A Wasp Parasitoid, *Cotesia marginiventris* (Cresson) 
(*Insecta: Hymenoptera: Braconidae*)

Andrei Sourakov and Everett Mitchell

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**Distribution**
This species was originally described from Cuba and is native to the West Indies. It also occurs in the United States: Delaware south to Florida, west to Indiana, Kansas and Texas, Wisconsin, Arizona, California, Hawaii. It is also present in Mexico and South America.

**Description**

**Egg**
Oval, three times longer than wide, with a small projection. It is clear and shiny, like a piece of glass. Size increases after the egg is laid. Larva hatches two days after oviposition by the adult.

**Larva**
When dissected from the host, the Cotesia larvae are soft-skinned and bear a “bubble”—a caudal vesicle—in the posterior region. If not submerged in water, the larva dries out shortly after being dissected. Larvae are located in the host's posterior end. The first instar larvae are only 0.06 mm long, while mature (third instar) larvae are 5.5 mm long. When they emerge from the host, they are much more rugged and immediately begin spinning a tight silky cocoon.

**Pupa**
The cocoon is white, tight and 4 mm long.

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Adult

*C. marginiventris* is a small insect (approximately 3 mm in length). Females bear short ovipositors and parasitize only young larvae or even eggs. In the laboratory, *C. marginiventris* lives more than a week, but it is most effective as a parasitoid between two and four days of age.

Life Cycle

*Cotesia marginiventris* is a general parasitoid of noctuid pests. In Florida, it is abundant throughout the summer, but its populations decline from October to April. At 25 degrees C it develops in 13 days from egg to adult.

Hosts

*C. marginiventris* is a general parasitoid of noctuid moths. It attacks mostly very young larvae (first to second instar). A single egg is usually laid in each host, and the cocoon hatches in seven to 10 days. The host, which feeds little throughout its life, dies shortly after the parasitoid emerges. After the mature parasitoid exits the host larvae, they die within a day. The exit hole in the side of the larva is only a superficial sign of the actual damage that occurred to the host. Practically all organs inside were consumed by the parasitoid.

*C. marginiventris* is a parasite of *Agrotis ipsilon* (Hufn.), the black cutworm; *Anagapha falcifera* (Kirby), the celery looper; *Autographa precationis* (Gn.); *Autoplusia egena* (Guen.), the bean leaf skeletonizer; *Helicoverpa zea* (Boddie), the bollworm (also called the corn earworm or tomato fruitworm); *Heliothis virescens* (F.), the tobacco budworm; *Hymenia perspectalis* (Hbn.), the spotted beet webworm; *H. recurvalis* (F.); *Leucania latiuscula* H.-S.; *L. multisulca* Wlkr.; *Peridroma saucia* (Hbn.), the variegated cutworm; *Plathypena scabra* (F.); *Pseudaletia unipuncta* (Haw.), the armyworm; *Pseudoplusia includens* (Wlkr.), the soybean looper; *Scotorythra caryopsis* Meyr.; *Spodoptera eridania* (Cram.), the southern armyworm, *S. exigua* (Hbn.), the beet armyworm; *S. frugiperda* (Smith), the fall armyworm; *S. ornithogalli* (Guen.); *S. praefica* (Grote); and *Trichoplusia ni* (Hbn.), the cabbage looper.
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Importance
Considered for biological control of noctuid pests of vegetable crops, such as beet armyworm, cabbage looper, etc.

Selected References


Mitchell, A., et al. (February 2000). Stage by stage comparison of parasitoids important in biocontrol of cabbage pests.
