Cooperative Extension Service
College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

Insect Pests
Jan. 2004
IP-14

Mangosteen Caterpillar

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A caterpillar that causes extensive damage to young leaves of mangosteen trees in Hawaii has been identified as *Stictoptera cuculioides* Guenee (Lepidoptera: Noctuidae), formerly called *S. subobliqua* (Walker). The mangosteen caterpillar was first recorded in Hawaii in 1949 from larvae and adult specimens obtained in Honolulu in 1948.

Distribution

This noctuid moth was first described in Sri Lanka and has been reported in India, Thailand, Singapore, Malaysia, Papua New Guinea, and Guam. In Hawaii, the mangosteen caterpillar is found on the islands of Oahu, Hawaii, Maui, and Molokai.

Hosts

In addition to mangosteen (*Garcinia mangostana*), *S. cuculioides* feeds on related latex-bearing plants of the Guttiferae family including *Garcinia cambogia*, mammee apple (*Mammea americana*), kamani (*Calophyllum inophyllum*), autograph tree (*Clusia rosea*), *Ochrocarpus obovalis*, and *O. excelsus* (synonym, *Mammea odorata*).

Damage

The caterpillar feeds upon emerging leaves and shoot tips of the host plant, causing extensive defoliation of new flushes (Fig. 1), often leaving only the leaves' midribs. A single caterpillar as small as ¼ inch (0.6 cm) long can cause significant damage to tender, young leaves. Due to their nocturnal feeding behavior, the caterpillars can be inconspicuous until the damage is severe.

Behavior

Mangosteen caterpillars are active at night but can be observed feeding on young leaves until early or mid-morning. During later daylight hours, they retreat into the denser parts of the tree canopy, where they are not easily detected. Under laboratory conditions, the caterpillars hide during the day under mangosteen leaves left in their cage, and they are most active during the early evening. Prior to pupation, the caterpillars burrow into the soil or hide under leaves in dark, shaded areas to develop cocoons.

Figure 1. Damage to mangosteen foliage caused by *Stictoptera cuculioides* larvae: left, evidence of caterpillar feeding on tender, new leaves; right, the remaining leaf midribs.

Published by the College of Tropical Agriculture and Human Resources (CTAHR) and issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Andrew G. Hashimoto, Director/Dean, Cooperative Extension Service/CTAHR, University of Hawaii at Manoa, Honolulu, Hawaii 96822. CTAHR publications can be found on the Web site <http://www.ctahr.hawaii.edu> or ordered by calling 808-956-7046 or sending e-mail to ctahrpub@hawaii.edu.

Figure 2. Color variations of the *Stictoptera cuculioides* caterpillar (larva); actual size 1–2 inches (2.5–5.0 cm).

Life cycle

Few reports on the life cycle of the mangosteen caterpillar have been published. Both the larval (caterpillar) and adult stages of *S. cuculioides* are variable in size and color. The caterpillar color ranges from light green with black or maroon spots and white stripes to dark purple with white stripes and dots just before pupation (Fig. 2), at which time the last larval instar is 1–2 inches (2.5–5.0 cm) long.

Figure 3. *S. cuculioides* pupa (actual size ½–⅝ inch [1.3–1.6 cm] long and ¼ inch [0.6 cm] wide).

Figure 4. *S. cuculioides* adults.

Pupation occurs in the soil. The pupa (cocoon) is dark brown, ½–⅝ inch (1.3–1.6 cm) long, and ¼ inch (0.6 cm) wide (Fig. 3).

The adult moth is brown but can vary in color tone and pattern (Fig. 4). The adult male appears to have a more ornate wing pattern and a larger abdomen compared to the female.

Previous reports indicate that the larval stage averages 15 days and pupation lasts 10–12 days. Under laboratory conditions (69.6°F [20.9°C] minimum, 76.8°F [24.9°C] maximum), the duration of the pupal stage can extend to as long as 18–20 days. There are no reports on the duration of the adult moth stage.

Management

Growers should monitor new flushes as they emerge for evidence of feeding damage. Insecticides containing *Bacillus thuringiensis* are effective in controlling leaf-eating caterpillars, including *S. cuculioides*. Azadirachtin

(neem extract) is reported to provide effective control in Thailand. Consult product labels for information on application rates and pre-harvest intervals. No biocontrol agents have been detected on mangosteen caterpillar infestations in Hawaii.

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Acknowledgements

The authors would like to thank Shin Matayoshi, Hawaii Department of Agriculture (retired); Dick Tsuda, UH CTAHR; and Dr. Surmsuk Salakpetch, Chantaburi Horticultural Research Center, for their contributions to this publication.