

PRELIMINARY STUDIES OF *TETRAGNATHA* (ARANEIDA) AS PREDATORS OF MOSQUITOES

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Dr. Bristowe in his *The World of Spiders* (1958:254) states, "*Tetragnatha* depends for food chiefly on light-bodied nematoceros or gnat-like flies which abound near water and the webs are usually spun in the evening before it is dark."

Library research revealed several papers by Dabrowska-Prot (1959a, b) and Dabrowska-Prot et al. (1966 and 1968) on mosquitoes as a food of *Tetragnatha montana* Simon. Their research, done in Poland, showed that a high percentage of nematoceros Diptera were found in the webs of *T. montana*. They reported that in June mosquitoes represented 74% and in July 62% of all prey captured in webs. Three species of mosquitoes, *Aedes maculatus* Meigen (*Ae. rusticus* (Rossi)), *Ae. cinereus* Meigen and *Ae. punctor* (Kirby) was found in the webs of *T. montana*.

My field work has shown that several species of *Tetragnatha* were usually found in the vegetation surrounding mosquito breeding areas. The highest populations of *Tetragnatha* were found in marsh areas where there was dense growth of grasses, sedges and rushes. In this same habitat large populations of adult mosquitoes rest after emergence from the pupae.

In the Great Plains Region the following species of *Tetragnatha* are common in and around mosquito breeding areas: *T. elongata*, *T. guatemalensis*, *T. pallescens*, *T. straminea* and *T. laboriosa*. It would appear the *T. laboriosa* is the dominant *Tetragnatha* in the Region.

Webs of *T. straminea* and *laboriosa* have been examined in the early evening during June, July and August. No webs were located during September. In a number of webs, adult mosquitoes, especially *Ae. vexans*, were found. It would appear that although mosquitoes are a source of food for tetragnathid spiders, so are other

nematoceros Diptera. When large numbers of adult mosquitoes are in the marsh, they are an important food for tetragnathid spiders. Climatic factors may be important controlling factors in the tetragnathid populations.

In 1977, large numbers of immature tetragnathids were collected in June. During July and August there was a drought and a large number of mosquito breeding areas dried up. During this period no tetragnathids were taken in the vegetation surrounding the dried up mosquito breeding areas. In early September there were heavy rains and the areas reflooded and produced large numbers of *Ae. vexans*. However, no species of tetragnathids was taken from the vegetation around these marshes. Thus it may be assumed that lack of food, plus excessive dryness, may be a major controlling factor for the tetragnathid population.

No good method of determining the population of tetragnathids was found. In June when large numbers of immatures were present, sweeping approximately 1 meter² of vegetation around 1 mosquito breeding area in Central Nebraska resulted in an average of 22 per square meter. This was based on a total of 5 sample areas.

The following conclusions are based upon limited field studies in the Great Plains Region:

1. Mosquitoes are a food source for tetragnathids.
2. Tetragnathid spiders are abundant in June and July.

3. The tetragnathid web is constructed in the early evening, and feeding takes place during the peak of mosquito activity from shortly before sunset until approximately total darkness. There may also be an early morning feeding period.

4. There is limited evidence that tetragnathids may feed upon teneral imagoes.

5. The tetragnathids cannot survive long periods without food under drought conditions.

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