

Pseudosphinx tetrio (Frangipani Sphinx Moth)

Order: Lepidoptera (Butterflies and Moths)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)



Fig. 1. Frangipani sphinx moth, *Pseudosphinx tetrio*.

[http://entnemdept.ufl.edu/creatures/orn/trees/pseudosphinx_tetrio.htm, downloaded 8 February 2016]

TRAITS. The frangipani sphinx moth has several other common names such as tetriosphinx hawk moth, giant grey sphinx, frangipani hornworm and plumeria caterpillar (Barbara and Dunford, 2005). The adults are powerful fast-flying moths with stout bodies, one of the largest hawk moths found in Trinidad and Tobago (Cock, 2008). The body of the adult moth is mainly grey with grey-white bands and wider black ones, and the upper wings are shades of brown and grey (Fig. 1). It also has antennae on the head, thickened and with a pointed hook at the tip (Barbara and Dunford, 2005). The wingspan of the moth is 12.7-14cm with females usually being lighter in colour and slightly larger than the males (Fig. 2). The larval form is a large caterpillar (Fig. 3) more than 15cm in length with conspicuous colours; black with aposematic (warning) yellow bands and a red-orange head (Barbara and Dunford, 2005). The pupa (Fig. 4) is yellow when new, and darkens to a reddish-brown as it hardens; it is about 7cm in length (Susanleachsnyder.com, 2016).

DISTRIBUTION. Widespread, being common throughout the West Indies, South and Central America, from southern Brazil, Paraguay and Uruguay through to Mexico (Barbara and Dunford, 2005), including both Trinidad and Tobago (Cock, 2008). The moth is not believed to be

indigenous to Trinidad and Tobago, it is instead believed to have become established naturally through changes in habitat by man due to planting of its primary food source frangipani (Cock, 2008).

HABITAT AND ACTIVITY. Found in tropical and subtropical lowlands habitat (Barbara and Dunford, 2005). The caterpillar may be seen in garden on frangipani (*Plumeria nibra*) trees also on other *Plumeria* and *Allamanda* species which belong to the dogbane family of trees Apocynaceae (Trinidad and Tobago Newsday, 2015). When they mature and transition to the pupa stage they may be seen in leaf litter or subterranean chambers. The moth is nocturnal and attracted to lights and flowers at night (Susanleachsnyder.com, 2016).

FOOD AND FEEDING. The moth feeds on nectar from flowers at night (Oehlke, 2015). It hovers over flowers and introduces its thin proboscis (tongue) into the corolla tube to acquire nectar and in turn pollinates the plant. At the larval stage the caterpillar feeds on its host plant frangipani or allamanda from the Apocynaceae family (Trinidad and Tobago Newsday, 2015). Thus the larvae may be viewed as pest due to its ability to defoliate its host in a few days (Barbara and Dunford, 2005). The moth are primary consumers, thus they are on trophic level 2 and are considered as herbivores since they feed on plants.

POPULATION ECOLOGY. Adult moths are typically solitary, while caterpillars exist in groups and can be seen on its host plant. Typically adult moths live only a week or two with females outliving males by a few days (Butterflies and Moths of North America, 2016). However records show that an adult moth survives 10 days in captivity (Santiago-Blay, 1985). The entire lifespan of the moth are long when all the life stages are combined namely the egg, larva, pupa and adult.

REPRODUCTION. The tetrio sphinx undergoes metamorphoses throughout its life cycle to becoming a moth with four main stages: egg, larva, pupa and adult moth (Santiago-Blay, 1985). Females attract males through releasing of pheromones from a gland at the abdomen (Oehlke, 2015). The frangipani sphinx moth is egg-laying with the females laying clusters of 50-100 eggs on leaves of the host tree (Fig. 5). While the eggs are smooth and have no sculpturing, they contain minute punctures on their surface and have a pale green ellipsoidal appearance (Susanleachsnyder.com, 2016). The larval stage emerges in the form of a caterpillar; this stage last for 24-30 days and encompasses five or six moults till the caterpillar is mature (Santiago-Blay, 1985). The pre-pupa stage of about 4 days then occurs preceding the pupa which will last for about 22 days. The adult will emerge from the pupa and survive for a week or two with a record showing that adult moths in captivity lives up to 10 days (Santiago-Blay, 1985).

BEHAVIOUR. The aposematic colours of the caterpillar are used to ward off attack. The colour of the larvae informs predators, usually birds that pursuit is not worthwhile due to unfavourable taste. Through feeding on plants of the Apocynaceae family they will eat the white toxic latex that is produced in the leaves (Oehlke, 2015). The moth is able to detoxify and store the chemical so as to employ a chemical defence mechanism of toxic and undesirable taste to predators (Oehlke, 2015). However the cuckoo bird has developed a mechanism to overcome the chemical defence of the larvae (Barbara and Dunford, 2005). Also the larvae may wave their anterior or posterior when disturbed and bite when handled. The ability of the adult moth to engage in flight

is another anti-predatory mechanism and the pupa being in leaf litter or soil allows it to go undetected by predators (Oehlke, 2015).

APPLIED ECOLOGY. Although the caterpillar of *Pseudosphinx tetrio* may be seen as a pest due to its ability to defoliate host trees, the trees are not killed by the caterpillars (Butterflies and Moths of North America, 2016).

REFERENCES

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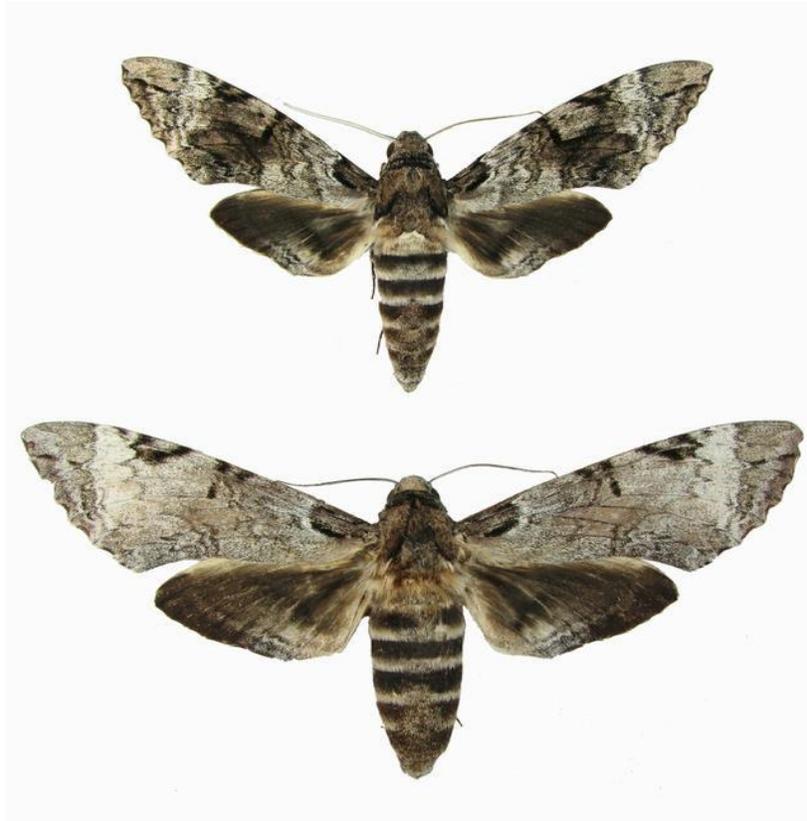


Fig. 2. Male (top) and female (below) frangipani moths.

[<http://www.silkmoths.bizland.com/ptetrio.htm>, downloaded 20 February 2016]



Fig. 3. Larva of the frangipani sphinx moth.

[<http://susanleachsnyder.com/Conservancy%20Butterfly%20Garden/FrangipaniMoth.html>, downloaded 12 February 2016]



Fig. 4. Pupa of the frangipani sphinx moth.

[<http://www.silkmoths.bizland.com/ptetrio.htm>, downloaded 15 February 2016]



Fig. 5. Eggs of the frangipani sphinx moth on a leaf.

[https://en.wikipedia.org/wiki/Pseudosphinx_tetrio#/media/File:Eggs_of_Pseudosphinx_tetrio._Frangipani_Hawk_moth..jpg, downloaded 17 February 2016]