

THE GREEN LYNX SPIDER, PEUCETIA VIRIDANS (HENTZ)

(ARANEAE: OXYOPIDAE)^{1/}

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SYNONYMY:

Sphasus viridans Hentz 1832:105. Syntypes from North Carolina and Alabama, lost.

Clastes abboti Walckenaer 1838:579. Holotype from Georgia, Abbot fig. 401.

Clastes viridis Walckenaer 1841:475. Holotype from Georgia, Abbot fig. 406.

Clastes roseus Walckenaer 1841:476. Holotype from Georgia, Abbot fig. 411.

Oxyopes viridans: Hentz 1845:195, pl. 17, fig. 2, female. 1875:46, pl. 7, fig. 2, female.

Peucetia aurora McCook 1883:277. 1890:147, fig. 180-181. Female holotype from San Bernardino, California.

Peucetia viridans: Emerton 1902:89, fig. 220, female.

Peucetia abboti: Chamberlin and Ivie 1944:134.

Discussion: This species was described under 3 names applied by Walckenaer (1838, 1841) to the Abbot drawings. The name Peucetia abboti was resurrected by Chamberlin and Ivie (1944), but Peucetia viridans (Hentz) has priority. Oxyopes fossanus Walckenaer, a still earlier name for P. viridans, was designated a nomen oblitum by Brady 1964:507.

INTRODUCTION: In Florida the green lynx spider, Peucetia viridans (Hentz) (fig. 1), is the spider most often received for identification by Division of Plant Industry entomologists. It is a conspicuous, large, bright green spider found on many kinds of shrublike plants throughout the southern United States and is the largest North American lynx spider. Although it is common throughout Florida and aggressively attacks its insect prey, it very seldom bites humans. While its bite is of little concern to humans, the green lynx spider is of interest because of its potential use in agricultural pest management. Judging from their local abundance, the lynx spiders are among the major predators of insects occurring in low shrubs and herbaceous vegetation. Few detailed observations have been made on the feeding habits of lynx spiders, but investigations by W. H. Whitcomb et al. (1963) have disclosed that the lynx spiders are important predators of crop-damaging insects. Oxyopes salticus Hentz, another lynx spider and 1 of the most common spiders in Arkansas cotton fields, has been reported by Whitcomb et al. (1963) as the chief predator of the bollworm, Heliothis zea (Boddie). Peucetia viridans is also an important predator of insect pests of cotton fields. In the field, green lynx spiders have been observed feeding on many species of moths of the families Noctuidae, Geometridae, and Pyralidae, including some of the most important crop pests. Whitcomb et al. (1963) reported these spiders feeding on bollworm moths, Heliothis zea (Boddie); cotton leafworm moths, Alabama agrillacea (Hübner); and cabbage looper moths, Trichoplusia ni (Hübner). They also capture larvae of these species. However, their usefulness in the control of insect pests is counteracted by their willingness to prey also upon beneficial insects. These spiders seize large numbers of honey bees, Apis mellifera Linnaeus, and sphecoid and vespid wasps. Whitcomb et al. (1963) reported that members of the

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vespid genus Polistes which, themselves, are important predators on crop pests, are especially favored as prey by lynx spiders. Similarly, several species of Diptera, including syrphid flies (pollinators) and large tachinid flies (beneficial parasites), also are seized. Thus the possible use of lynx spiders in the control of crop pests will depend in a large part on when, where, on what crops, and for the control of what pests they are to be used. Their use in Florida in the control of pests of such crops as soybeans and peanuts may be feasible. Their potential in this regard appears to warrant thorough investigation.

DISTRIBUTION: Two species of the genus Peucetia occur in North America. P. viridans (Hentz) occurs throughout most of the southern United States from coast to coast, Mexico, Central America, and the West Indies. P. longipalpis F. O. Pickard-Cambridge occurs in the southwestern United States, south to British Honduras.

IDENTIFICATION: The female P. viridans is a large spider often 12-22mm in length, averaging approximately 16mm; the more slender, lighter male is somewhat smaller, averaging 12mm in length. The cephalothorax is highest in the eye region, where it is quite narrow, but broadens out considerably behind. The body is bright transparent green in life (the vivid green pigment washes out rapidly in alcohol), and usually with a red patch between the eyes and with red spots over the body as a whole varying in number and size. The eye region is clothed with white appressed hairs. Legs are paler green to yellow, quite long and thin, provided with very long, black spines, and covered with numerous black spots, particularly noticeable on the femora. Gertsch (1949) reported distinctive color variations in P. viridans, and Brady (1964) gave means for distinguishing P. viridans from P. longipalpis, particularly the males which have distinctively different genitalia (fig. 2a, 2b, 3a, 3b).

The oxyopids or lynx spiders, in general, can be distinguished readily from other families of spiders by their peculiar hexagonal eye arrangements and the prominent spines on the legs. Randall (1976, unpublished thesis) used the femoral spination as a key to instar determination.

LIFE HISTORY, HABITS, AND HABITAT: P. viridans, in North America, has 1 generation a year under field conditions and apparently constructs 1 egg sac, typically in September and October, although 2 or more may be constructed in the southern part of its range. After an egg sac is constructed, the female guards it continuously and vigorously. Usually, she hangs upside down from the sac and will rush at anything that threatens it. Each egg sac contains 25-600 bright orange eggs, with an average of approximately 200 eggs. Eggs require 11-16 days to hatch, depending on air temperature. Each egg transforms to a postembryo (incorrectly called a deutovum in some of the literature). The postembryo of the green lynx, like that of other spiders, is without tarsal claws and mouth parts, and the eyes are functionless. No setae or hairs are present on the body. The postembryo remains in the egg sac, where it molts after 10-16 days. The resulting first instar spiderling has functional eyes, a digestive tract, and spines, and is ready to leave the egg sac. Emergence from the egg sac occurs within 10-13 days after the eggs have hatched. The female spider helps the young to emerge by tearing open the egg sac soon after the first postembryos have molted. Unlike the wolf spiders, in an emergency green lynx spiderlings can make their own exit holes from the egg sac. Under

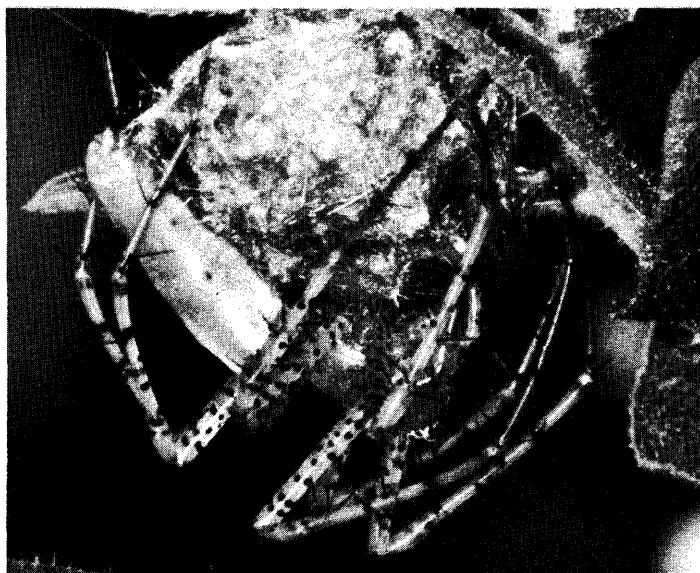
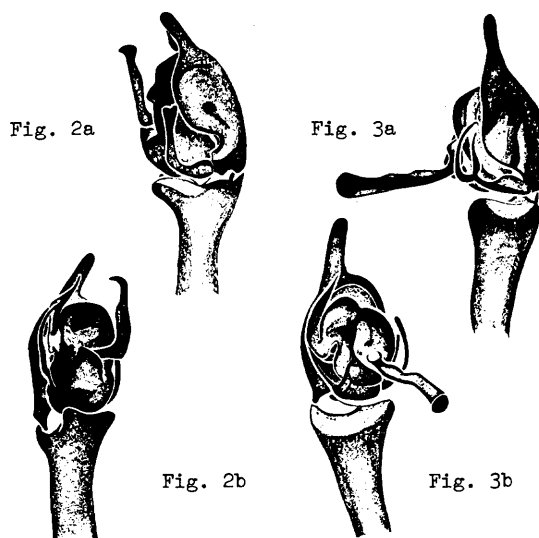


Fig. 1



- Fig. 1. Adult female of green lynx spider, Peucetia viridans (Hentz), with egg sac, (Courtesy of J. B. Randall)
- Fig. 2. Peucetia longipalpis F. O. Pickard-Cambridge, male from Brown's Canyon, Baboquivari Mtns., Pima Co., Arizona: a) left genital palpus, retrolateral view; b) left genital palpus, ventral view. (from Brady, 1964)
- Fig. 3. Peucetia viridans (Hentz), male from Silverhill, Baldwin Co., Alabama: a) genital palpus, retrolateral view; b) genital palpus, ventral view. (from Brady, 1964)

field conditions, male and female spiderlings pass through 8 instars before reaching sexual maturity, but less may be required under laboratory conditions. Brady (1964) recorded that, "under laboratory conditions the total time from egg sac emergence to maturity, in the case of reared males, averaged 288.6 days; in the case of reared females, 301 days." Males had 6-7 instars; females had 7-8 instars. Whitcomb et al. (1966) observed that the female constructs her egg sac 21-28 days after mating, which occurs in July and August. The egg sac is light green when first constructed but becomes straw colored with age. It is a rounded object 1.5-2.5cm in diameter and flattened on 1 side; the thick outer coating has many small, pointed projections, with a maze of silken threads extending from the egg sac to nearby leaves and stems, investing the whole branch in a silken web where the young can remain until they are ready to fend for themselves. Most egg sacs are constructed in the upper branches of woody shrubs. Green lynx spiders overwinter as early instar spiderlings.

The green lynxes, like other Oxyopidae, are diurnal hunting spiders which run over low shrubs and herbs with great agility, leaping from place to place with a precision excelled only by the true jumping spiders. Their relatively keen eyesight is comparable to that of the wolf and fishing spiders. However, they may pause and assume a characteristic prey-catching posture to await their victims. Although they trail a dragline even when jumping, they do not make use of webs to capture their prey. The North American oxyopids are recognized readily in the field by the presence of numerous, large, erect spines on the legs and by their quick darting movements and sudden leaps.

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