

University of Florida Book of Insect Records

Chapter 37 *Shortest Reproductive Life*

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*Many insects spend the majority of their lives in the immature stages of development. Although there are several species among many groups of insects that exist for only a few days as adults, the shortest adult reproductive life belongs to the female of the mayfly *Dolania americana* (Ephemeroptera) which lives for less than five minutes after its final molt. During this brief window, the insect mates and lays her eggs.*

Reproductive life can be defined in several ways due to the enormous variety of insect reproductive strategies. In this paper, reproductive life is defined as the time from final molt until death in the stage where mating and egg laying occur, under natural conditions. Using this definition, I searched for the insect with the shortest reproductive life.

Methods

A computer search of *Biological Abstracts* was employed to initially search for candidate insects in the primary literature. This led to other sources cited in those publications.

Results

Several groups of insects can be characterized by their short reproductive life. The order Ephemeroptera has even been named based on this trait. (*ephemera* means short-lived). Among this group, few species live more than 48 hours as adults, and most do not even have functional mouthparts. I have named the mayfly *Dolania americana* the shortest lived among the Ephemeroptera with females typically living for less than five minutes (Sweeny & Vannote 1982).

Discussion

In the search for the most ephemeral insect, three groups of what may be considered short-lived adults were found. Those whose adult life is typically measured in days, such as the Hessian fly with a span of about 4 days (Bergh et al. 1990) and the parasitic wasp *Acmopolynema hervali* which lives as an adult for 3 days or less (Boas & Andrade 1991). The next group is of those insects whose reproductive existence is measured in hours. Examples of this group are numerous and contain such species as the wasp *Trichogrammatoidea bactrae* which lives about 28 hours (Hutchison et al. 1990), the moth *Thaumetopoea pityocampa* (Schmidt et al. 1990) and the mayflies *Ephoron virgo* (Kureck & Fontes 1996) and *Ephemera nadinae* (Balasubramanian et al. 1973) each of which lives approximately 24 hours, and the gall midges of the genus *Rhopalomyia* which emerge as adult in the morning and are dead by midday (Jones et al. 1986). But the champion of these are the insects whose reproductive lives are measured in minutes. The mayfly *Dolania americana* in which females typically live less than five minutes is the shortest lived of these, and is therefore the insect with the shortest reproductive life (Sweeny & Vannote 1982). During this time, to reproduce, they must find a mate, copulate, and lay their eggs back into the water from which they so recently emerged.

Although it is difficult to envision an insect that might live as an adult for an even shorter period than *Dolania americana*, such an organism may exist. However, since life expectancies

(especially such brief ones) are rarely studied in natural conditions, it is unlikely that there are records of any competitors to this mayfly's title.

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