



## Luna Moth

### *Actias luna*

A luna moth flits in and out of darkness near a streetlight, finally settling in the shadow of the beam. Even at night, this graceful insect is easy to identify, with its long, slender wings and pastel green color.

Moths like the luna look and develop much like butterflies. But moths have thread-like or branched antennae, not thin with a club-shaped tip like butterflies. And most moths fly at dusk or night instead of during the day as do most butterflies. “Luna,” in fact, means “moon” in Latin, and Luna was the goddess of the moon in Roman mythology.

### History and Status

The luna moth remains common throughout North Carolina and the East Coast, as it has for centuries. Yet populations have declined in some areas due to habitat changes.

### Description

The luna moth’s color and its long, narrow hind wings make it one of the most spectacular of the giant silkworm moths. The adult’s wings span from  $3\frac{1}{8}$  to  $4\frac{1}{2}$  inches and vary in color from yellowish green to bluish green. On each front wing, or forewing, a reddish brown band extends over the top margin and sends out a thin line that touches an eyespot. The hind wings also display small eyespots.

Adult luna moths, like other insects, have three main body regions: a head, thorax and abdomen. The sexes are similar, but

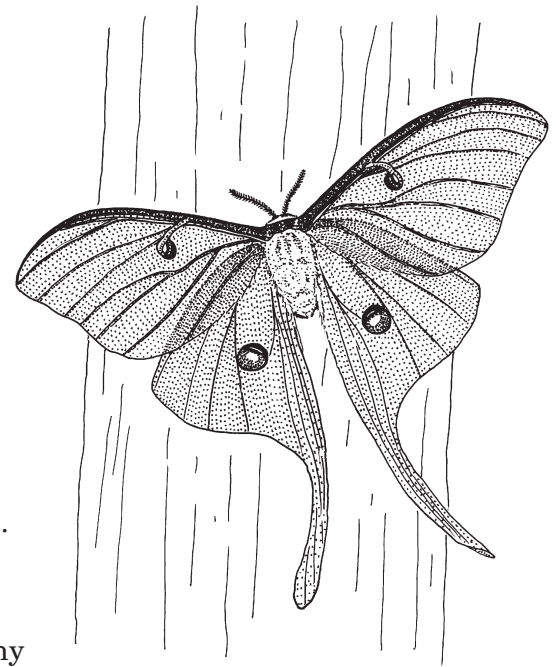
males have larger, more thickly feathered antennae. Lunas bear three pairs of legs on their furry, wide thorax. On the sides of the thorax and abdomen are tiny holes called “spiracles” that allow oxygen to enter the moth’s respiratory system. The abdomen also includes the moth’s reproductive and digestive organs.

### Habitat and Habits

Under a grove of sweet gums and hickories, the tough, brown cocoons of luna moths nestle in leaves on the ground. The first lunas emerge from their winter hideaways around early April in North Carolina. They hatch by exuding a chemical to soften the cocoon’s silk, then rubbing a nub at the base of their wings back and forth to cut a hole.

Immediately, males and females crawl up the nearest tree or twig to hang upside down. As these new moths, measuring only about an inch long, dangle, they pump fluid into their veins to expand their wings, almost like air into a balloon. Then a chemical hardens their wings.

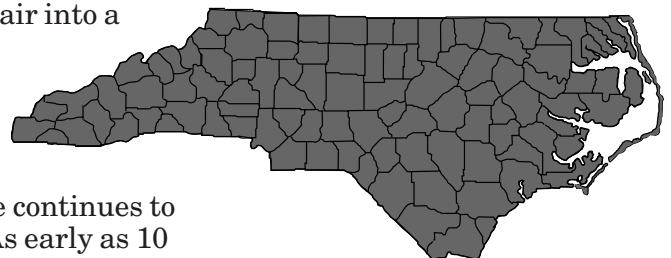
Males fly the night after hatching. But the female continues to hang motionless. As early as 10 p.m. the first night, she begins to “call” a mate. She does so by



releasing a perfume known as a “pheromone,” barely detectable to humans but potent to male luna moths, whose antennae can “smell” the scent up to 5 miles away. The male joins the female on the tree, fertilizing hundreds of tiny eggs stored in her abdomen. He stays with her through the next day, then begins searching for another mate.

The female looks for places to lay her eggs. By instinct, she chooses trees where lunas, but few other giant silkworm moths, live. Fewer species mean less competition for her caterpillars’ food. She lays one or two eggs on the underside of a leaf, typically finishing in a night or two.

Like butterflies, moths undergo metamorphosis, with four stages of development: egg, larva,



**Range Map:**  
Found statewide 

pupa and adult. The eggs, which are less than  $\frac{1}{25}$  of an inch long, hatch into tiny caterpillars in 10 to 12 days. As larvae, these dark caterpillars with reddish spots feed almost constantly on leaves of deciduous trees such as walnut, sweet gum, hickory and persimmon in North Carolina. Often they become prey to birds, spiders, stink bugs, paper wasps and other insect predators.

In about three weeks, the plump luna moth caterpillar weaves a cocoon. The first cocoons, of caterpillars hatched in early spring, are thin and white. Later generations, as in September, are thick and tough for overwintering. When pressed, the cocoon rattles and the pupa twists inside. Unless they overwinter, caterpillars hatch into adult luna moths in a few weeks.

Adult moths in the family *Saturniidae*, which include lunas, do not feed, using for energy only fat and nutrients stored when they were caterpillars. Among their predators are small mammals such as bats and shrews, birds, and large insects such as praying mantises. Camouflage offers their main form of protection.

Adult lunas are short-lived, surviving only a few days.

## Range and Distribution

Luna moths inhabit North America, living mainly in the eastern half of the United States. They occur in southeastern Canada but are scarce. Lunas can be found throughout North Carolina, especially in areas with hickory, sweet gum, walnut and persimmon trees.

## People Interactions

Catching luna moths with a butterfly net on summer nights has long been a favorite hobby. Some people also raise them from caterpillars.

With their large, pale green wings, these nocturnal insects have been a prime specimen for moth collectors. Collectors must

Luna Moth  
\* $3\frac{1}{2}$ - $4\frac{1}{2}$  in.



Buck Moth  
\*2-3 in.



Cecropia Moth  
\* $4\frac{3}{4}$ - $5\frac{7}{8}$  in.



\*Refers to wingspan

store lunas in the dark, as light fades their wings to white.

Loss of habitat in urban areas poses the greatest threat to luna moths. Some researchers believe light pollution from city streetlights may also be causing declines, as the moths travel toward the light, then become disoriented with so many beams. Pesticides may also affect luna moth populations.

## References

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## Credits

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Produced July 1996 by the Division of Conservation Education, N.C. Wildlife Resources Commission.

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# WILD Facts

## LUNA MOTH

### Classification

Class: Insecta

Order: Lepidoptera

### Average Size

Wingspan of  $3\frac{1}{8}$  to  $4\frac{1}{2}$  in.

### Food

Caterpillar eats leaves of deciduous trees.

### Breeding

Breeds April through September. The male stays with the female one day after mating. Female lays hundreds of tiny eggs on the underside of leaves.

### Young

Caterpillars hatch in 10 to 12 days. They average about  $3\frac{1}{8}$  in. long. They build a cocoon in about three weeks and remain in pupa stage a few weeks, unless overwintering.

### Life Expectancy

Adults live only a few days.