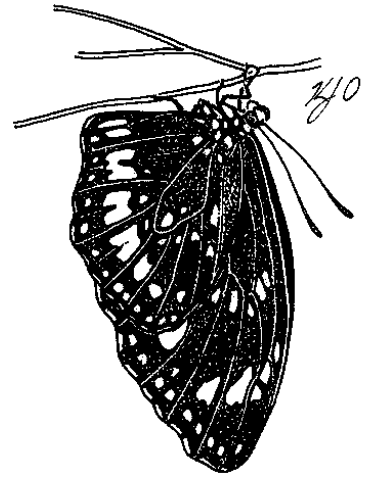


# Tropical Factsheets

## Butterfly and moth life stages

### Eggs

- Before she lays her eggs, the female tests for the right chemical cues from the plant. She uses **receptors** in her antennae, legs and the tip of her abdomen.
- Some females respond to a green surface by **drumming their feet** which releases the leaf's **essential oils**. The female butterflies can then decide if the leaf is suitable for laying eggs.
- Leaf texture, colour, temperature, light intensity, shade and air pressure all influence egg-laying.
- A female butterfly can lay between 120 and several hundred eggs.
- Some **introduced plants** give similar chemical signals to native plants. The Orchard Butterfly has adopted citrus trees, and the Common Australian Crow has adopted Oleanders and Rubber Vines for egg laying.
- These can be **deadly mistakes**. Blue Triangle Butterflies sometimes deposit eggs on young shoots of Avocado, Eichhorn's Crow butterflies occasionally lay their eggs on Frangipani and Birdwings may lay their eggs on non-native Aristolochia vines. They are fooled into thinking that these plants are safe for their offspring, but their caterpillars are poisoned and die.



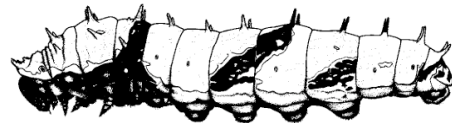
*Common Australian Crow Butterfly*

### Caterpillars

- Caterpillars are the eating and growing stage of butterflies and moths, but they can't mate and reproduce.
- When the caterpillar first forms inside the egg, two types of cells develop. Some cells form clusters and stop developing. The other cells divide normally to produce the body of the caterpillar.
- Many caterpillars eat their own eggshells as their first meal and then **eat non-stop**. They stop only to **shed their skin** as it gets too tight. This usually happens about **five times**. (Females moult more than males.)



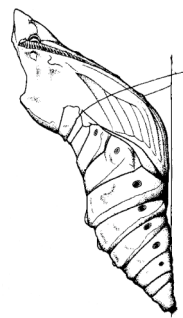
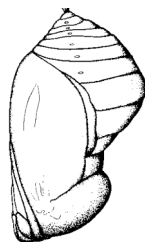
- Caterpillars are **fussy eaters**. They test plants with their antennae and parts of their mouths. If they detect the wrong food they refuse to eat it.
- Some caterpillars eat unusual food such as **fungus, lichen and moss**. Most caterpillars avoid ferns because they contain a chemical that interferes with their development.
- Caterpillars normally eat living plants, but some moth caterpillars eat dead wood and leaves, stored seeds and cereal, animal dung, wool, hair, feathers, other insects and **each other!**
- Many food plants are extremely toxic, but the poison passes unchanged through their gut, or is stored for self-defence.
- The eyes of some caterpillars distinguish shape and colour. Yellow and green stimulate feeding, and blue and red cause them to stop feeding.
- Behind the caterpillar's head, the three-part thorax has six pointed legs. Further along the abdomen is a series of stumpy legs (usually five pairs) for hanging on. They can work as suction cups, but also have tiny clinging claws.



## Change of life

### *Caterpillar*

- When the caterpillar is ready to pupate, it usually spins a silken pad for support. (For butterflies a pupa is generally called a chrysalis, and for moths a pupa is called a cocoon.)
- **Two types of pupa** are produced. Some species of butterflies produce a **girdle** which loops around the upper part of the caterpillar (Swallowtails, Whites, Yellows, Blues, Coppers, and some Skippers).
- Other butterfly species have a pupa which hangs upside down.
- This is a vulnerable time. The caterpillar has slowed down but it still has a soft skin instead of a hard pupa. At this stage wasps may lay their eggs in the caterpillar and a wasp will eventually emerge from the pupa instead of the adult butterfly or moth.



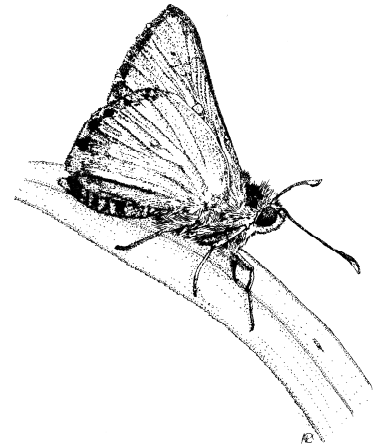
*Some pupa hang upside down, others have a girdle.*



- Some butterflies and moths pupate in **underground chambers**, but most hang from twigs or leaves.
- Many moths enclose their pupa in silken cocoons.
- Within the pupa great changes take place, out of sight! The caterpillar cells break down into a liquid. The **cluster cells** come to life and are nourished by liquid. They divide rapidly to form the adult butterfly body.
- When the adult butterfly or moth is ready to emerge, the pupa becomes darker or transparent.

### Adult stage

- The adult usually emerges from the pupa at night. First it shakes its pupa and then pushes its head out of the end. Gradually the entire body emerges with **folded and crumpled wings**.
- It must hang so that blood can pump along the veins in the wings, and they begin to unfold. Their **heart** runs the length of their body and pumps **hemolymph**. It isn't red like our blood, but it has a similar function.
- The veins and wings are soft, but gradually the blood is withdrawn into the body again and the **veins harden** into rigid structures which support the wings.
- Generally, adults eat only liquids, mostly flower nectar.
- The life cycle can stop if there is a lack of food, drought or shorter days. (Development stops at the pupae stage for Dingy, Orchard and Canopus Swallowtail caterpillars if there is less than 14 hours of light per day.) Butterflies also hibernate in very cold temperatures. When the temperature rises again, development continues.
- In the **final stage** of their life cycles the adults will reproduce and then die, beginning the life cycle again by laying eggs.



*Xanthomera Skipper*