

Christmas Island National Park

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Lepidoptera - butterflies and moths

Butterflies are insects belonging to the order *Lepidoptera* in which two pairs of wings as well as the legs and body are covered with scales. They have a coiled proboscis which is used for sucking up liquid foods such as nectar from flowers. Their chewing mouthparts are imperfect or totally absent. *Lepidoptera* comes from the Greek words *lepis* (a scale) and *pteron* (wing), meaning 'scale-wing'. The *Lepidopterans* are normally divided into butterflies and moths.



Butterfly eggs | Caterpillar

Most butterflies are day fliers whereas moths are generally nocturnal in habit. Butterflies generally rest with their wings closed in an upright position above the body, whereas moths rest with their wings held in a horizontal or flat position.

The antennae or feelers of butterflies are thread-like and the tips are distinctly or gradually thickened to form a club. The antennae of moths are feathery or they may be thread-like but without the club-shaped tip. Although these characteristics are generally adequate for distinguishing between butterflies and moths, there are exceptions.

Further, the butterflies may be divided into the 'true butterflies' and the 'Skipper butterflies'. The Skippers differ from the true butterflies in that: their antennae are usually hooked at the tip and are set widely at the base; they fly with a jerky or skipping action; and they rest with the forewings usually held close together over the thorax and with the hindwings open and flat.

The life-cycle of butterflies

During their life-cycle butterflies undergo complete metamorphosis ('change of form'). They grow through four distinct stages; the ovum or egg, the larvae or caterpillar, the pupa or chrysalis, and the imago or adult. Adult butterflies live for about two to three weeks.

The egg

After mating, the female butterfly lays her eggs in a leaf surface of a specific food plant; each species of butterfly has its particular species of food plants. The eggs are usually laid



Chrysalis | Butterfly emerging | Butterfly drying its wings

singly, but in some species they are laid in clusters. They are attached to the leaf by a sticky secretion. Eggs are usually white, pale yellow or greenish in colour.

The caterpillar

Eggs hatch into caterpillars in about two days. Different in appearance from the adult butterfly, they feed intensively on the leaves of the food plant, growing rapidly. Their outer skin is rigid and caterpillars moult (shed their outer skin) about four to five times before achieving full size after two to eight weeks, moulting a final time into a chrysalis.

The chrysalis

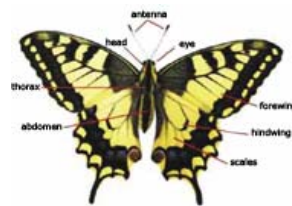
This stage occurs in a cocoon; the larval body structure reforms itself to become the adult butterfly. There is a great variation in the chrysalis of different species. After a period of one to several weeks the transformation is completed and the chrysalis splits and the adult butterfly works its way out.

The adult butterfly

It is usually in the early morning that the adult butterfly emerges from the split chrysalis. It emerges wet, with small limp and crumpled wings. When free of the pupal case, it crawls upward to a place where the wings can hang down and it can pump body fluid into the veins in the wings. It takes about an hour to fully expand the wings. When the wings are completely dry the butterfly takes off to find food and a mate. The antennae are the main organs of smell, the sense of taste is located in the feet. At all stages of their life cycle, butterflies are preyed upon by other animals

Anatomy

A butterfly has two antennae on its head. They are thin with little knobs on the end. Butterflies use their antennae to smell. A butterfly has two compound eyes - eyes with lots of little eyeballs gathered close together. Each separate eyeball sees a little part of what the butterfly is looking at. Butterflies can see colours.



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Butterflies have four wings; two hindwings and two forewings. Butterflies have six legs (three pairs). They taste with sensors located on the bottom of their feet.

The butterfly uncoils its proboscis to sip up flower nectar or fruit juice. A proboscis is a long tubed tongue and is used like a drinking straw.

History

By 1900, naturalists had found only nine species of butterfly on Christmas Island, excluding the three skippers. This included one endemic species (Christmas Island Emperor), two endemic subspecies (Climena Crow and Scalloped Grass-Yellow) and one vagrant (Evening Brown). By 1940 the list had increased to 13 species and by 1980 it stood at 22 species. With the addition of three species since then plus the inclusion of skippers, the 2006 list includes 28 species. Some of the additions since 1900 are species only recorded very rarely (i.e. vagrants) and some may have been present for much longer but were overlooked in the early days. However, the vast majority are now established and they feed only on introduced plants that have become established in cleared and disturbed habitats. Whether these butterflies arrived unassisted (i.e. flew in as adults from Asia) or came as larvae in shipments of supplies to the island is unknown.

Most of the resident butterfly species on the island are common. However, little is known about the skippers and the blues. The endemic subspecies of Climena Crow and Scalloped Grass-Yellow are abundant in open habitats and

also occur inside the forest. The Christmas Emperor is a rainforest canopy species and is therefore difficult to observe. It is sometimes seen floating over the canopy along the roads and tracks or the plateau.

Christmas Island butterflies - all images courtesy of Max Orchard | Parks Australia

Nymphalidae

Crow Eggfly - *Hypolimnys anomala*



Male



Female

Danaid Eggfly - *Hypolimnys misippus*



Female

Climena Crow - *Euploea climene macleari*



Variant



Variant

Meadow Argus - *Junonia villida*



Variant



Variant

Varied Eggfly - *Hyploimnas bolina nerina*



Male variant

Male variant

Female

Christmas Emperor - *Polyura andrewsi*



Pieridae

Papuan Grass-Yellow - *Eurema blanda blanda*



Male variant

Female

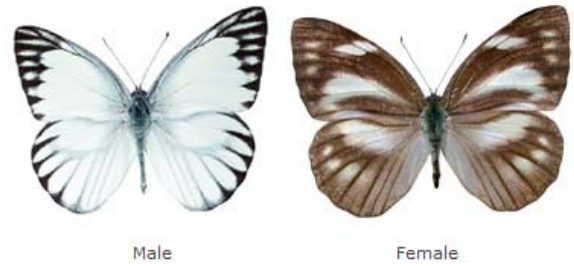
Lemon Migrant - *Catopsilia pomona*



Variant

Variant

Striped Albatross - *Appias olferna*



Scalloped Grass-Yellow - *Eurema alitha amplexa*



Lycaenidae

Pale Pea Blue - *Catochrysops panormus exiguus*



White-banded Line-blue - *Nacaduba kurava*



King Creulean - *Jamides bochus*



Long-tailed Pea-blue - *Lampides boeticus*



Hesperiidae

Narrow-winged Awl - *Badamia exclamationis*



Chrome Awl - *Hasora chromus*



Rice Swift - *Borbo cinnara*



Variant

Variant

Papilionidae

Malay Swallow-tail - *Papilio memnon*



Male

Female