Heliconius melpomene (Postman Butterfly)

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

Fig. 1. Postman butterfly, *Heliconius melpomene*.

[http://www.heliconius.org/2006/h-m-melpomene/, downloaded 20 May 2015]

TRAITS. All postman butterflies possess the colours of black, yellow, white and orange, however the different geographic subspecies possess different patterns of these colours (Wikipedia, 2015). In Trinidad and Tobago this butterfly is black with an orange stripe down each of its large forewings (Fig. 1). They are poisonous (Turner, 1970), and the colour patterns on the wings are used to signal to mates and to ward off predators (Jiggins et al., 2004). They possess a forewing length of 39-43mm (Bourne and Bourne, 2010).

DISTRIBUTION. The range of this butterfly is throughout Central and South America, from sea level to 1400m (Brown, 1981; DeVries, 1997). It is the most common butterfly in Central and South America, with different subspecies (colour patterns) in different regions (Fig. 2).

HABITAT AND ACTIVITY. Found in open spaces near rivers and along streams, in both dry and wet forested areas. It is also found in disturbed areas and feed on plants such as *Passiflora oerstedii* and *P. menispermifolia* (DeVries, 1997). They demonstrate a variety of adaptations that regulates and controls their body temperature. Such adaptations are exhibiting certain body postures and shade seeking. Adult butterflies live in the shady parts of the forests and are active all year long. They feed on nectar and pollen when flowers are in bloom (Barcant, 1970). They are diurnal butterflies meaning that they are active only in the day time where they dwell in the shade and occasionally wander into the sun when flowers are in bloom. As the day progress they retire back to the shaded areas where they roost. The two species *Heliconius melpomene* (postman) and *H. erato* (red postman) live side by side to each other and share the same food at different times of the day. *Heliconius melpomene* is mimetic to *H. erato*, sharing certain aspects of the wing patterns (Jiggins et al., 2004).

FOOD AND FEEDING. The larvae of *H. melpomene* feed on the plants *Distephana, Granadilla, Passiflora* and *Plectostemma* (Brown and Brown, 1981; DeVries, 1997). The females can feed either on pollen or on the nectar of flowers. The pollen provides the females with essential amino acids. The pollen from flowers is collected by the adult *Heliconius melpomene* butterflies and are chewed in their proboscis (Gilbert, 1972). The proboscis is the mouthpiece of the butterfly which extends outwards to obtain food. By feeding on pollen the butterflies have a longer lifespan and become more fertile. The butterflies soon learn the location and pathways of their food so that will return to that particular feeding spot again and again. They prefer flowers with a strong scent such as *Lantana camara* and also use visual traits when finding a flower to feed on (DeVries, 1997).

POPULATION ECOLOGY. They are social butterflies that sometimes roam in pairs or individually and can be seen flying near roads. They do not migrate to other places and are restricted to forested areas. They are also territorial, as in the case when males come into contact with other males they fight for the territory and for females.

REPRODUCTION. The males are attracted to the chemical signals of the pheromones on the pupae of the females and to the colours of the female's wings. They use these chemicals to identify the sex and species. The females lay their eggs on the stipules of the leaf. The eggs are yellow and are singly laid, approximate size 1.5×1mm (Brown, 1981; DeVries, 1997). The egg then hatches into the larva (caterpillar) which grows through five skin moults. The length of the mature larva is approximately 1.5cm. The caterpillar then forms a hard outer shell to form the pupa or chrysalis, until it develops into the butterfly. The pupa is brown pupae with gold spots, and five pairs of black spines. The process of the transformation of the butterfly from a tiny egg into a fully grown butterfly is called metamorphosis.

BEHAVIOUR. Many birds and insectivorous creatures easily feed on caterpillars since they are targeted as an easy prey. However, these caterpillars possess many tiny black spikes to ward off predators (Riley, 1975) (Fig. 3). The defence mechanism used by the butterfly is its wing colouration. Some insectivorous creatures would not eat the *Heliconius melpomene* butterfly because of its dark black and orange/red colouration. Some species of butterflies like the *Heliconius erato* butterfly have adapted this same colouration from its sister species *Heliconius melpomene*, to defend itself from predators (Riley, 1975). This is Mullerian mimicry, where similar warning colour patterns are shared between two or more distasteful species (Jiggins et al., 2004).

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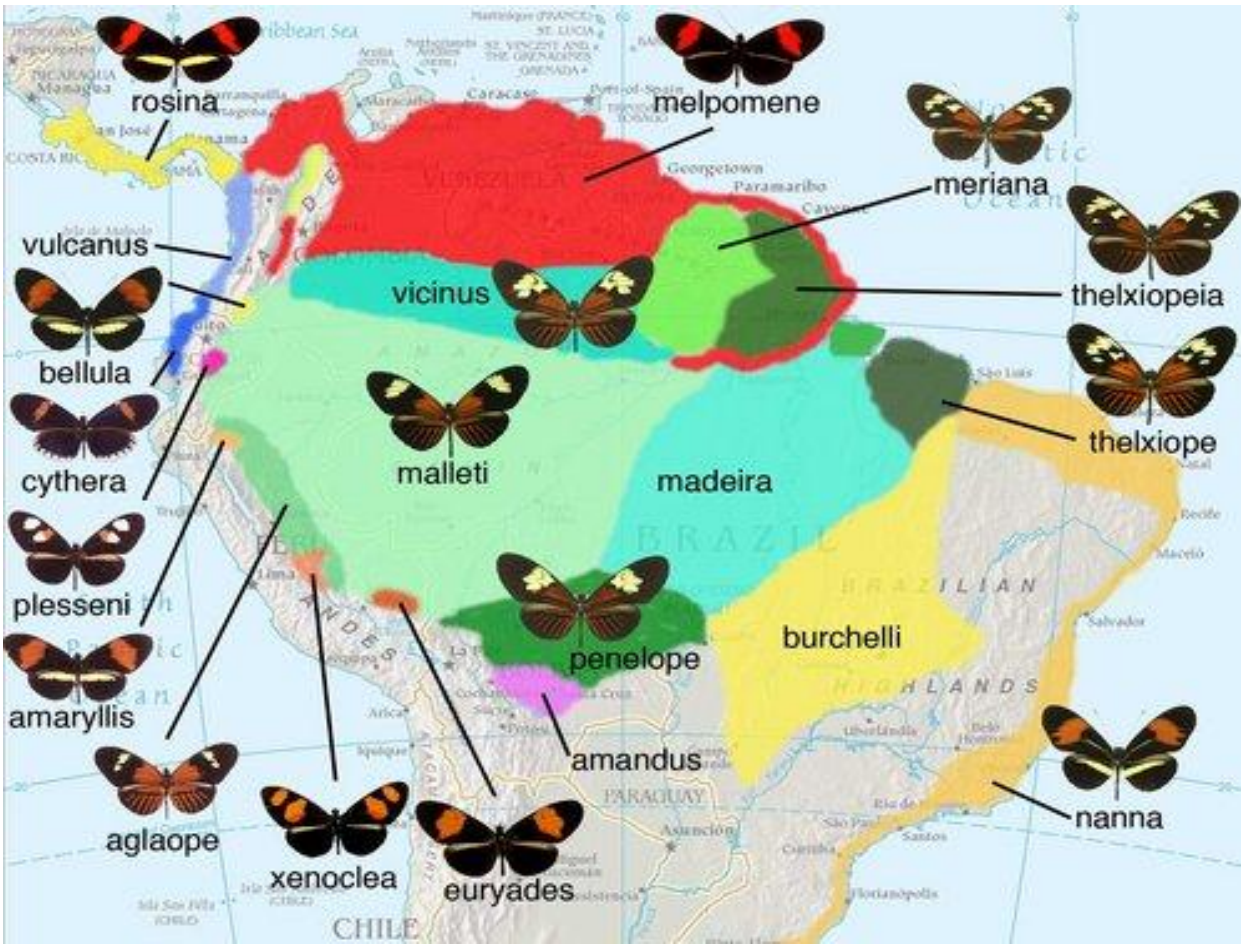

Fig. 2. Geographical distribution of subspecies of *Heliconius melpomene*.

[http://tolweb.org/Heliconius_melpomene/72252, downloaded 5 April 2015]

Fig. 3. The caterpillar of *Heliconius melpomene.*

[http://www.dreamstime.com/stock-photography-heliconius-melpomene-image15606752, downloaded 5 April 2015]