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Cosmosoma myrodora, Scarlet-Bodied Wasp Moth (Lepidoptera: Erebidae)

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Description

The scarlet-bodied wasp moth is a member of the family Erebidae. The species is well known for its striking coloration and Batesian mimicry. Batesian mimicry refers to a situation where an otherwise harmless animal imitates the coloration and behavior of a dangerous or inedible animal to avoid predation. The adult has a bright red thorax, abdomen and legs. The abdomen includes eight visible segments. The first four are red with a black stripe down the middle and metallic blue spots on each segment. The last four segments are black, each with three metallic blue spots (one in the center and two on either side). The wings are clear with black veins and a thick black outline. The head is metallic blue, bearing large, black eyes and black antennae with white tips. The bright coloration, clear wings and bicolored antennae give the moth its "wasp-like" appearance. This mimicry is most apparent when it is flying. The fast-moving wings and warning colors are convincing. Even at rest, the scarlet-bodied wasp moth resembles a wasp and looks intimidating.

Male scarlet-bodied wasp moth on cocoon with visible flocculent pouch (white spot). John Hartgerink.

Larvae of the scarlet-bodied wasp moth are light yellow and are entirely covered in long, thin hairs. The hairs are yellowish-white with black tips mixed with a few black hairs, giving it a speckled appearance. The head and rear part of the body are darker yellow, along with the legs.

The caterpillar of this species constructs a cocoon from its larval hairs to protect the pupa within. The cocoon is transparent, yellow and speckled with small black spots.

Life Cycle

Females lay eggs on hempvine (*Mikania cordifolia* or *Mikania scandens*), the larval host plant. When the larvae emerge, they first eat their egg casings before moving on to the plant itself. After about one week under normal summer conditions in Louisiana, larvae build their cocoons and pupate. The adult moths emerge after about 11 days. The entire life cycle requires 60 to 70 days.

Adult males are externally slightly different from females. On the underside of the abdomen, males possess two small pouches that contain fine, featherlike filaments

Dorsal view of scarlet-bodied wasp moth feeding at a flower. John Hartgerink.

(flocculent setae). These filaments store poisonous alkaloid chemicals acquired by the adult males while feeding on fluids of dog fennel (*Eupatorium capillifolium*). One source mentioned that the moth can extract these fluids from different parts of the plant (roots, leaves, stems and flowers) by regurgitating on the plant, which dissolves the alkaloids, then sucking it back up. The alkaloids protect the moth from predators (especially spiders), and the males share them with the females before and during mating. During courtship, males will expose these filaments to the females, transferring the alkaloids to her, thus protecting her from predators. Additionally, the male shares more of these alkaloids through insemination, providing protection to the eggs as well.

Two additional species of *Cosmosoma* are recorded for the United States, but neither has been documented in Louisiana. A large number of species within the genus occur in tropical regions of the Western Hemisphere.

Ecological Significance

In Louisiana, adult scarlet-bodied wasp moths may be found anytime during April to November but are most abundant during September and October. Caterpillars of this species feed voraciously on their hempvine host plants but have no impact on any garden or crop plants. Thus, they are not considered pests. In fact, this species has been considered for potential biocontrol of one of the world's worst invasive plant species, mile-a-minute vine (*Mikania micrantha*), because this plant belongs to the same genus as hempvine, the scarlet-bodied wasp moth's normal host plant.

Adult scarlet-bodied wasp moths, while intimidating in appearance, are harmless and lack biting or stinging body parts. Adults finding their way into homes can be safely relocated outside by hand. Their mimicry coupled with their chemical defense allows them to survive with relatively few traditional predators (birds, bats, lizards, etc.). A few species of parasitic wasps and flies attack the larval stage, killing it during its pupal stage.

References

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Contact Us

For advice about arthropod identification or diagnosis, contact the LSU AgCenter Department of Entomology. Reach the department through the Contact Us webpage:

https://bit.ly/36c4awm

Scarlet-bodied wasp moth caterpillar on a plant. John Hartgerink.

First instar scarlet-bodied wasp moth larva emerging from an egg. John Hartgerink.

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