

Luna Moth (*Actias luna*)

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Abstract: The Luna Moth (*Actias luna*) is American Moon Moth, also known as the Nearctic Moth of Saturniidae, subfamily Saturniinae, a group recognized as the giant silk Moth. The Luna Moth is found east of the Great Plains in the United States from Florida to Maine, North America, and Saskatchewan east through central Quebec to Nova Scotia, Canada. Luna Moths are rarely found as vagrants in Western Europe. In June 1987, Luna Moth appeared on a United States First Class postage stamp. This was the only Moth within two dozen butterflies honored in postage stamps. This remarkable critter is recognizable by its wings. But, the most interesting thing about Luna Moth is that this insect doesn't have a digestive system or a mouth. It lives only for about a week after leaving the cocoon and never eats.

Keywords: Moth; Insects; Actias

1. Introduction

The Luna Moth (Fig. 1), also named the American moon Moth, has lime-green-colored wings and a white body. The caterpillars are green. Usually, it has a wingspan of roughly 114 mm, but it can be up to 178 mm, making it one of the largest Moths in North America. Luna Moths belong to the family of giant silkworm Moths, Saturniidae. The Luna Moth's habitat is North America, from Great Plains to Florida in the United States. Also, Luna Moth lives in Canada. Luna Moth likes warm climates. Luna Moths most live in forest areas, where their larval food plants, walnut, hickory, persimmon, and Sweetgum, can be located. Luna Moths are not rare but are rarely seen by humans. This is because of their short life (7-10 days) [1].



Figure 1. The appearance of the Luna Moth¹

¹ Figure is original work of jstoner22, available at Pixabay. Please consider supporting this author by visiting the following link <https://pixabay.com/photos/luna-moth-insect-caterpillar-7990859/>

2. Life cycle

As regards the life cycle of the Luna Moth, it all starts with eggs that are incubated for 8–13 days. 200-400 eggs are laid by females, singly or in small groups. The larva, which comes from eggs, undergoes five phases before being ready to pupate. This stage is the most essential part of the Luna Moth's life. Interestingly, Luna Moths do not have a mouth, live only ten days, and eat nothing during that period. Therefore, the energy needed during the adult stage is provided by the fat stored during the larval stage. That is why larvae are on eating without taking a break. Depending upon the kind of food and climate, each phase in the Luna Moth's life may take between four to ten days. After each phase, a small amount of silk is formed on a primary leaf vein. Until it is time to make pupate or cocoon, larvae stay on the same tree where they are hatched [2,3].

After the fifth phase, the pupal phase begins, where the larvae spin a cocoon made of thin single-stranded silk. In the entire life cycle of the Luna Moth, this is the most active stage. Environmental conditions dictate the length of the Luna Moth in the pupal phase. Under normal environmental conditions, the pupal phase last around two weeks. But, during winter, the pupa could enter a state of dormancy, and it can take up to nine months to come out of the cocoon and become an adult Luna Moth [4].

When the winged Luna Moth emerges from its cocoon, its abdomen will be swollen. This is because of the accumulation of hemolymph in the Luna Moth stomach. Within the first few hours, this hemolymph is pumped to various body parts, e.g., wings. During this period, the Luna Moth must wait two to three hours for its wings to be hard and dry so that it can fly. Since the only purpose of an adult Luna Moth is to reproduce, it flies off when its wings become dry in search of a mate. Since Luna Moths don't have mouths, energy stored during the larvae phase is only enough to survive for ten days. This cycle repeats [2,5].

3. Features and characteristics

The Luna Moth is a member of the Saturniidae family, and its Latin name is *Actias luna*. Usually, they inhabit forested areas of southern Canada and from Maine south to Florida, eastern North Dakota, and eastern Texas. Luna Moths are sometimes found in Western Europe. Males and females are similar in size. Adult Moths wingspan is 75 to 105 mm. Also, antennae are present in both sexes, but males have wider and longer ones. Female abdomens are larger because of deposited eggs. Also, both sexes are green in color. Also, each phase of larvae is green. Several Moth generations are conditioned by the climate (mainly in their natural habitat three generations a year). Females sit on a preferred tree and release pheromones that lure males. Female pheromones males can sense at a distance of a few kilometers. Mating usually starts after midnight and lasts for a few hours. It occurs with the

first male encountered by a female. Broadleaf plants are the favorite host plants for Luna Moths. The southern population uses pick walnuts, hickories, sumacs, sweetgum, and persimmon, while Northern populations often utilize white birch [6-8].

4. Conclusions

Luna Moths are not rare but are rarely seen by humans. This is because of their concise life. The Luna Moth is not listed as endangered or threatened by the International Union for Conservation of Nature (IUCN) or the Wildlife Service and U.S. Fish. However, in recent years, populations of the species have been declining. Some states have specified them as protected species or have listed them as species of particular concern. Efforts are made to protect the Luna Moths, including pesticide and herbicide reduction, habitat restoration, and public education about the importance of these Moths in the ecosystem.

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