

Description and significance of the juvenile web of *Pisaurina mira* (Walck.) (Araneae: Pisauridae)

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Summary

Juveniles of the common North American *Pisaurina mira* (Walckenaer) construct webs which are similar to those constructed by the European *Pisaura mirabilis* (Clerck) and the Central American pisaurid *Architis nitidopilosa* Simon. This unique type of web consists of a short tubular portion with widely flaring sheets extending from each opening. Also unique is the resting position of the resident in its tube with the body at right angles to the axis of the tube while the ipsilateral legs extend through opposite openings and rest on the corresponding flared sheets. While the webs of the other two species are used in prey capture, the web of *P. mira* has not been observed to be used for this function but may instead serve only as a retreat. The type of web architecture and resting position found in these three pisaurid species is considered to be an important synapomorphic family character.

Introduction

Pisaurina mira (Walck.) is a common pisaurid of the Eastern United States which is usually found hunting among vegetation, especially in ecotonal areas (Carico, 1972). Other than the egg sac, the nursery seems to be the only silken structure described previously for this species. The purpose of this paper is to describe the newly discovered juvenile web of this species and to indicate its significance as a familial character.

During the summers of 1980 and 1981, while conducting nocturnal studies on orbweavers in Lynchburg, Virginia, numerous juveniles of *P. mira* were each found to be inhabiting a unique type of web. Its significance became clear only after correspondence with Wolfgang Nentwig during the fall of 1983. His description of the webs and resting position of the pisaurid *Architis nitidopilosa* Simon in Panama indicates that they closely resemble those of *P. mira* (see Nentwig, 1985). Further significance was added

after reading Lenler-Eriksen's (1969) description of the "hunting-web" and resting position of the European *P. mirabilis* (Clerck) which is also very similar.

Description of the web

Typically the web of the juvenile *P. mira* is located beneath a bent leaf and is a short, broad tube which is elliptical in cross-section to accommodate the spider in its resting position (Fig. 1). Broadly flaring from each opening is a small delicate sheet of silk which is attached to the surrounding vegetation. The position of the spider in the tube is head down with the longitudinal axis of its body at right angles to the axis of the tube. The tips of ipsilateral legs extend through the corresponding openings onto the flared sheets of silk. The published description and illustrations of the web of *P. mirabilis* by Lenler-Eriksen (1969) agree very closely with the web of this species.

Function of the web

Like *P. mirabilis* (Lenler-Eriksen, 1969), only juveniles were found in webs, both by day and night. No adults were observed in webs. From rather casual observations concerning the function of the web, however, there is no indication that these structures are used for prey capture by the young, as is the case for both *P. mirabilis* (Lenler-Eriksen, 1969) and *A. nitidopilosa* (Nentwig, 1985), but rather they seem to serve primarily as a retreat. Predatory behaviour seems to be independent of the webs because the residents frequently forage for prey distant from the webs, and no prey capture or feeding was observed associated with the web. Between forays the web may function instead to isolate the spider from the surface of the vegetation where its potential predators are also foraging. The flared sheets function to signal the presence of a potential aggressor: when the sheet is touched around one opening, the resident escapes through the opposite opening.

Discussion

The similarity among the webs of these three pisaurid species, each found on a different continent, confirms their confamilial relationship as assumed by Simon (1898). This significant synapomorphy further suggests that other genera, assumed to be in this

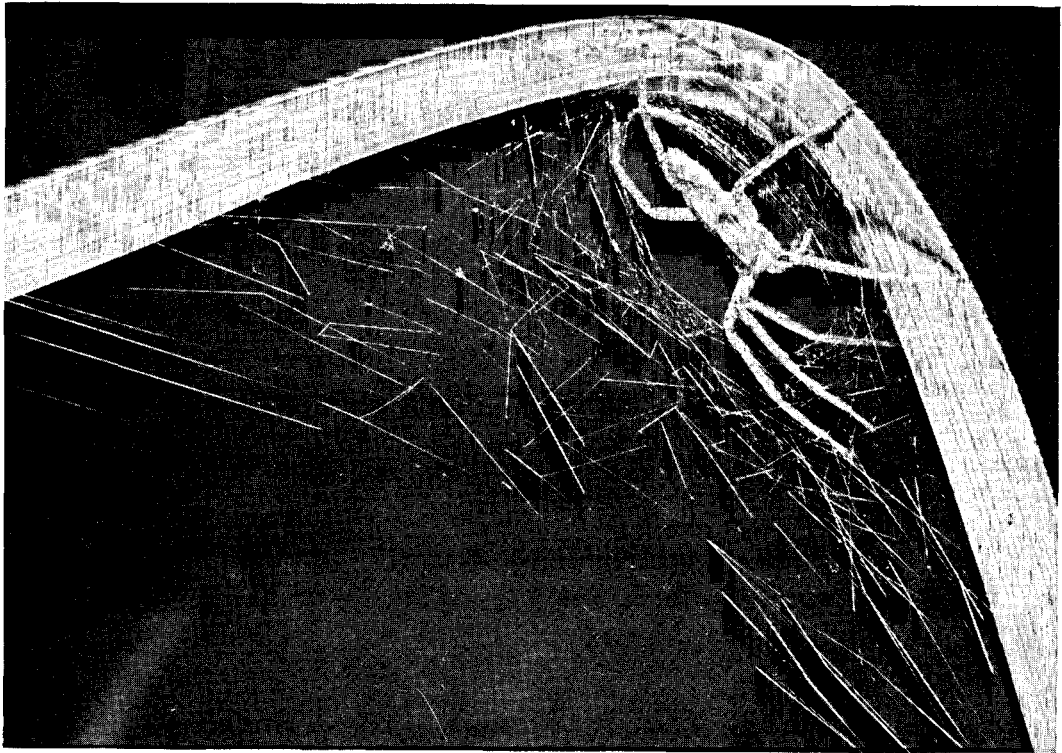


Fig. 1: Juvenile *Pisaurina mira* in tubular web under bent grass leaf.

family, should be investigated for the occurrence of this type of web. The use of this character, therefore, will aid in the analysis of familial relationships and contribute to a clearer understanding of the family.

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