

# A Wasp Parasitoid, *Cotesia marginiventris* (Cresson) (Insecta: Hymenoptera: Braconidae)<sup>1</sup>

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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 (< 1/32 in) long, while mature (third instar) larvae are 5.5

mm (~3/16 in) long. When they emerge from the host, they are much more rugged and immediately begin spinning a tight silky cocoon.



Figure 1. Early and late larval stages of *Cotesia marginiventris* (Cresson), a wasp parasitoid.

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Figure 2. Cocoon of *Cotesia marginiventris* (Cresson), a wasp parasitoid.

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1. This document is EENY-123, one of a series of the Entomology and Nematology Department, UF/IFAS Extension. Original publication date March 2000. Revised November 2005 and December 2023. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication. This document is also available on the Featured Creatures website at <http://entnemdept.ufl.edu/creatures/>.
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## Pupa

The cocoon is white, tight and 4 mm (~1/8 in) long.

## Adult

*Cotesia marginiventris* is a small insect (approximately 3 mm (1/8 in) in length). Females bear short ovipositors and parasitize only young larvae or even eggs. In the laboratory, *Cotesia marginiventris* lives more than a week, but it is most effective as a parasitoid between two and four days of age.



Figure 3. Adult male *Cotesia marginiventris* (Cresson), a wasp parasitoid.

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Figure 4. Adult female of *Cotesia marginiventris* (Cresson), a wasp parasitoid.

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## 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°C (77°F) it develops in 13 days from egg to adult.

## Hosts

*Cotesia 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.

*Cotesia marginiventris* is a parasite of *Agrotis ipsilon* (Hufn.), the black cutworm; *Anagrapha falcifera* (Kirby), the celery looper; *Autographa precationis* (Gn.); *Autoplusia egea* (Guen.), the bean leafskeletonizer; *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**.



Figure 5. Exit hole made by a larva of *Cotesia marginiventris* (Cresson), a wasp parasitoid, in a beet armyworm, *Spodoptera exigua* (Hbn.).

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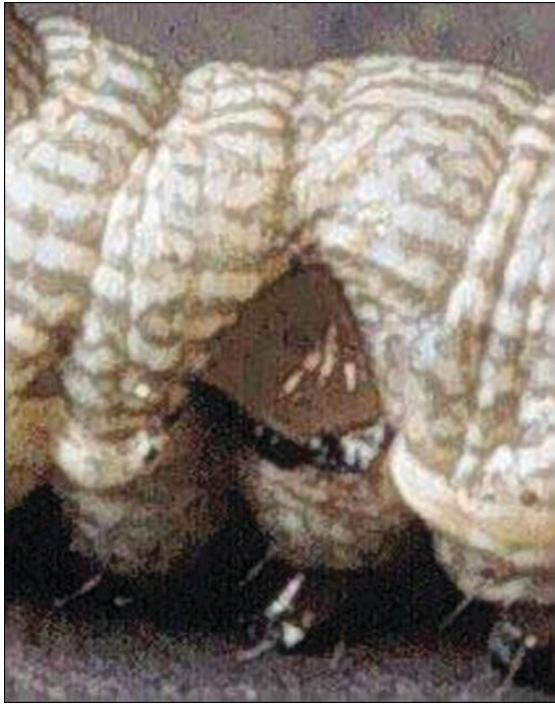


Figure 6. Closeup of an exit hole made by a larva of *Cotesia marginiventris* (Cresson), a wasp parasitoid, in a beetle armyworm, *Spodoptera exigua* (Hbn.).  
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## Importance

Considered for biological control of noctuid pests of vegetable crops, such as [beet armyworm](#), [cabbage looper](#), etc.

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