

Spined Soldier Bug, *Podisus maculiventris* (Say) (Insecta: Hemiptera: Pentatomidae)¹

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Introduction

The spined soldier bug, *Podisus maculiventris* (Say), is a medium-sized predatory stink bug which preys on a wide variety of other arthropods, especially larval forms of Lepidoptera and Coleoptera (Mukerji and LeRoux 1965). This beneficial species is associated with several crops in Florida, including alfalfa, celery, soybeans, cotton, and crucifers (Stoner 1930; Hayslip et al. 1953; Whitcomb 1973; Deitz et al. 1976). This stink bug ranges over most of the United States and into southern Canada. The Florida State Collection of Arthropods (FSCA) has specimens from 22 Florida counties in all regions of the state.

Life Cycle

Kirkland (1896), Stoner (1930), Esselbaugh (1949), Mukerji and LeRoux (1965), Warren and Wallis (1971) and Richman and Whitcomb (1978) have reported on the rearing of *P. maculiventris*. The temperatures and photoperiods differed markedly among these workers, consequently the time from egg to adult varied from 27 to 38 days, with the egg stage lasting five to nine days. The shortest time was

reported for Florida specimens (Richman and Whitcomb 1978). Food consumption, prey size, and energetics of *P. maculiventris* were detailed by Mukerji and LeRoux (1969a, b, c). The work by Couturier (1938) is a landmark study on the bionomics of this bug. Records in the FSCA indicate that *P. maculiventris* is active all year in peninsular Florida, but does not appear until spring in the "panhandle" counties.

Identification

Eggs

The eggs of *P. maculiventris* are approximately 1 mm in diameter, with long projections around the operculum that are especially characteristic of *Podisus* spp. Eggs are laid 17 to 70 at a time in loose oval masses.

1st Instar

Length 1.3 to 1.5 mm; head width including eyes 0.6 mm; humeral width 0.9 mm. The 1st instar nymph of *P. maculiventris* has a blackish head and thorax and reddish abdomen with black dorsal and lateral plates.

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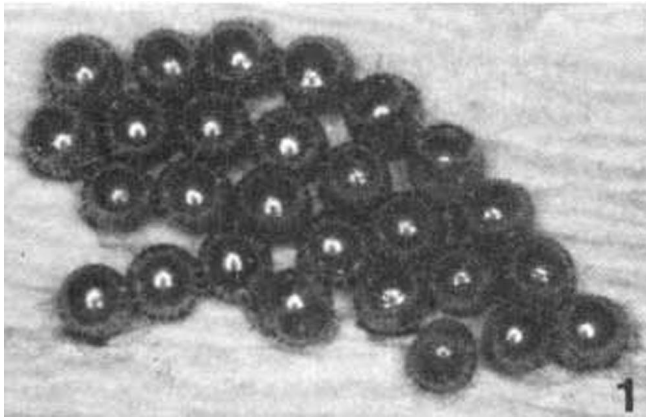


Figure 1. Eggs of the spined soldier bug, *Podisus maculiventris* (Say). Credits: Division of Plant Industry



Figure 2. First instar nymphs of the spined soldier bug, *Podisus maculiventris* (Say). Credits: Division of Plant Industry

2nd Instar

Length 2.5 to 3.0 mm; head width 0.9 mm; humeral width 1.3 mm. As in other asopine nymphs, the 2nd instar nymph begins to feed on other insects. This species is highly cannibalistic. The 2nd instar resembles the 1st instar.



Figure 3. Second instar nymph of the spined soldier bug, *Podisus maculiventris* (Say). Credits: Division of Plant Industry

3rd Instar

Length 3.5 to 4.0 mm; head width 1.3 mm; humeral width 2.0 mm. The 3rd instar nymph has a black head and thorax; the abdomen is reddish with black, orange and white maculations. The central bar-shaped markings are white and the lateral markings orange.

4th Instar

Length approximately 6 mm; head width 1.7 mm; humeral width 3.2 mm. The colorations and patterns of the 4th instar nymph are similar to that of the 3rd instar nymph, but the wing pads become noticeable.



Figure 5. Fourth instar nymph of the spined soldier bug, *Podisus maculiventris* (Say). Credits: Division of Plant Industry

5th Instar

Length 8 to 10 mm; head width 2.2 mm; humeral width 4.8 mm. The wing pads are prominent in the 5th instar, and the head and thorax become mottled with brown. The abdominal markings are white or tan, and black.

Adults

Male length approximately 11 mm; head width 2.3 mm; humeral width including spines 7.6 mm. The adult of *P. maculiventris* resembles the adult of *Alcaeorrhynchus grandis* (Dallas) in being a mottled brown in color, but differs in size (*A. grandis* adults are over 15 mm long) and in having only one spine on each humeral angle. These spines project outward, not forward as in *Podisus macronatus* Uhler. Each hind femur of *P. maculiventris* has two blackish dots

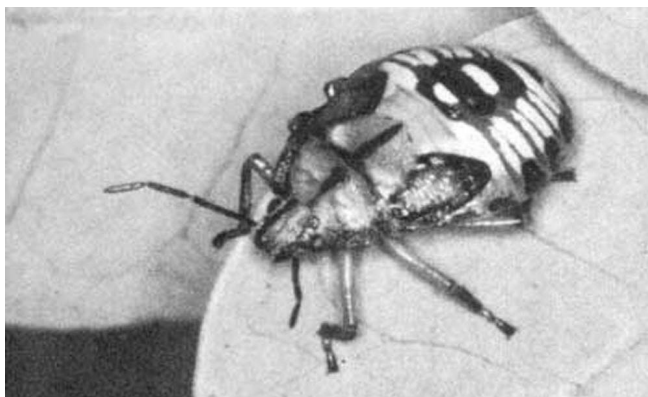


Figure 6. Fifth instar nymph of the spined soldier bug, *Podisus maculiventris* (Say). Credits: Division of Plant Industry

at apical 3rd. See standard works on Heteroptera for other key characters.

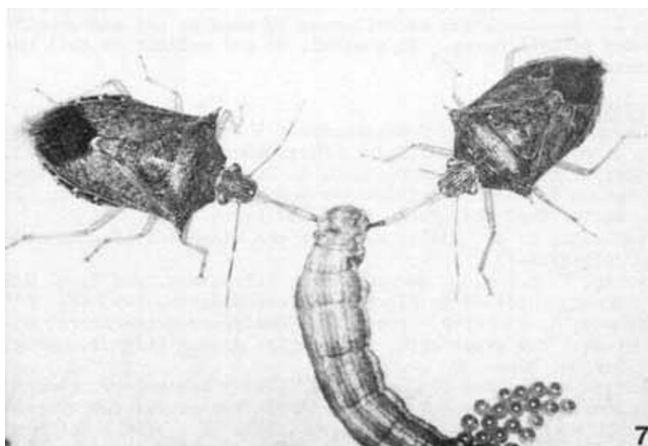


Figure 7. Adults of the spined soldier bug, *Podisus maculiventris* (Say), feeding on a caterpillar. Credits: Division of Plant Industry

Survey and Detection

- It has been collected throughout the year in Florida, but is more common in the warmer months.
- Prey is highly variable, but caterpillars and leaf beetle larvae form the main diet, so agricultural crops and wild hosts of Lepidoptera and Coleoptera are most likely places to find this predator.
- Specimens can be collected by hand or net and submitted for identification in alcohol-filled vials or dry in pill boxes. In general, do not collect or kill these predators; let them exert their form of natural control.

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