

## *MANTISPA IN A PEUCETIA EGG CASE*

During a study of reproductive effort in the green lynx spider, *Peucetia viridans*, one egg sac that was opened contained a second sac neatly filling the entire space within the first. Upon opening this sac, a grub-like larva was found. This larva was allowed to develop within the sacs. The sub-imago that emerged was a mantispid, *Mantispa* sp. (possibly *interrupta*). Since the mantispid did not live to expand its wings, species identification could not be made, see key by Froeschner (1947, Ann. Ent. Soc. Amer. 40:123-236) or by Rehn (1938, Trans. Amer. Ent. Soc. 65:237-266).

Mantispids undergo hypermetamorphosis; thus the scarabaeiform larva found in the sac had prepared for pupation by feeding on the lynx spider's eggs. The second sac was the silken cocoon spun by the larva prior to pupation (Borror, D. J., Delong, D. M., Triplehorn, C. A. 1976. *Study of Insects*. New York. Holt, Rinehart and Winston).

A number of authors have indicated that mantispid larvae feed on the eggs of spiders. Borror, *et. al.*, (Ibid. 1976) indicate they are found "in the egg sacs of ground spiders." Withycombe (1924, Trans. Royal Ent. Soc. London 72:303-411) mentions they attack

the egg sacs of *Lysosa*, and Gertsch (1979, American Spiders. New York. Van Nostrand Reinhold Co.) includes the agelenids along with the lycosids as a mantispid host. Kaston has also described mantispids from agelenids (1938, J. New York Ent. Soc. 46:147-153) and gnaphosids (1940, Bull. Brooklyn Ent. Soc. 35:21). A clubionid sac containing a mantispid is described by Milliron (1940, Ann. Ent. Soc. Amer. 33:357-360), and salticid sacs that produced two pupae of *M. interrupta* are reported by Smith (1934, J. Kansas Ent. Soc. 7:120-145). Askew (1971, *Parasitic Insects*. New York. American Elsevier Publ. Co.) lists the following host families of mantispids: Gnaphosidae, Clubionidae, Thomisidae, Lycosidae and Pisauridae. The present observation appears to be the first record of a mantispid found in the Oxyopidae.

It appears that the phenomenon that was observed here is best described as partial brood parasitism. Brood parasitism occurs when a female lays her eggs in the nest (egg sac) of another species, and the young are raised by foster parents. With mantispids, the eggs are laid on vegetation and the first larval stage seeks the egg sac of a spider where it subsequently feeds on the eggs of the spider. Since the female lynx spider guards her egg sac with the mantispid inside the sac, the mantispid benefits from the care this "foster" parent is giving, i.e., sac maintenance and defense of this webbed territory. This behavior is similar to bird behavior where the brood parasites in a host nest are cared for by the parents at the expense of their own young. The term partial brood parasitism is used here because there are some basic differences between the mantispid behavior and that of brood parasitism in birds. First, the female mantispid does not lay her eggs directly into the egg sac; birds do lay their eggs directly into the host's nest. Second, the female lynx spider does not feed the mantispid larvae as a bird host feeds the young of its social parasite. There are also strong similarities to brood parasitism. The fact that many bird brood parasites kill the host's young parallels the death of the eggs or spiderlings caused by the feeding behavior of the mantispid larva. Although the female lynx spider does not feed the mantispid larva directly, she does provide food indirectly in the form of her own reproductive output, her clutch. Since the phenomenon observed here includes features found in the basic definition of brood parasitism, i.e., behavioral care by a foster parent, elimination of the hosts' young, and provision of food by the foster parent, the idea of partial brood parasitism appears to be appropriate.

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