

Butterflies-The Natural Treasure of North East India

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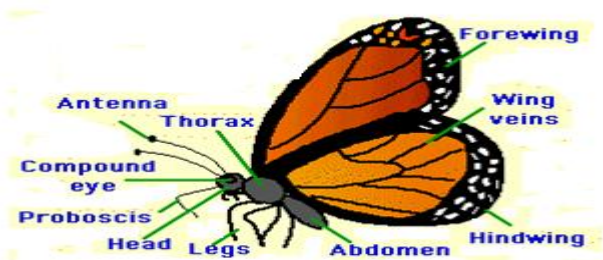
Abstract- The Lepidoptera is an order of insects that includes moths and butterflies. It is one of the most wide spread and widely recognizable insect orders in the world which includes moths and the three super families of butterflies, skipper butterflies and moth-butterflies. The Lepidopteran are among the most successful groups of insects. They are found on all continents, except Antarctica and inhabit all terrestrial habitat. The North-East India is homeland of more than 500 lepidopteran species. Lepidoptera are morphologically distinguished from other orders by the presence of scales on the external parts of the body and appendages, especially the wing. The body consist of three main regions the head, the thorax and the abdomen. The head is a small spherical capsule which bears the feeding apparatus and sensory structures. Butterflies use their antennae to sense the air for wind and scents. The antennae come in various shapes and colours.

Keywords: *Lepidoptera, natural treasure*

I. INTRODUCTION

Butterflies and moth belong to the order Lepidoptera. Lepidos is Greek for "scales" and ptera means "wing". These scaled wings are different from the wings of any other insects. Lepidoptera is a very large group; there are more types of butterflies and moths than there are of any other type of insects except beetles. It is estimated that there are about 3600 different species of butterflies and moths in northeast India [1]. The speed varies among butterfly species. The fastest butterflies can fly at about 30 mile per hour or faster. Slow flying butterflies fly about 5 mph. Butterflies are part of the class of insects in the order Lepidoptera. Adult butterflies have large, often brightly colored wings, and conspicuous, fluttering flight. The group comprises the true butterflies (super family Papilionoidea), the skippers (super family Hesperioidea) and the moth-butterflies (super family Hedyloidea). Butterfly fossils date to the mid Eocene epoch, 40–50 million years ago.

II. ANATOMY OF BUTTERFLY



The butterfly's body is covered by tiny sensory hairs [2]. The four wings and the six legs of the butterfly are attached to the thorax. The thorax contains the muscles that make the legs and wings move. Butterflies are very good fliers. They have two pairs of large wings covered with colorful, iridescent scales in overlapping rows. Lepidoptera (butterflies and moths) are the only insects that have scaly wings. The wings are attached to the butterfly's thorax. Veins support the delicate wings and nourish them with blood. Butterflies can only fly if their body temperature is above 80 degrees. Butterflies sun themselves to warm up in cool weather. As butterflies age, the color of the wings fades and the wings become ragged.

Caterpillars spend most of their time eating leaves using strong mandibles. A caterpillar's first meal, however, is its own eggshell. A few caterpillars are meat-eaters; the larva of the carnivorous Harvester butterfly eats woolly aphids.

Butterflies and moths can only sip liquid food using a tube-like proboscis, which is a long, flexible "tongue." Most butterflies live on nectar from flowers. Some butterflies sip the liquid from rotting fruits and a rare few prefer rotting animal flesh or animal fluids.

Their eggs are protected by a hard-rigged outer layer of shell, called the chorion. This is lined with a thin coating of wax which prevents the egg from drying out before the larva has had time to fully develop. Each egg contains a number of tiny funnel-shaped openings at one end, called micropyles; the purpose of these holes is to allow sperm to enter and fertilize the egg. Butterfly and moth eggs vary greatly in size between species, but they are all either spherical or ovate [3].

III. BUTTERFLIES IN NORTHEAST INDIA

In Northeast India specially in Meghalaya States Butterflies are found in all types of environments: hot and cold, dry and moist, at sea level and high in the mountains. Most butterfly species, however, are found in tropical areas, especially tropical rainforests. Some collection of Butterfly fossils are about 120 million years ago. Their development is closely linked to the evolution of flowering plants, since both adult butterflies and caterpillars feed on flowering plants, and the adults are important pollinators of many flowering plants. Flowering plants also evolved during the Cretaceous period.

Butterflies in Northeast India specially in Meghalaya States exhibit polymorphism, mimicry and aposematism. Some,

like the Monarch, will migrate over long distances. Some butterflies have parasitic relationships with organisms including protozoans, flies, ants, other invertebrates, and vertebrates. [4, 5] Some species are pests because in their larval stages they can damage domestic crops or trees; however, some species are agents of pollination of some plants, and caterpillars of a few butterflies eat harmful insects. Culturally, butterflies are a popular motif in the visual and literary arts. They have one or more broods per year. The number of generations per year varies from temperate to tropical regions with tropical regions showing a trend towards multivoltinism.

Some caterpillars have the ability to inflate parts of their head to appear snake-like. Many have false eye-spots to enhance this effect. Some caterpillars have special structures called osmeteria which are everted to produce foul-smelling chemicals. These are used in defense.

IV. HOST PLANTS OF BUTTERFLY

Host plants often have toxic substances in them and caterpillars are able to sequester these substances and retain them into the adult stage. This makes them unpalatable to birds and other predators. Such unpalatability is advertised using bright red, orange, black or white warning colours, a practice known as **aposematism**. The toxic chemicals in plants are often evolved specifically to prevent them from being eaten by insects. Insects in turn develop countermeasures or make use of these toxins for their own survival. This "arms race" has led to the coevolution of insects and their host plants. [6, 7]

V. POLYMORPHISM AND CULTURE

Many adult butterflies exhibit polymorphism, showing differences in appearance. These variations include geographic variants and seasonal forms. In addition many species have females in multiple forms, often with mimetic forms. Sexual dimorphism in coloration and appearance is widespread in butterflies. In addition many species show sexual dimorphism in the patterns of ultraviolet reflectivity, while otherwise appearing identical to the unaided human eye. Genetic abnormalities such as gynandromorphy also occur from time to time.

Artistic depictions of butterflies have been used in many cultures including Egyptian hieroglyphs 3500 years ago. In the ancient Mesoamerican city of Teotihuacan, the brilliantly colored image of the butterfly was carved into many temples, buildings, jewelry, and emblazoned on incense burners in particular. The butterfly was sometimes depicted with the maw of a jaguar and some species were considered to be the reincarnations of the souls of dead warriors. The close association of butterflies to fire and warfare persisted through to the Aztec civilization and

evidence of similar jaguar-butterfly images has been found among the Zapotec, and Mayan civilizations. [8]

VI. CONCLUSION

Butterflies in Northeast India exhibit polymorphism, mimicry and aposematism. Butterflies are part of the class of insects in the order Lepidoptera. Today, butterflies are widely used in various objects of art and jewelry: mounted in frames, embedded in resin, displayed in bottles, laminated in paper, and used in some mixed media artworks and furnishings. Butterflies have also inspired the "butterfly fairy" as an art and fictional character, including in the Barbie Mariposa film.

Many workers have done various research works on insects and butterflies in Assam and North East India. The state of Assam in north eastern India, harbouring some of the world's richest biodiversity. Butterflies are treated as non-target species in the conservation and management of wildlife. The current 'Protected Area Network' of the country set up by the government, is directed towards the conservation.

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