

Cecropia Moth, Cecropia Silk Moth, Robin Moth, *Hyalophora cecropia* Linnaeus (Insecta: Lepidoptera: Saturniidae: Saturniinae: Attacini)¹

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Introduction

The cecropia moth, *Hyalophora cecropia* Linnaeus, is among the most spectacular of the North American Lepidoptera. It is a member of the Saturniidae, a family of moths prized by collectors and nature lovers alike for their large size and extremely showy appearance.

Adults are occasionally seen attracted to lights during spring and early summer, a common habit of many moths. It is unclear exactly why these insects visit lights, although a number of theories exist. One such theory posits that artificial lights interfere with the moths' internal navigational equipment. Moths, and indeed many other night-flying insects, use light from the moon to find their way in the dark of night. Since the moon is effectively at optical infinity, its distant rays enter the moth's eye in parallel, making it an extremely useful navigational tool. A moth is confused as it approaches an artificial point source of light, such as a street lamp, and may often fly in circles in a constant attempt to maintain a direct flight path.

Synonymy

Hyalophora Duncan, 1841

Samia. - auct. (not Hübner, [1819])

Platyysamia Grote, 1865

cecropia (Linnaeus, 1758)

diana (Castiglioni, 1790)

macula (Reiff, 1911)

uhlerii (Polacek, 1928)

obscura (Sageder, 1933)

albofasciata (Sageder, 1933)

(from Heppner 2003)

Distribution

The range of *Hyalophora cecropia* is from Nova Scotia in eastern Canada and Maine south to Florida, and west to the Canadian and U.S. Rocky Mountains.

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Description and Life Cycle

Eggs:

The large and mottled reddish/brown eggs are laid by the female on both sides of the host leaf in small groups.



Figure 1. Adult female cecropia moth, *Hyalophora cecropia* Linnaeus, laying eggs on host plant. Photograph by: David Britton. Used with permission.

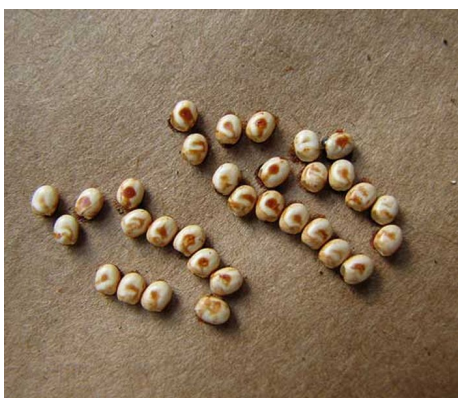


Figure 2. Eggs of the cecropia moth, *Hyalophora cecropia* Linnaeus, laid on brown paper bag. Photograph by: David Britton. Used with permission.

Larvae:

There are typically five larval instars, each lasting approximately one week. First instar larvae are black and feed gregariously.

Second instar larvae are variable from dark yellow to yellow, and also feed gregariously.

Third, fourth, and fifth instar larvae are similar in their exuberant appearance. The body is very large,



Figure 3. First instar larva of the cecropia moth, *Hyalophora cecropia* Linnaeus, emerging from egg. Photograph by: David Britton. Used with permission.



Figure 4. First instar larvae of the cecropia moth, *Hyalophora cecropia* Linnaeus. Photograph by: David Britton. Used with permission.

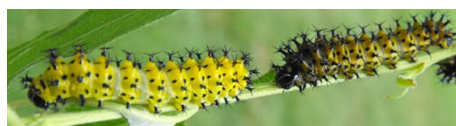


Figure 5. Second instar larvae of the cecropia moth, *Hyalophora cecropia* Linnaeus. Note color variation, even though they are from the same batch of eggs. Photograph by: David Britton. Used with permission.

with fifth instar larvae reaching up to 4.5 inches in length. Color is bright green or sea green with prominent dorsal protuberances, all with distal black spines. Thoracic protuberances are orange to red, abdominal protuberances are yellow, and side

protuberances are pale blue. The larvae of the Columbia Silkmoth (*H. columbia*) are very similar, but have red thoracic protuberances, yellow-pink abdominal protuberances, and side protuberances which are more white than blue with black bases.



Figure 6. Third instar larva of the cecropia moth, *Hyalophora cecropia* Linnaeus. Photograph by: David Britton. Used with permission.



Figure 7. Fourth instar larva of the cecropia moth, *Hyalophora cecropia* Linnaeus. Photograph by: David Britton. Used with permission.



Figure 8. Fifth instar larva of the cecropia moth, *Hyalophora cecropia* Linnaeus. Although green in color, the top appears to have an iridescent pale-bluish sheen when viewed in direct light. Photograph by: David Britton. Used with permission.

Pupae:

The pupae are large, dark brown, and encased within a silk cocoon that is attached lengthwise along a stem or branch of the host plant or nearby plant.

Adults:

Size is variable but usually quite large, with a wingspan approaching up to 6 inches. Wings are



Figure 9. Cocoon of the cecropia moth, *Hyalophora cecropia* Linnaeus, on host plant. Photograph by: David Britton. Used with permission



Figure 10. Pupa of the cecropia moth, *Hyalophora cecropia* Linnaeus, removed from cocoon. Photograph by: David Britton. Used with permission.

brownish with red near the base of the forewing. Crescent-shaped spots of red with whitish center are obvious on all wings, but are larger on the hindwings. All wings have whitish coloration followed by reddish bands of shading beyond the postmedial line that runs longitudinally down the center of all four wings. The body is hairy, with reddish coloring anteriorly, and fading to reddish/whitish. The abdomen has alternating bands of red and white.

For an excellent photographic account of the *H. cecropia* life cycle, see *Hyalophora cecropia: Changes of Color and Contrast* (Britton 2009).

Hosts

Plant families and species:



Figure 11. Newly emerged adult cecropia moth, *Hyalophora cecropia* Linnaeus. Photograph by: David Britton. Used with permission.



Figure 12. Adult cecropia moths, *Hyalophora cecropia* Linnaeus. Photograph by: David Britton. Used with permission.

- **Aceraceae** - *Acer negundo*, *A. rubrum*, *A. saccharinum*, *A. spicatum*
- **Betulaceae** - *Alnus serrulata*, *Betula alba*, *B. alba*, *B. allagheniensis*, *B. lenta*, *B. papyrifera*, *Corylus Americana*, *C. cornuta*, *Ostrya virginiana*

- **Berberidaceae** - *Berberis vulgaris*
- **Cannabidaceae** - *Humulus lupulus*
- **Caprifoliaceae** - *Sambucus candensis*, *S. pubens*, *Symphoricarpos albus*
- **Ericaceae** - *Gaylussacia frondosa*, *Vaccinium* sp.
- **Fagaceae** - *Fagus* sp., *Quercus alba*
- **Juglandaceae** - *Carya illinoensis*
- **Lauraceae** - *Sassafras albidum*
- **Leguminosae** - *Gleditsia triacanthos*, *Wisteria sinensis*
- **Lythraceae** - *Decondon verticillatus*
- **Naucleaceae** - *Cephalanthus occidentalis*
- **Oleaceae** - *Fraxinus* sp., *Syringa vulgaris*
- **Paeoniaceae** - *Paeonia officinalis*
- **Philadelphaceae** - *Philadelphus inodorus*
- **Pinaceae** - *Picea* sp.
- **Rosaceae** - *Amelanchier arborea*, *A. arbutifolia*, *Crataegus calpodendron*, *C. crusgalli*, *C. oxycantha*, *C. pedicellata*, *Malus coronaria*, *M. pumila*, *Physocarpus opilifolius*, *Prunus cerasus*, *P. domestica*, *P. illicifolia*, *P. maritime*, *P. pennsylvanica*, *P. serotina*, *P. virginiana*, *Pyrus communis*, *Rubus allegheniensis*, *R. idaeus*, *R. occidentalis*, *Sorbus Americana*, *Spiraea corymbosa*, *S. salicifolia*, *S. tomentosa*
- **Salicaceae** - *Populus balsamifera*, *P. tremuloides*, *Salix alba*, *S. humilis*, *S. lucida*, *S. viminalis*
- **Saxifragaceae** - *Ribes americanum*, *R. grossularia*, *R. nigrum*, *R. rubrum*, *R. sativum*
- **Tiliaceae** - *Tilia Americana*, *T. europaea*
- **Ulmaceae** - *Ulmus Americana*, *U. rubra*, *U. thomasii*

• **Vitaceae** - *Parhenocissus quinquefolia*

(from Heppner 2003)

Economic Importance

While *H. cecropia* larvae are large and feed on a wide range of host plants, this species is not considered a serious pest in any parts of its range.

Some populations of *H. cecropia* may be in decline due to a number of factors, including nontarget effects of introduced biological control agents. Boettner et al. (2000) suggested that the generalist parasitoid fly *Compsilura concinnata* (Diptera: Tachinidae) may be responsible for such declines in the northeastern U.S.

Due to its size and hardiness, *H. cecropia* has been used extensively in physiological and biochemical research. Carroll Williams conducted pioneering work on juvenile hormone and its role in molting and metamorphosis using this species.

Owing to its impressive size and appearance, *H. cecropia* has become a favorite of collectors and amateur Lepidopterists. Eggs and pupae are commercially available, and a small livestock industry has developed around this and other related species.

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