefore, it receives a **High (3)** in this category.

– Low (1) does not have high reproductive or dispersal potential.

– Medium (2) has either high reproductive or dispersal potential.

– **High (3) has both high reproduction and dispersal potential.**

- 4) **Economic Impact.** Other states and countries may impose quarantines on California *Opuntia* nursery stock. Production of *Opuntia* pads (nopales) and fruits for human consumption could be impacted. Therefore, it receives a **High (3)** in this category.

Economic Impact: A, B, C

A. The pest could lower crop yield.

B. The pest could lower crop value (includes increasing crop production costs).

C. The pest could trigger the loss of markets (includes quarantines).

D. The pest could negatively change normal cultural practices.

E. The pest can vector, or is vectored, by another pestiferous organism.

F. The organism is injurious or poisonous to agriculturally important animals.

G. The organism can interfere with the delivery or supply of water for agricultural uses.

Economic Impact Score: High

– Low (1) causes 0 or 1 of these impacts.

– Medium (2) causes 2 of these impacts.

– **High (3) causes 3 or more of these impacts.**

- 5) **Environmental Impact.** *Cactoblastis cactorum* is generally considered to pose a significant risk to native *Opuntia*. One native species in California that could be impacted is *Opuntia basilaris* var. *treleasei* (Bakersfield cactus), which is endangered. *Opuntia* are common garden and landscaping plants in California. Therefore, *C. cactorum* receives a **High (3)** in this category.

Evaluate the environmental impact of the pest on California using the criteria below.

Environmental Impact: A, B, E

A. The pest could have a significant environmental impact such as lowering biodiversity, disrupting natural communities, or changing ecosystem processes.

B. The pest could directly affect threatened or endangered species.

C. The pest could impact threatened or endangered species by disrupting critical habitats.

D. The pest could trigger additional official or private treatment programs.

E. The pest significantly impacts cultural practices, home/urban gardening or ornamental plantings.

Environmental Impact Score: High (3)

– Low (1) causes none of the above to occur.

– Medium (2) causes one of the above to occur.

– **High (3) causes two or more of the above to occur.**

Consequences of Introduction to California for *Cactoblastis cactorum*: High (13)

Add up the total score and include it here.

–Low = 5-8 points

–Medium = 9-12 points

–**High = 13-15 points**

6) Post Entry Distribution and Survey Information: *Cactoblastis cactorum* is not known to be present in California. It receives a **Not established (0)** in this category.

–**Not established (0) Pest never detected in California, or known only from incursions.**

–Low (-1) Pest has a localized distribution in California, or is established in one suitable climate/host area (region).

–Medium (-2) Pest is widespread in California but not fully established in the endangered area, or pest established in two contiguous suitable climate/host areas.

–High (-3) Pest has fully established in the endangered area, or pest is reported in more than two contiguous or non-contiguous suitable climate/host areas.

Final Score:

7) The final score is the consequences of introduction score minus the post-entry distribution and survey information score: Medium (13)

Uncertainty:

There is some uncertainty regarding the host status of native California *Opuntia*, although it appears likely that at least some are potential hosts of *C. cactorum*. There is also uncertainty regarding the severity of impacts that this moth could inflict on *Opuntia* in California, both native as well as cultivated species. Climate, natural enemies, and possibly growing practices in California are presumably different from other areas where this moth is known to occur. In addition, research suggests that survival may generally be high, at least in some *Opuntia* species, though even in the case that an attacked plant survives, destruction of pads would have negative impacts on pad (nopal) harvest and quality of nursery stock.

Conclusion and Rating Justification:

Cactoblastis cactorum is a pest of cactus in the genus *Opuntia*. California has native species in this genus. *Opuntia* pads and fruit are a human food in the state, and may become more important if water becomes scarcer. Therefore, this moth poses a threat to California's agriculture and environment. For these reasons, an "A" rating is justified.

References:

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Responsible Party:

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***Comment Period: 10/12/2026 – 11/26/2026**

***NOTE:**

You must be registered and logged in to post a comment. If you have registered and have not received the registration confirmation, please contact us at [permits\[@\]cdfa.ca.gov](mailto:permits[@]cdfa.ca.gov).

Comment Format:

- ❖ Comments should refer to the appropriate California Pest Rating Proposal Form subsection(s) being commented on, as shown below.

Example Comment:

Consequences of Introduction: 1. Climate/Host Interaction: [Your comment that relates to "Climate/Host Interaction" here.]

- ❖ Posted comments will not be able to be viewed immediately.

- ❖ Comments may not be posted if they:

Contain inappropriate language which is not germane to the pest rating proposal;

Contains defamatory, false, inaccurate, abusive, obscene, pornographic, sexually oriented, threatening, racially offensive, discriminatory or illegal material;

Violates agency regulations prohibiting sexual harassment or other forms of discrimination;

Violates agency regulations prohibiting workplace violence, including threats.

- ❖ Comments may be edited prior to posting to ensure they are entirely germane.
- ❖ Posted comments shall be those which have been approved in content and posted to the website to be viewed, not just submitted.

Proposed Pest Rating: A