SPIDER PREDATION ON VELVETBEAN CATEPILLAR MOTHS (LEPIDOPTERA, NOCTUIDAE) IN A SOYBEAN FIELD

The velvetbean caterpillar (VBC), *Anticarsia gemmatalis* Hübner, is a major pest of soybean (*Glycine max* [L.] Merrill) in the Gulf Coast area of the United States (Herzog and Todd 1980). Little is known about predators of VBC adults: Watson (1915, 1916) reported dragonflies in Florida but gave no names; Neal (1974) listed the green jacket dragonfly, *Erythemis simplicicollis* (Say), and the striped earwig, *Labidura riparia* (Pallas), in Florida; and Gregory (1987) reported the spider *Eriophora edax* (Blackwall) in Honduras. This note provides further documentation of VBC adult predation by spiders.

Observations were conducted by the senior author from 1981-1983 at the University of Florida's Green Acres Research Farm, Alachua County, FL. The study site was an approximately 1 ha soybean field (variety Bragg). Most observations were recorded to the nearest minute. Approximately 354 h were

Table 1.—Records of spider predation on adult velvetbean caterpillar (VBC) at the Green Acres Research Farm, Alachua County, FL (1981-1983). If exact time not given, then predation record occurred during hyphenated times. E = field edge (±1 m), I = in field. Grass = unidentified grass, bahiagrass = *Paspalum notatum* Flugge, hairy indigo = *Indigofera hirsuta* L., soybean = *Glycine max* (L.) Merr., beggarweed = *Desmodium tortuosum* (Sw.) DC., sicklepod = *Cassia obtusifolia* L., Florida pusley = *Richardia scabra* L., sandbur = *Cenchrus* sp. With regard to VBC sex, A = undetermined, M = male, and F = female.

Species	Date	Time	Location	Substrate	VBC sex
Peucetia viridans (Hentz)	19 Sep. 81	2047	E	Bahiagrass	M
	19 Sep. 81	2058	I	Soybean	M
	24 Sep. 82	2112	I	Florida pusley	M
	17 Sep. 81	2115	E	Bahiagrass	F
	19 Sep. 83	2130	E	Sandbur	M
	24 Sep. 82	2147	I	Soybean	F
	24 Sep. 82	2223	I	Soybean	F
	09 Sep. 81	2303	I	Soybean	M
	03 Sep. 82	2323	E	Beggerweed	M
	03 Sep. 82	2340	I	Sicklepod	M
	25 Sep. 82	0023	I	Hairy indigo	M
	04 Sep. 82	0052	I	Soybean	M
	04 Sep. 82	0111	I	Sicklepod	M
	04 Sep. 82	0136	I	Soybean	M
	21 Aug. 81	0545-0701	I	Soybean	A
	25 Aug. 81	0545-0703	E	Grass	M
	15 Sep. 81	0545-0714	I	Soybean	M
Misumenops celer (Hentz)	03 Sep. 81	2230	E	Bahiagrass	M
	16 Aug. 81	0000-0700	E	Grass	M
	09 Oct. 82	0530	E	Hairy indigo	M
	01 Sep. 81	0545-0607	E	Grass	F
Misumenoides formocipes (Walck.)	15 Sep. 81	0545-0714	E	Bahiagrass	M
Eriophora ravilla (C. L. Koch)	17 Sep. 81	2100	I	Soybean	M
Neoscona arabesca (Walck.)	24 Sep. 82	2332	E	Soybean	M
	05 Oct. 82	0550	E	Soybean	F
Acanthepeira sp.	15 Sep. 83	0200	E	Bahiagrass	F

spent in the field during July through October, with 201 h during the day and 153 h during the night. Data were gathered by walking through the study site in a systematic fashion. Small sections of the field, and the associated arthropods, were disturbed during the day in the completion of other experiments; this may have reduced the number of observed kills. A six-volt Everready® Freedom Light™ was used for nocturnal observations; the lighting fixture was covered with a section of Zip-a-Tone color sheet, Vermillion Hue #2545.

Six species of spiders are documented for the first time as predators of VBC adults (Table 1). All 26 instances of predation were observed at night. The green lynx spider, *Peucetia viridans* (Hentz), accounted for 65% of the records; crab spiders (*Misumenops, Misumenoides*) for 19%; and orbweavers (*Acanthepeira, Eriophora, Neoscona*) for 15%. Eighty-two percent of records for *P. viridans* occurred between 2047 and 0136 hours, the time when VBC adults are most active (Gregory 1986). *Peucetia viridans* was found throughout the field, usually on dicotyledons and high above the ground (ca 1 m or higher). Crab spiders were found only at the field edge, usually on monocotyledons and close to the ground (ca 0.5 m or less). Most orbweavers were found at the field edge.

Twenty of the 26 captured moths were VBC males, a significant prey bias ($\chi^2 = 7.84$, $df = 1$, $P < 0.01$). Velvetbean caterpillar adult sex-ratio was ca 1:1 at the study site (Gregory 1986). The nature of the prey bias may be due to aggressive chemical mimicry of VBC mating pheromone by some of these spiders (see Foelix 1982). Based on the predation records, spiders were the principal mortality agents of VBC adults; no other predators were observed at the study site.

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