# *Perithemis domitia* (Slough Amberwing Dragonfly)

Order: Odonata (Dragonflies and Damselflies)
Class: Insecta (Insects)
Phylum: Arthropoda (Arthropods)


**Fig. 1.** Slough amberwing dragonfly, *Perithemis domitia*.

[http://odonata.bogfoot.net/photo-pages/Perithemis_domitia.htm, downloaded 28 February 2016]

**TRAITS.** This small, sexually dimorphic species of dragonfly is characterised by the distinctive translucent, amber coloured wings of the male (Fig. 1), hence the common name slough amberwing. Dark red venation and red pterostigma (opaque cells) are also characteristic of their wings. Females are identified by brown spots on the proximal (basal) area of the wings, one on the forewing and two on the hindwing, and are amber-coloured only to the nodus (Dunkle, 2000), the outer section of the wing may be clear (Allison, 1919) (Fig. 2). These dragonflies have a yellow face and a brown head. Their thorax is covered with two, wide, olivaceous stripes which become less distinct with age. They have brown legs and black joints. Their abdomen is spindle shaped with parallel stripes. They are tiny and stubby, the average total length of the dragonfly is only 21-25 mm, with an average abdomen length of 12-16 mm (Abbott, 2016), average wingspan of 31-40 mm (Biggs, 2015).

**DISTRIBUTION.** This species is abundant and widely distributed within the southern United States, Central America, the Greater and Lesser Antilles, and South America (IUCN, 2015). In the Arima BioBlitz, conducted in 2013 in Trinidad, the presence of this species was recorded at the William Beebe Tropical Research Station, Simla (Rutherford, 2013). It is native to Trinidad and Tobago (IUCN, 2015).

**HABITAT AND ACTIVITY.** These dragonflies are a terrestrial and freshwater species and are diurnal, hence hunting only in daylight hours, and are found in shaded areas with slow running streams or sloughs (IUCN, 2015). Adults fly low over the water, hardly departing from it and perch frequently in the shade, on twigs or grasses (Abbott, 1999). Males are at water source from 8:30am to 5:00pm. At these times, they defend their territories of about 2m in diameter. Females are only present at the water to mate or lay eggs (Dunkle, 2000).

**FOOD AND FEEDING.** Both larval and adult stages of this species are predators. Larvae (Fig. 3) creep around on the bottom in search of prey. Once prey is located, they become motionless before they attack. Larvae possess an organ known as the mask. This consists of the labium and labial setae. The labium extends and the labial setae seize the prey and pull it rapidly towards the mouth. Adults capture and consume prey in flight. The dragonfly utilises its forelegs to push prey into its mouth. These forelegs are covered with spines which aid in firmly grasping and trapping prey (Williamson, 1878). Larvae consume larvae of other insects and adults consume flying insects such as mosquitoes and flies (Abbott, 2005). They are not discriminatory in their choice of prey (Williamson, 1878). *Perithemis domitia* is categorised at the third trophic level, a carnivore.

**POPULATION ECOLOGY.** This species is very abundant with a high, stable population. The average lifespan of the dragonfly is six months, from the time the egg hatches to the adult. Dragonflies play a major ecological role in control of pests due to their diet and also are a source of food for other higher organisms, for example birds.

**REPRODUCTION.** In this species, the male transfers his sperm from the tip of his abdomen by use of accessory genitalia. The male curls forward towards the female, as it grasps the female with its terminal appendages. As the female curls itself towards the male to receive the sperm, the dragonflies are said to be in tandem. Contact is made between the sperm and the genital opening positioned on the abdomen of the female. This contact is referred to as the wheel position. This species is oviparous. They require a water source to lay their eggs. When laying eggs, the male leads the female to the oviposition site, indicating some semblance of courtship which is not seen in other species (Heckman, 2006). The male retains the head of the female as they both fly close to the water's surface. The female occasionally strikes the water with her abdomen to release her eggs, usually releasing several hundred eggs. The reproductive season is June to September (Williamson, 1878). The eggs hatch into larvae (Fig. 3). These larvae are dark in colour, have an oval shaped abdomen and are an average of 14mm in length. Once the eggs hatch, the larvae fend for themselves and find their own food (Heckman, 2006).

**BEHAVIOUR.** It is recorded that this species darts swiftly from one perching spot to another, frequently changing locations. The adults also fly very low over the water, with males always present at water source but females only present to mate and lay eggs (Abbott, 1999). For adults, the mechanism of escaping predators is flying away. It is documented that bass fish frequently attempt to hunt females during their oviposition as they are so close to the water, hence

indicating a higher danger level of predation for females (Allison, 1919). The larvae are able to rapidly contract their gill chamber. The intake and forceful expulsion of water provides a form of movement, propelling the larvae away from the predator (Heckman, 2006). Males are territorial and have to defend their territories from other males in order to attract the females more successfully. “Males on meeting face to face in flight may dart upward to considerable heights, threatening each other, but return at once to low-level perches" (Needham and Westfall, 1955). Males also examine oviposition sites and lead the females to them (Paulson, 2009). Metamorphosis of the larvae usually occurs at night due to a diminished presence of predators. The larvae emerge from the water and rest on leaves and plant stems. Emerging in the presence of sufficient sunlight, in the morning, diminishes dew deposition on newly formed, expanding wings, which could have harmful effects (Heckman, 2006).

**APPLIED ECOLOGY.** This species is listed by IUCN as one of least concern. The populations are stable with no indication of decline and there are no major conservation threats affecting the species. The species is not seen as a pest nor is it important in harvesting or hunting. Also, there is no link between this species and the cause or spread of any human disease. This species is beneficial as it acts as an effective pest control due to its diet which includes consumption of mosquitoes and flies, in both adult and larval forms (IUCN, 2015).

**REFERENCES.**

Abbott, J.C. (1999). Biodiversity of dragonflies and damselflies (odonata) of the south-central nearctic and adjacent neotropical biotic provinces.

Abbott, J.C. (2005). Dragonflies and damselflies of Texas and South-Central United States. Princeton University Press. http://bugguide.net/node/view/61139, downloaded 10 March 2016.

Abbott, J.C. (2016). Odonata Central. An online resource for the distribution and identification of Odonata. http://www.odonatacentral.org, downloaded 10 March 2016.

Allison, V.C. (1919). Some dragon flies of Southeastern Kansas. Transactions of the Kansas Academy of Science (1903-), 30, 45–58. http://doi.org/10.2307/3624041, downloaded 27 February 2016.

Biggs, K. (2015). Dragonflies (anisoptera) of the greater Southwest- Arizona, California, Colorado, New Mexico, Nevada and Utah. http://southwestdragonflies.net/swanisoptera.html#Amberwings, downloaded 28 February 2016.

Dunkle, S. W. (2000). Dragonflies through binoculars. A field guide to dragonflies of North America. New York: Oxford University Press.

Heckman, C.W. (2006). Encyclopedia of South American aquatic insects: odonata- anisoptera Illustrated keys to known families, genera, and species in South America. The Netherlands: Springer.

IUCN. (2015). *Perithemis domitia*. The IUCN red list of threatened species. e.T165039A5971846. http://dx.doi.org/10.2305/IUCN.UK.2009-2.RLTS.T165039A5971846.en, downloaded 28 February 2016.

Needham, M. J. and Westfall, J. G. (1955). Dragonflies of North America.

Paulson, D.R. (2009). Dragonflies and damselflies of the West. New Jersey: Princeton University Press.

Rutherford, M. (2013). Arima valley bioblitz 2013 final report. https://sta.uwi.edu/fst/lifesciences/documents/FinalReportArimaValleyBioBlitz2013.pdf.

Williamson, E.B. (1878). The dragonflies of Indiana.

Author: Hannah Lochan

Posted online: 2016

**Fig. 2.** Female slough amberwing dragonfly, *Perithemis domitia.*

[http://www.thehibbitts.net/troy/photo/odonata/slough_amberwing.htm , downloaded 28 February 2016]

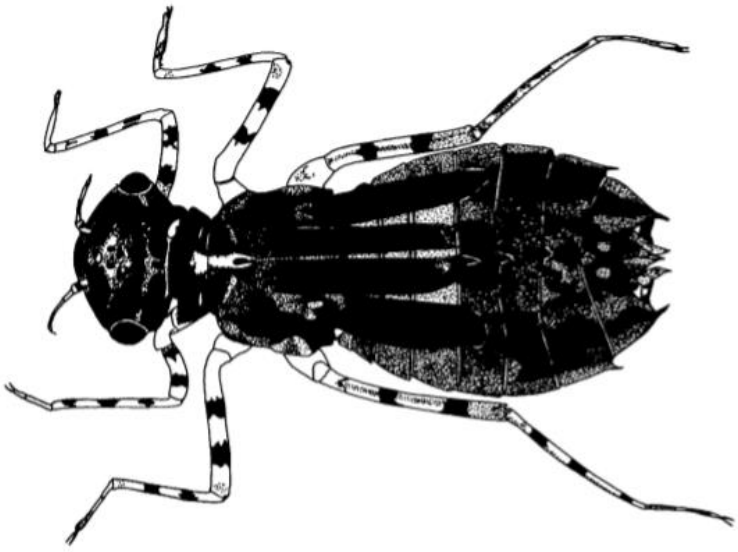

**Fig. 3.** Aquatic larva of *Perithemis domitia.*

[http://entomologia.net/L_Odonata/Anisoptera_encyclopedia_of_south_american_aquatic_insects.pdf, downloaded 12 March 2016]