

They Only Come Out at Night

By Carolyn R. Casey, Fairfax Master Gardener

As I gazed at the night time sky, something flew past my face. I wondered at first if it was a bat or other nighttime creature of time and space. I then realized it was a large moth that landed in close proximity to the backdoor light. Moths are attracted by the light, sometimes getting too close where it leads to their demise.

There are 160,000 species of moths in the world, compared to 17,500 species of butterflies. In the United States, there are nearly 11,000 species of moths. Moths belong to the order known as Lepidoptera since they have scales covering their wings. The scales overlap like shingles. Moths can be distinguished by their antennae, which are threadlike or feathery.



photo: University of Kentucky

Luna moth

Saturniidae Moths Found in Virginia

Most moths have dull wing colors, but there are species with beautiful colors and patterns. Giant Silkworm Moths are a group of large insects with colorful wings. They are also known as Wild Silk Moths and Saturniids. They are from the family Saturniidae and the genus name Saturnia. This name references the Roman goddess Juno, the daughter of the god Saturn. The German botanist, Franz Von Paula Schrank, first described the genus Saturnia. This includes the largest moths and incorporates some 1,000 worldwide species. These large moths are nocturnal or can be active during twilight.

Polyphemus moths (*Antheraea polyphemus*) are named after the Cyclops in Greek mythology that had one large eye in the center of its forehead. This is because of the large eyespots on its hind wings. They are also known as Saturniidae because some of them have eyespots with concentric rings like Saturn. Adults have a wing span of 4 to 6 inches (10–15 cm), and the upper wings can be reddish brown, gray, light brown or yellow brown with transparent eye spots. The hind wing eyespots have rings that are yellow, white and black. The undersides of their wings are pinkish white and may have shades of brown. They emerge from their pupa in the afternoon, so their wings will have time to dry before their nighttime journey. They have a strong attraction to light, especially ultraviolet light. When threatened they will flip their front wings forward and flap their wings to expose the large hind eyespots. The Polyphemus moth uses silk to wrap a leaf around its cocoon that will fall to the ground in autumn.



Polyphemus moth

Luna moths (*Actias luna*) are beautiful green moths with maroon, pink or yellow margins. The wings have transparent eyespots surrounded by a ring of maroon or black. The moon or Luna moth is named after the Roman moon goddess. They can be found near porch lights and also have a 4 to 6 inch wing span (10–15 cm). During their caterpillar stage they are green and about 4 inches long (10 cm). They are found eating the leaves on hardwood trees. The Luna moth forms a cocoon in leaf litter.

photo: J.R. Baker, North Carolina
State Extension



Cecropia moth

Cecropia moths (*Hyalophora cecropia*) are known as Robin moths. They are large moths with a wing span of 4 to 6 inches (10–15 cm). They have black eyespots on the outer tips of their forewings and a crescent shaped spot in the center of each wing. They are dark red brown sprinkled with gray and pink. They are large and covered with long, rust red hairs and are attracted to porch lights. The caterpillars are green blue with yellow tipped tubercles on their backs and blue ones on their sides. They are found feeding on the leaves of

hardwood trees. They can be 4 inches long and about 0.75 inches in diameter. The Cecropia moth attaches its cocoon to a twig with silk.

Imperial moths (*Eacles imperialis*) also have a 4 to 6 inch wingspan (10–15 cm). The females are bright yellow with red brown freckles. Their forewings have two small circles of red brown and their hindwing has one red brown circle. Females have wavy bands of red brown that traverse the lower wing and two bands on the forewings. The male's forewings are mostly covered with red except for a triangle at the tip and patch near the bottom. The caterpillars are yellow green and can be tan or dark brown. They are covered with short hairs that are a blue green. They have holes on their sides where they breathe that are bright white with aqua and black. They have four sharp yellow spines behind their heads and sharp spines under their hair. Their head is orange yellow with a black inverted Y in the center. They eat the leaves of hardwood trees.

The native Saturniid moth numbers are threatened due to the introduction of fly and wasp parasites. They were brought into North America to prey on the non-native, invasive gypsy moths and have not stopped them. These parasites kill Saturniid moths. The Cecropia, Luna and other moth populations have been reduced. You can help the Saturniid moths by turning off bright outdoor lights or using insect friendly light-emitting diodes. Move your fallen leaves to places in your yard instead of burning or shredding them, since they may have hidden overwintering cocoons. Check shrubs for cocoons before pruning. Manmade light sources may interfere with the mating of the silk moths and will have a negative impact on their population.

Life Cycle of Saturniidae Moths

Caterpillars are the larvae of moths. They are very distinctive and may be easily identified. They feed on plants where they are compatible and can eat and grow to maturity. The caterpillars eat to transform plant material into the tissues that they will need for changing into moths.

Metamorphosis is the four part life cycle of a moth and begins with an egg that the adult female moth attaches to a plant. One female can produce dozens or hundreds of eggs. Eggs hatch within a week of being laid, and some overwinter. After an egg hatches, a caterpillar eats its egg shell and begins what is called the first instar. Caterpillars go through a series of molts where they shed their skin. Timing between molts are termed instars, and moth caterpillars experience five or six instars, and some have nine. Older instars will eat whole leaves and sever the petioles to drop to the ground. It is thought that they do this to avoid predators.

A mature caterpillar enters pupation, where they change from a caterpillar into a winged adult. Most moths form a cocoon that protects the transforming pupa. Cocoons are concealed in leaf litter, under bark or in soil. Also, some moths attach themselves to plants, fences and buildings. When pupation happens during warm months, it may take two weeks or less. Some species overwinter as pupa. Many moths' pupa transformation occurs in a cocoon, which is usually soft and includes silk created by the caterpillar using plant debris.

Once adult moths emerge from the cocoon, they do not eat or drink because they have nonfunctioning mouth parts. Instead they survive on the food they consumed as a caterpillar. Adult moths will only live for about two weeks. Their purpose is reproduction.

Many of these caterpillars have stinging or irritating hairs or spines. Predators are not deterred by these defense mechanisms. Some caterpillars make clicking sounds and vomit to deter predators. Moths are also food for predators, especially bats, birds and owls. They have developed ways to protect themselves. Their forewings allow them to camouflage themselves and blend in with the trees and the leaves where they land. Moths will also reveal the large eyespots on their hindwings when they feel threatened. This may startle a predator and give the moth a chance to get away. The tails on the hindwings of the Luna moth disrupt the sonar that bats use to find moths.



Polyphemus moth caterpillar

photo: © Canadian National Collection,
Moth Photographers Group

A way for catching and studying moths it is called light trapping. Hang a white sheet in an appealing location and illuminate it with black light, mercury or sodium vapor bulbs. These draw a variety of moths to the sheet. Having your porch light on may offer a chance to view these large moths since they are attracted to light. When you are out at night you are not alone. These large and beautiful moths fly around in the dark seeking the light.

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