Caligo eurilochus (Owl Butterfly)

Order: Lepidoptera (Butterflies and Moths)
Class: Insecta (Insects)
Phylum: Arthropoda (Arthropods)

Fig. 1. Owl butterfly, *Caligo eurilochus.*

[http://insectbio.blogs.rice.edu/2013/10/22/the-owl-butterfly-according-to-humans/ downloaded 23 February 2015]

TRAITS. The owl butterfly is a large butterfly with a wingspan ranging from 10-13.5cm (Audubon Nature Institute, 2015). The upper and underside of the wings vary in colour. The underside is coloured brown, black and creamy white with a large eye spot resembling that of an owl on either hind wing (Fig. 1) hence the name owl butterfly (World Association of Zoos and Aquariums, 2015). The upper side ranges from orange/yellowish brown in females to greenish blue with thick purplish/ brown black bands bordering in males (Audubon Nature Institute, 2015). Their wings have overlapping, minute scales which are responsible for the colour seen as they create unique patterns. The mouthparts of the owl butterfly forms a proboscis or coiled tube under the head and they have shorter front legs. The juveniles are caterpillar like or eruciform and have two red longitudinal stripes running along their white bodies. The green, hairy and flattened larvae are the second instar larvae which are seen during moulting. Their backs have four spines with the end of the abdomen having two processes. The back of the head have four pairs of horns. Later molten phases or instars are brown with six spines instead of four on the back with the final instar reaching up to lengths of 16 cm (Fig. 2). The heads of the larvae are well developed and their mouthparts are made for chewing. They have three pairs of thoracic legs and two to eight pairs of structurally different abdominal prologs which are fleshy in nature.

DISTRIBUTION. The owl butterfly has a distribution ranging from Central America through to South America at the Amazon River basin (Audubon Nature Institute, 2015). They can be found in Mexico, Honduras and Guatemala straight to Venezuela. It can also be found in Guyana, French Guiana, Suriname all the way to Bolivia passing the Central Amazon region, Ecuador and Peru (World Association of Zoos and Aquariums, 2015). They can also be found in Trinidad and Tobago (The Trinidad and Tobago Nature Link, 2009).

HABITAT AND ACTIVITY. The owl butterfly can be found in secondary forests and rainforests as they can live in rainy environments (World Association of Zoos and Aquariums, 2015). The main host plants for caterpillars are heliconia and banana (Anywhere Costa Rica, 2014). Adults are nocturnal creatures or crepuscular and therefore active mainly at nights and early morning around dawn. It may show diurnal activity but normally hides well in shaded forest areas (Anywhere Costa Rica, 2014). During the day they can be found on leaves resting on the midrib singularly or in groups. The brown caterpillars which are of the later instar phases can be found resting on stems as it provides a degree of camouflage (World Association of Zoos and Aquariums, 2015).

FOOD AND FEEDING. They feed on nectar plants and the juices of fruits which are fermenting (Audubon Nature Institute, 2015) (Fig. 3). Adults also feed on pineapples, mangos and bananas (Anywhere Costa Rica, 2014). Hydrostatic pressure is responsible for the uncoiling of the proboscis which is then used for the drinking of fluids as it acts as a siphon tube. The larvae feed on forest trees and also agricultural crops and can be pests as they are very destructive. Owl butterflies have also been known to feed on carcasses of decaying animals as well as animals' waste matter, rotting fruit and tree sap.

POPULATION ECOLOGY. More than fifteen species of owl butterflies exist with all sharing the eyespot. They are quite common in their geographic locations and hence not rare in nature. They are normally solitary creatures with limited social interactions. The larvae however have been seen to be social creatures and can be found in groups (Learn about Butterflies, 2015). Adults are crepuscular, meaning they fly early in the morning and late in the evening.

REPRODUCTION. On the underside of the leaves on plants they use for food, the female lays her eggs in small groups or singly (World Association of Zoos and Aquariums, 2015). Water loss is limited in the egg stage due to the shell structure and the delicate ribbing which also allows for breathing. The five larval instars each take a week to moult from one form to the other and the process therefore lasts about five weeks. The last instar moults to the chrysalis form which can be found hanging before the butterfly emerges at the end of five weeks (Fig. 4). The owl butterfly has a lifespan of up to seven weeks (World Association of Zoos and Aquariums, 2015). The hatched caterpillar feeds on the leaves on which it was hatched and growth occurs rapidly. Its slender shape helps it to blend in with the leaf midrib assisting against predators. The chrysalis hangs downward from the stern of the plant by attaching to a silken pad.

BEHAVIOUR. When at rest their wings are held vertical which mimics the eyes of an owl possibly deterring predators such as birds or redirecting their attention to the lower wings to attack the eyes which may be presumed to be the head region. This increases its chances of survival as only a bit of the wing may be lost. The brown colour of the underside of the wings assists in cryptic camouflage within its forest environment and hence it is rarely ever found with its wings horizontal while resting to expose the colourful upper wing (Anywhere Costa Rica,

2014). During twilight hours the males engage in courtship and copulation with females or sometimes duel with other males.

APPLIED ECOLOGY. The owl butterfly is parasitized by eight known species of flies and wasps (World Association of Zoos and Aquariums, 2015). They are pest to banana plantation farmers as the caterpillars feed on the leaves and therefore parasitic wasps have been proposed as a means of control. *Caligo eurilochus* is known to be parasitized by tiny wasps known as Trichogrammatid which are parasitoids meaning that they kill their host (Fig. 5). These wasps travel on the females' hindwings and waits until they lay their eggs to leave the females and inject their own eggs into those of the owl butterflies. It then takes its place on the hind wings again to be carried to the next site where eggs are to be laid. When the eggs of the wasps hatch they kill possible caterpillars as they feed on the egg's organic matter. Sometimes up to sixty adults emerge some days later from a single owl butterfly egg.

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Fig. 2. Owl butterfly caterpillar.

[http://commons.wikimedia.org/wiki/File:Caligo_eurilochus_-_Raupe_2_(HS).jpg downloaded 15 March 2015]

Fig. 3. Feeding by adults on fruits.

[http://shop.photo4me.com/311463/canvas downloaded 15 March 2015]

Fig. 4. Owl butterfly metamorphosis.

[http://www.invivo.fiocruz.br/cgi/cgilua.exe/sys/start.htm?UserActiveTemplate=english&infoid=1270&sid=42 downloaded 15 March 2015]

Fig. 5. Trichogrammatid parasitoid wasp.

[http://www.padil.gov.au/barrow-island/pest/main/137737/13714 downloaded 15 March 2015]

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