

***Leucauge argyra* (Walckenaer 1842)**

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Taxonomy:

Phylum Arthropoda:

Clase Arachnida:

Orden Araneae:

Araneomorphae:

Entelegynae:

Orbiculariae:

Familia Tretagnathidae:

Genero *Leucauge*:

Leucauge argyra (Walckenaer, 1842)

Description:

Description. Female from Florida. Carapace, sternum, legs orange-brown.

Chelicerae dark brown distally, and sternum dark brown posteriorly. Dorsum of abdomen silvery, broken by median longitudinal and lateral lines and by branches radiating from the median line. Venter with two silver lines, one on each side, separated by brown and black pigment. Living specimens have orange-red patches (Fig. 67). The first and second legs have rows of denticles on the venter of tibiae and metatarsi. Total length, 9.1 mm. Carapace, 3.2 mm long, 2.3 mm wide. First femur, 8.0 mm long; patella and tibia, 8.8 mm; metatarsus, 8.8 mm; tarsus, 9.9 mm. Second patella and tibia, 6.4 mm; third, 2.4 mm; fourth, 4.8 mm. Male from Florida. Coloration like female except silver patches are smaller. Legs with denticles as in female and palpal cymbium with a

large, distally curved spine. Femur of palpus has a slight hump distally, facing widest place of endite. Total length, 6.6 mm. Carapace, 3.0 mm long, 2.3 mm wide. First femur, 8.4 mm; patella and tibia, 9.2 mm; metatarsus, 10.0 mm; tarsus, 2.3 mm. Second patella and tibia, 7.2 mm; third, 2.8 mm; fourth, 4.9 mm. (Herbert W. Levi 1980).

Variation. Individuals have a variable amount of black pigment. There is considerable variation in size. Females vary total length, 4.5 to 10.0 mm; carapace 1.9 to 3.6 mm long, 1.3 to 2.7 mm wide; first patella and tibia, 4.9 to 9.6 mm long. Males vary total length, 4.1 to 6.3 mm; carapace, 1.9 to 3.0 mm long, 1.6 to 2.4 mm wide; first patella and tibia, 5.1 to 8.1 mm long. Diagnosis. The female *L. argyra* is separated from all other species of *Leucauge* by the cone-shaped epigynum (Figs. 61-63), the male by the dorsal hook on the cymbium (Fig. 69) and the large sclerotized sickle-shaped conductor (Figs, 68, 70). Juveniles, unlike those of *L. venusta*, lack silver speckling between the two longitudinal central lines on the abdomen. (Herbert W. Levi 1980).

How to identify:

Black abdomen with light golden marks, and the female as having cone shaped genitalia. (Copyright © 2006 Sean McCann, Bug Guide website).

Distribution:

It can be collected in sugar cane fields in Puerto Rico. The distribution of the species *Leucauge argyra*(Walckenaer, 1842) were to Central and Southern, Gulf Coast, West Indies, Mexico to South America, most abundant in the West Indies. *Leucauge* species can be found around USA to Brazil. (Herbert W. Levi 1980).

Habitat:

Leucauge argyra(Walckenaer, 1842) habita en bosques, areas humedas, pastizales y areas verdes.

Behavior:

Makes a horizontal web in Woods and mangroves. In most cases the web is slanted rather than vertical and the spider rests in the middle of the web with its underside facing upwards.(Herbert W. Levi 1980).

Reproduction: (© Albert Burchsted 2008)

Approach- The male moves onto the female's web at the same height as the female. Upon entering the web, he begins strumming on the radial spokes, plucking them with his second pair of legs. He moves toward the female, usually in the center of her orb, while continuing to pluck the spokes.

Contact- As he nears the female, the male raises his second pair of legs and begins to wave his pedipalps from side to side.

Sperm transfer- As the female quickly moves toward him, he grasps her raised legs with his legs, and moves slowly underneath her – directly under the "umbrella" of her fangs and legs. He reaches back with a front leg, collects a spermatophore (wrapped package of sperm) from his genital opening, and places it into the female's genital opening.

Danger- From contact to transfer, the male is at the most risk. All the female has to do is to slip from his grasp, drop onto him, and sink her fangs into his body. The male venusta spider, although only about 1/10th to 1/3rd her size, is able to hold the female away until he can back out from under her. Males of other species are not always as lucky.

Escape- Moving out from under the female, the male runs directly upwards until he is off the web and stops several inches above it.

Repeat- After a short while, the male moves around the web until he is again at the same location he began the process. Strumming the web, he again moves toward his chosen mate to repeat the process. In this species, the male may provide the same female upwards of eight spermatophores before leaving.

Benefits to the female:

Eggs are composed primarily of protein and fat. The usual prey of spiders are sometimes as little as 1% of the female's size. Small prey mean the female must wait to mate until she has stored enough nutrients to provide for her eggs. If she has not fed well, the appearance of a prey item (male) that is between 10% and 30% of her size might be too good an opportunity to pass up, so she eats the male before he can transfer sperm. If she has captured prey recently, she might let the male copulate and then eat him. A fully sated female would release the male to search for another female to mate with after he satisfies her reproductive needs.

Benefits to the male:

Male spiders mate near the natural end of their lives. Once they have culminated their reproductive requirement and passed on their genes, they have little purpose left. They could mate again, but often have become exhausted by their first session and die before making another effort. If the male provides a meal for his mate after mating with her, she converts the nutrients in his body into more and larger eggs. Larger eggs produce larger offspring. Thus, by feeding his mate, he is ensuring: His children obtain his genes, he fathers more offspring, his offspring are better prepared to make their way in the world from the day they hatch, the nutrients in his body are directly transferred to his children and do not provide sustenance to a scavenger or predator, allowing them to produce more of their offspring.

If a male is eaten by a female of the species before he mates, the benefits to his offspring are not as direct, but he still enhances their survival. He does not provide genes to the next generation. His nutrients are used to increase the number and size of her offspring. Thus, he is helping to increase the number and fitness of baby spiders in the following year even if he does not pass on his genes. His nutrients are not being used to promote another species' fitness.

Predation:

Insects of the Order Diptera. Spiders on high webs (153.8 ± 3.6 cm above ground, mean \pm S.E.) were significantly larger and heavier than spiders on lower webs. Large spiders had significantly larger, better developed ovaries, than smaller conspecifics, presumably indicative of sexual maturity. Significantly more insects were captured by sticky traps placed at 50 cm height than in the traps placed at 150 cm height; the most numerous captures were Diptera.

Los nidos consisten de agregaciones de telas orbiculares que en su conjunto pueden llegar a ocupar hasta 3 m^3 (G. Estévez, resultados no publicados). Un nido de 1,5 m de largo x 1,4 m de ancho y 0,6 m de altura contuvo 25 arañas, entre juveniles y adultas. Cada tela orbicular es ocupada por un individuo solo. Sin embargo, al ser sacudido su nido las arañas corren a refugiarse juntas bajo las hojas superiores que sirven de anclaje a los hilos de sostén del nido.

Ecological Aspects:

En un ensayo realizado en Perú en cultivos de camote, se concluyó que el género *Leucauge argyra* (Walckenaer, 1842) es uno de los controladores biológicos más importantes contra insectos plaga en este cultivo.

Important Facts:

All species included in the *Polysphincta* genus-group develop as ectophagous parasitoids of active spiders, killing their hosts prior to pupation. However, little information regarding natural history and ovipositing behavior of most species are available. In this study we inspected 85 webs of *Araneus omnicolor* to evaluate the frequency of parasitism and host size preferences of the wasp *Hymenoepimecis* sp. We also described the web characteristics of normal and parasitized spiders and the wasp ovipositing behavior. About 41% of the adult females of *A. omnicolor* inspected were parasitized. The highest incidence of parasitism was observed among relatively small females while no egg or larva was found in large individuals. *Araneus omnicolor* builds a strong web composed of an orb and barrier threads, where the spider rests within a curled leaf. The parasitoid larva builds its cocoon within this refuge, and modified cocoon webs were not observed. The ovipositing behavior of *Hymenoepimecis* sp. was very similar to that of *Hymenoepimecis argyraphaga* parasitizing *Leucauge argyra*, including the position of the sting, the killing of a previously attached larva, and the expelling of the egg from the base of the ovipositor. (Marcelo O. Gonzaga and Jober F. Sobczak: 21 November 2006: Parasitoid-induced mortality of *Araneus omnicolor* (Araneae, Araneidae) by *Hymenoepimecis* sp. (Hymenoptera, Ichneumonidae) in southeastern Brazil; Volume 94, Number 3: 223-227.

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