

**Observations on the Life History and Behavior
of the Thread-Legged Bug**

***Emesaya b. brevipennis* (Say), (Hemiptera: Ploiariidae)¹**

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Thomas Say described this bug in 1828 under the generic name of *Ploiaria* Scopoli. It has probably been most commonly known as *Emesa longipes* DeGeer, but McAtee and Malloch revised the group in 1925 and created the genus *Emesaya*.

The forelegs are comparable to those of a preying mantis, the body more slender than that of a stick insect, resembling that of a stilt bug. Adult females are about 32 mm long, males about 28-29 mm. Although *Emesaya* is a member of the Heteroptera, the wings are of uniform texture throughout and are very short and small. It is surprising that the insect is able to fly.

Only short notes concerning *Emesaya* can be found in print, but many people have contributed bits of information. Several authors refer to the swaying or bobbing of both adults and nymphs upon their two posterior pairs of legs (e.g., Blatchley 1926 and Wickham 1909). Wickham (1910) described and figured the position assumed during copulation, though he observed only one pair which parted after about five minutes. He also mentioned their preying on gnats and upon others of their own species, but was uncertain whether cannibalism involved attacks upon living victims or upon ones which had died of other causes. Howard (1901) stated that they rob spiders of their prey, Smith (1910) that they are said to prey on spiders. According to Banks (1909) there is only one generation a year.

In our study, adult specimens of *Emesaya b. brevipennis* (Say) were obtained chiefly from screens and spider webs at the University of Oklahoma Biological Station, Willis, Oklahoma. The adults were collected from the time the study began (June 15) until July 6, 1962. Nymphs and eggs were found on these same sites on July 16. Juveniles were reared in cages by adding midges (Chironomidae) and other small insects and spiders. Adults were fed small spiders taken mostly from the nests of mud daubers (Sphecidae).

Two cases of predaceous cannibalism were observed (one involving adults, the other, second instar nymphs); both aggressors started with the knee joint, then pierced the victim at intervals along the body.

The adults were observed to remain in copulation for one to two hours or longer, and were not easily separated. The positions of the copulants were as described by Wickham (1910) most of the time.

Oviposition was observed to occur within one to four days after copulation. When mixed adults are confined in glass vials, eggs are most commonly deposited upon the legs of males, but some are attached to the glass. In cages, the eggs may be placed upon such substrates as are available—wire screen, wood, or cotton. Apparently the favorite oviposition site is spider web, although the strand of web may lie flat against

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some other substrate and be virtually invisible. Thus, of 46 eggs collected in nature on one date, 44 were attached solely to spider web, although many of these appeared to be attached to wood. The remaining two were attached to wood, but perhaps also to strands of web. The webs most commonly employed are those of agelenid (sheet- and funnel-web) spiders. The eggs are laid singly and randomly over a period of one to several days.

The eggs average about 2.4 mm in length by 0.6 mm in width, are typically black in color, and are smooth on the attached side. The other side bears several apically-converging rows of pale tan hook-like projections. One end is usually rounded, though occasionally drawn out to a sharp point, and the other bears a gray, knobbed cap which opens upon hatching.

The eggs hatch after 10 or 11 days at room temperature, but chilling arrests development, and those deposited in the autumn probably do not hatch until spring for the most part. The first instar nymph is about 5 mm in length and as emaciated in appearance as the adult. These nymphs did not feed upon small spiders either intact or partially crushed. They did feed upon midges and other small insects which are frequently caught in spider webs. After a few meals, the abdomen swells to make the nymph about 7 mm long. It molts to a 10 mm second instar, and at this stage will prey upon either insects or spiders of suitable size. When about 12 mm long it molts to a 15 mm third instar.

Although we have not reared individuals from egg to adult while recording all appropriate data, we can probably make an accurate estimate as to the total number of instars. Since such dimensions as body length and width are influenced by feeding, we employed a more constant dimension, the distance between the outer edges of the eyes. For the first instar this measurement is about 0.33 mm, the second instar 0.41 mm, the third 0.49 mm, the fourth 0.59 mm, and the fifth about 0.72 mm. This dimension in the adult male is about 0.87 and in the female 0.96 mm. We thus guess that the male exhibits five nymphal instars, the female six.

All nymphal instars are much lighter in color than are the adults, which are medium brown. The legs in all instars exhibit alternating light and dark bands.

Three captive males reached adulthood between Sept. 15 and 20, a female on September 29.

On Nov. 24 Brown collected one living adult of each sex above Turner Falls in Murray County, along with 46 eggs. Two more eggs were laid in the collecting jar. Both adults died within the following week. Kept at room temperature, an egg hatched on Dec. 1. We assume that such eggs normally overwinter and that the hatchlings mature by midsummer.

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