

SECRET OF MOTH

Moths are widely distributed around the world, comprised of 180,000 species, and are divided into about 80 families. The size of moths varies greatly depending on the type, so the small ones have a wing length of about 4mm to the large ones as long as 140mm, and usually there are many types of 40-50mm.

The structure of the body is basically like a butterfly. In general, there are two pairs of membranous wings, part of the body and appendages are covered with scale powder, the large jaw is almost degenerated or lost, and the mouth frame is a long suction pipe because the small jaw is joined on both sides.

However, the antennae has a thread or whip shape, tapering at the end, or pruned in the shape of feathers and combs, so it is different from a butterfly with a swollen tip. In addition, the body is thick, the wings are smaller than the body, and there are wing thorns on the hind wings that connect with the front wings, with exceptions to all of them.

In this work, the secrets of moths, such as birth and characteristics of moths, natural enemies of moths, and silk industry of moths, were composed through stamps and materials in consideration of these aspects.



Skeleton moth



Clothes moth



A lot of insect repellents were sold to reduce the damage of pest moths.
- Belgium Advertising Stationery 1936 -

Beneficial insects



Italy 1955 Postmark of "BOZZOLO" is mean in English COCOON
"BOZZOLO" Silkworm skewers in English as COCOON.



Saturniidae



Long-tailed mountain silkworm moth

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1. Moth Fossil

Moths are said to have evolved by differentiation from the common ancestors of primulas and adults. Early known moth fossils are known between 400,000 and 500,000 BC (Coal Age), and this may be an ancient creature.



Primitive moth
- color proof -



Primitive moth

The primitive moth remains almost similar today to the form of the early primitive insects and is now referred to as the ancestor of the moth.



Moth fossil

The evolution of moths can be confirmed through geological changes.



Insect fossils of moths estimated to be 100 million years old were found in Wimen City, Kansu Province. Fossils such as moths are about 7 to 8 cm long, and the wings, head, chest, and tail are perfectly preserved.

- China Moth Fossil Stationery -



India's Amritsar and Nawalpurh Moth postmark of 1866, black in DEALTE '68' A real envelope with a postmark and JLTUTER's red postmark



Carboniferous Moth Wing Fossil



Moth fossil

The first moth fossils appeared in 1.4 million years, but primitive moths appeared in the middle of the Mid Carboniferous.



Entomological Society Commemorative postmark



Marseille in Paris, France with a moth postmark from a maritime post office issued by the East India Company in 1897. It is a real envelope sent to Bombay, India.



The absolute age of relics and remains was measured using radioactive carbon isotopes (Carbonne). - France Foix Carbonne postmark (21. 2. 1884) -

2. Characteristics of moth's

Difference between butterfly and moth

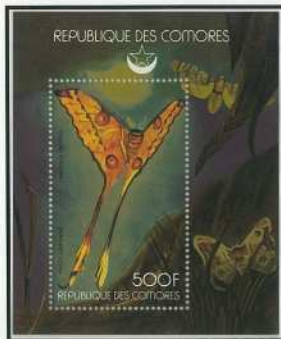
division	butterfly	Moth
Activity time	Activity during the day	Mostly active at night
Sitting shape	I fold my wings while sitting	When sitting Spread wings
Antennae form	The antennae are club-shaped and thread-shaped. (Visual development)	The antennae are feather-shaped or needle-shaped. (Antennae development)
size	The body is thin and long.	The body is thick.
scales	Rounded end.(Hard to fall off)	Have a pointed end.(Falls well)



Agrilus convolvuli

Several moths most active during the night

The phenomenon of moths gathering in a lamp at night is that it flies in response to light when the temperature or humidity reaches certain conditions, and it is difficult to gather in the lamp at moonlight.



The tendency to fly toward the candle is not because of the liking of fire, but because of the nature of flying while maintaining a certain angle toward the light.
- England advertising stationery 1890 -



Original artist hand artwork adopted with Autograph (MALI Noctuidae Original)



The body of a thick and fat moth

Chestnut moths are found everywhere in the world, and their wings are covered with scales such as powder or dust.

It has a plump body shaped like a triangular shape, and the length of the wing is 8-305mm.

Chestnut moths are mainly active at night, and most of them gather on lanterns. The auditory organ in the chest is made of a taut membrane and is protected by a cover.



Noctuidae



Noctuidae moth is sucking the nectar from the flower



Mall final stag pleat proofs block with imperforated



Moths have a habit of gathering on lanterns at night.



Belgian "Labels" silk company advertisement using moth as a sentence for advertisement
- Belgium advertising stationery 1897 - ■ Very precious

3. Moth's natural enemy

The greatest natural enemies of moths, which are members of the ecosystem, are birds that feed on butterfly larvae and adult worms. In addition, mantis, catfish, bats, spiders, frogs, lizards, and chameleons that eat adult insects. There are chneumonidae, which place eggs in the larva of a butterfly and lay eggs in the larva's body.



Moth's larvae lay eggs and chneumonidae



Caterpillars of moths, prey of Reduviidae



fish



Spider



bat



Birds eating moths and larvae



chameleon



Fancy spider, a predator of adult moths send Special delivery for spider fancy cancellation send to Allen Logan Overland Park, Kansas (18. 6. 1918.)



Spiders web fancy stamp used for cancellation in Spain (it was used for about a year and a half from 1860 to 1861) - Spain 1860 cancellation of spider web send to Broodstone -



Insects such as stinkbugs and beetles have a habit of feeding on moth larvae. - Dia proof with signature of engraver S. Bhis (1862) -



Recently, as humans' agricultural, industrial, and urbanization work has accelerated, air and water pollution and climate change have led to a decrease in habitats, which are pointed out as a direct factor in the extinction of insects such as moths.



Damage from pollution



It can be said that natural enemies are needed to reduce pests such as moths that damage crops.



Bird's natural owl's eyes are painted on the wings to avoid the birds, the natural enemy of the moth.

- Final stage proofs block -

4. Moth self-protection

Moths are self-protecting against natural enemies. During the larval period, moths secrete thorns, smell of smell, and hair to preserve. In the adult stage, it protects itself from natural enemies with snake-eye patterns on the front and back of the wings.



Snake-eye moth's to protect themselves from natural enemies



Fur to protect yourself from natural enemies



As a defense against natural enemies, moths have a body color that resembles nature or have poison on the body. In general, poisonous moths are vivid in color.



Saturnia pavonia



The tip of the snake-eye moth resembles a snake's head and uses a camouflage technique that protects itself by mistaken it for a snake from natural enemies.
- The copy for this final stage proof to check the black colour file copy for the engraver Robert Cami -



At the tip of the caterpillar's horn, there is a microscopic toxic substance that protects itself from predators.



ECHO fired by fire moths (Eco special)

In order to escape the body from the bat, which is a predator of the moth, the fire moth creates and generates ultrasonic waves, so that the body can be avoided by the disruption operation of the bat's ultrasonic waves.

- France Postal stationery send from to Paris 27th Mar 1903 with special handstamps "ECHO" -

5. Moth Taxonomists and Ecologists

Ecologist Fabre

Fabre [Jean Henri], a French entomologist and museologist, died on October 11, 1915, devoting his life to accurate observations and research on the ecology and instincts of insects. There are 10 records of entomology published over 29 years.



Fabre

When exploring insects, there is a famous anecdote that Fabre was treated as a madman by the people around him because he often leaned on the side of the road, dressed in simple clothes, in a distinctive black hat.



He wrote dung beetles and beetles in Fabre's Insect Book Volume 10. As an appendix, the study of cabbage white butterfly was entered.



This is an Essay published in France on April 7, 1956, with the design of the entomologist Fabre, who observes the movements and moths of mantis, cicadas, and dung beetles through a magnifying glass.



Fabre observes a moth with a magnifying glass.

Taxonomist Linne

Swedish taxonomist C. v. Linne, 1707-1778 collected animals and plants from all over Europe on the recommendation of the Royal Society of Wekala, and used the Tinnitus method (generic name+species name+ nominal name) for the collected animals and plants. Thus, he laid the foundations of taxonomy and published a book called "Systema Naturae" in 1758.



Linne. (1707-1778)

Linne (C. v. Linne, 1707-1778) established the basis for taxonomy of collected animals and plants using the tinnitus method (genus name + species name + nominal name).

- Sweden Booklet(1939) -



Panaxia dominula(L.)

Hammarby Library, which holds collections of animals and plants collected and collected by Linne. Linne's collection was sold to England in 1789 and is now owned by Linne Society of England.

- Sweden Booklet - →



Linne's Lab

Linne's greatest taxonomic achievement is that he established the tinnitus method for animals and plants (genus name + species name + nominal name) that has been passed down to the present day.

Stockholm → Hamsterdom registered substance (2. 6.1988)

7. Moth's silk industry

The history of silk is the history of human culture and a medium that connects Eastern and Western cultures. The ancient silk production technology was a high-tech, high value-added technology that could not be replaced with anything else. Silk has influenced humanity in a variety of fields, including the medical field and the medium of distribution.



Silk moth and cocoon



Silk thread drawing and weaving



The first introduction of silk to Europe Alexander the Great



Chinese silk, along with ceramics, was a major trade.



Cocoon providing silk - Proofs -



Silkworm serving silk.

The silk provided by the silk moth has become a commodity that not only the nobles but also the common people can enjoy. - Merle Advertising Stationary 1940 -



Meter stamp Germany illustrated with silk KREFFID



Postmark with SEIDENGASSE = Silk Industry 08th Oct 1905 send to Zurich h Switzerland was named after silk, and it is still the largest producer of silk to this day.



1842 cocoon Fancy Envelope sent from Sorea to Ciudad Real



The International Silk Expo held in New York, USA in 1922, participated in the production of inexpensive and high-quality fabrics, contributing to popularization. - 1922 New York Silk International Exhibition Memorial -