

Moths of Sabah – the Night-winged Beauties of the Rainforests

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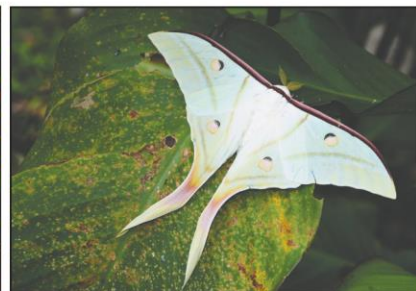
CONTINUED ON PAGE 8



1 Atlas Moth



2 Purplish Atlas Moth



4 Moon Moth (*Actias selene*)

Moths belong to the same insect order as butterflies - Lepidoptera. There are approximately 160,000 species of moths worldwide. In Borneo, there are some 10,000 moth species which is about 10 times more than butterflies found on this island. The majority of moths are nocturnal, hence, they are not seen by many and this group has always been underestimated in terms of abundance and diversity. Some, however, are day-flying and are often mistaken as butterflies. A few are crepuscular, active just before the sun goes down or just after the sunrises.

Due to their high abundance and amazing diversity, moths are ecologically important in the tropical rainforests as pollinators, biodiversity and environmental health indicators, and source of food for other wildlife. Some cause damage to rainforest plants as they feed on the foliage or bore into the stems and branches which may eventually kill the trees.

Among the spectacular and large moths of Sabah are those from the family Saturniidae. These include the Atlas Moths, Moon Moths and Emperor Moths. The Brown Atlas Moth, *Attacus atlas*, is among the largest insects in the world, with a wingspan up to 28 cm. The wing patterns are complicated with some semi-transparent patches and snake-like appearance at the forewing tip. This is a defence strategy to confuse the predators. The lesser-common purplish Atlas Moth, *Archaeoattacus staudingeri*, also has the same pattern at the former species. Both are found in the lowland rainforests of Sabah. The Moon Moths are equally magnificent, with their amazing long tails on the hindwings to confuse their echolocation when hunted by bats and other predators at night. There are two Moon Moth species in Sabah, namely *Actias maenas* and *Actias selene*. The Emperor Moths are often strikingly coloured, usually in golden yellow, as reflected in its common name. They have eye-like pattern on the wings to frighten the intruders.



5 Emperor Moth (*Antheraea helpferi*)



6 Emperor Moth (*Loepa megacore*)



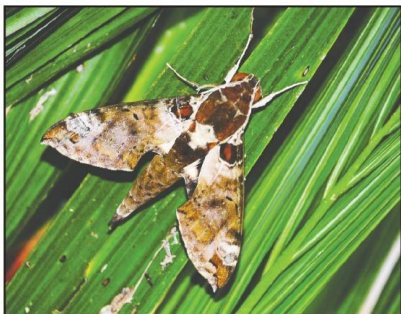
8 Hawk Moth (*Megacorma obliqua*)



3 Moon Moth (*Actias maenas*) male



9 Swallowtail Moth (*Lyssa menaetius*)



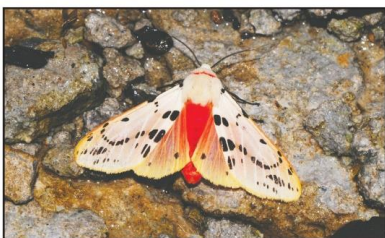
7 Hawk Moth - *Cechenena helops*



10 *Streblote helpsi* (male)



11 *Metanastria gemella* (male)



13 Tiger Moth (*Spilosoma ericsoni*)



14 Fruit-piercing Moth (*Eudocima cocalus*)



15 Owl Moth

Hawk Moths of the family Sphingidae are among the world's fastest flying insects (50 km/h) with the ability to fly backwards and upside down. They have an aerodynamic jet-like shape which propels them to fly confidently. Some are pollinators and this group of moths has the longest tongue among insects to get nectar from flowers.



20 Crambidae
(*Xanthomelaena* sp.)



18 Nolidae (*Sinna calospila*)



17 Geometridae Moth (*Plutodes evaginata*)

The Swallowtail Moth, *Lyssa meoetius*, is among the most conspicuous moths in the lowland areas of Sabah. This fairly large moth of the family Uraniidae is often attracted to light at night and is frequently encountered, even in the suburban areas. It is a predominantly dull black moth with two white stripes across its wings. This moth is thought to be a butterfly previously, but due to competition for food and habitat, it has become a moth, foraging at night.

Some moths from the family Lasiocampidae are serious pests of forest trees because their larvae (social caterpillars) aggregate in thousands and can completely defoliate the trees, such as *Streblote helpsi* that attacks the Senegal Mahogany tree and *Metanastria gemella* that feeds on Laran foliage.

The moth family Erebididae consists of many interesting moths which are colourful, such as Tiger Moths, Fruit-piercing Moths and Owl Moth. Geometridae moths are speciose and abundant in Sabah, often a distinctive typical shape. Nolidae and Crambidae are mostly small moths with interesting patterns.

Having showcased some of the night-winged beauties of Sabah, I believe you would agree with me that the amazing diversity of moths has been underestimated, not only in terms of species but also in colour, pattern, size and shape!



12 Tiger Moth (*Areas galactina*)



16 Geometridae moth



19 Crambidae (*Dichocrocis zebralis*)