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EENY-052

Hickory Horned Devil (Larva), Regal Moth or Royal Walnut Moth, *Citheronia regalis* (Fabricius) (Insecta: Lepidoptera: Saturniidae: Citheroniinae)[1]

Donald W. Hall[2]

Introduction

The regal or royal walnut moth, *Citheronia regalis* (Fabricius), is one of our largest and most spectacular moths.

Figure 1. Hickory horned devil caterpillar, of the regal moth, *Citheronia regalis* (Fabricius), showing size in relation to an adult human's hand.
Credits: Lyle J. Buss, University of Florida

Like most other moths, it is nocturnal but is sometimes observed at lights. The imposing larva, known as the hickory horned devil, is most often observed when it is full grown and comes down from the trees to wander in search of a site for pupation.

The regal moth is a beautiful and fascinating member of our native fauna, and its larvae should not be killed. If a larva is found crawling on pavement or in an area of thick turf grass where it would have difficulty burrowing, it should be moved to an area of soft soil or a mulched area where it can burrow for pupation.

Distribution

The regal moth is found throughout the deciduous forest areas of the eastern United States from Missouri to Massachusetts and southward to Texas and central Florida. It is more common in the southern part of its distribution.

Description

Adult

The regal moth has a wingspan of 9.5 to 15.5 cm. Females are larger than males. The forewings are gray to gray-green with orange veins and a row of seven to nine yellow spots near the distal margin. There also are single yellow discal

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2. Donald W. Hall, professor, Entomology and Nematology Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Fl 32611.

and basal spots. The hind wing is mostly orange with a basal yellow spot and yellow patches (or spots) on the costal and anal margins. The hind wing may also have one to two rows of gray-green spots. The body is orange with narrow yellow banding.

Larva

The hickory horned devil is among the largest of our native saturniid caterpillars. It is 12.5 to 14 cm in length - about

Figure 2. Adult regal moth, *Citheronia regalis* (Fabricius).
Credits: Donald W. Hall, University of Florida

the size of a large hot dog. The caterpillars vary slightly in color, but are commonly blue-green. The second and third thoracic segments each bear two long and two shorter orange, black-tipped scoli (tubercles in the form of spinose projections of the body wall). The abdominal segments each have four short, black scoli, and segments 2 through 8 have a pale, oblique lateral stripe. Although the larva has a fierce appearance, it is harmless.

Life Cycle

The regal moth typically has only a single generation per year, although a few late collection records suggest the possibility of a small second brood in the deep south.

Figure 3. Fully grown hickory horned devil caterpillar, of the regal moth, *Citheronia regalis* (Fabricius).
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Figure 4. Close-up of the head of a fully grown hickory horned devil caterpillar of the regal moth, *Citheronia regalis* (Fabricius).
Credits: Clemson University, www.insectimages.org

Figure 5. Larva of the pine devil, *Citheronia sepulcralis* Grote & Robinson, which is sometimes mistaken for the hickory horned devil caterpillar of the regal moth, *Citheronia regalis* (Fabricius).
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In Florida, adults have been collected in May, but are more common during the summer. Adults have vestigial mouthparts. Adults mate during the second evening after emergence and begin oviposition at dusk of the third evening. Eggs hatch in six to 10 days, and the duration of the larval stage is about 35 days. In central Florida, larvae are usually found from late July to mid-August while they are wandering on the ground searching for a suitable location to burrow into the soil for pupation. The pupa is the overwintering stage.

Figure 6. **Pupa (bottom) of the regal moth, *Citheronia regalis* (Fabricius), and theexuviae (cast skin) (top) of the last larval instar.**
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Host

Larvae have been reported from a variety of host tree species. They are commonly found on species of the family (Juglandaceae) including walnut (*Juglans nigra*), butternut or white walnut (*Juglans cinerea*), and a variety of hickories (*Carya* spp.) including pecan. In Florida, larvae are frequently found on sweetgum (*Liquidambar styraciflua*). Other hosts commonly listed are persimmon (*Diospyros virginiana*) and sumacs (*Rhus* spp.).

Figure 7. Pignut hickory, *Carya glabra* (Mill.) Sweet, a host of the regal moth, *Citheronia regalis* (Fabricius).
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Figure 8. Sweetgum, *Liquidambar styraciflua* L., a host of the regal moth, *Citheronia regalis* (Fabricius).
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Figure 9. Persimmon, *Diospyros virginiana* L., a host of the regal moth, *Citheronia regalis* (Fabricius).
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Figure 10. Winged sumac, *Rhus copallinum* L., a host of the regal moth, *Citheroniaregalis* (Fabricius).
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Natural Enemies

Citheronia regalis is parasitized by at least two different familes of flies, Sarcophagidae and Tabanidae. While *C. regalis* is parasitized during the larval stage, the flies larvae do not kill the host until after it has entered the pupal stage.

Figure 11. Unidentified sarcophagid fly parasitoids (left) consuming the pupa of a regal moth, *Citheronia regalis* (Fabricius). The adult fly is at right.
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