

Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel



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FRIEND OR FOE? IT DEPENDS UPON A PERSON'S PERSPECTIVE

A "non-beneficial"/"foe"/pest is defined as something out of place ---- something not considered desirable in a certain setting. Conversely, a "beneficial"/"friend"/non-pest would be something considered desirable in a certain setting. One needs to keep in mind that what is a pest to one person may not be a pest to another person.

Case in point #1: the mere mention of Common Purslane, *Portulaca oleracea*, brings to mind a pesky annual succulent weed which seemingly grows where not wanted, thus requiring continual attention to its removal. Yet to others, purslane has its beneficial side as a ground cover, able to grow and survive under adverse conditions including heat and drought (Figure 1).



Figure 1

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Case in point #2: the Purslane Sawfly, *Schizocerella pilicornis* (Holgren) was first described nearly 1^{1/2} centuries ago (1868), and has been praised as a “friend” because of its ability (as a natural biological control) to provide partial or complete control of common purslane. But for individuals who desire the presence of purslane, the purslane sawflies would be considered to be a “foe”.

In all of my years, I had never heard of purslane sawflies. So why now am I addressing these insects?

I have an area adjacent to my front walkway which was initially planted to (in 1993) a variety of creeping juniper. And it spread and grew nicely over the years. But more recently, it has declined resulting in exposed ground. I have been neglect in “doing something” to restore, or otherwise introduce another species of ground cover. This year, I was urged to do something. Well I procrastinated during springtime. But I did prepare large planters for our decks and home front ----- utilizing “new” potting soil. I must have gotten a bad lot of potting soil ----- purslane plants popping through the “desirable” plants. Not being one to “look a gift horse in the mouth” (aka: accept freebies), I removed the purslane plants from the pots and planted them in “a bare area”. And they fared well.

Last Friday, I noted something strange: it looked like something was moving south to north in my purslane bed (Figure 2).



Figure 2

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My first thought was (possibly) yellowstriped armyworms or climbing cutworms such as variegated or spotted cutworms. However, usually advancing lines of those larvae consist of larger latter-stage individuals --- none noted upon close observation (Figure 3).



Figure 3

But when looking on the ground beneath the plants, small ($\frac{1}{4} - \frac{7}{16}$ inch) green “worms” fell to the ground (Figure 3A). When viewed close-up, a larva had the tell-tale appearance of a sawfly larvae: a darkened eye-spot on each side of the head capsule and fleshy prolegs on each abdominal segment (Figure 3B).



Figure 4

So again: perspective! I viewed the purslane not as a “pesky weed”, but rather a “friendly plant” providing ground cover. And the sawfly was not a beneficial biocontrol “friend”, but rather a destructive plant pest.

A little more on how this damage seemingly occurred “overnight”, or what seemed to be overnight. First off, I had not been checking the purslane patch on a daily basis. Given that it had been growing so successfully under the hot dry conditions, I simply had taken it for granted. But from comments in some of the background literature, purslane sawflies are insidious ---- having a gradual but cumulative effect, as in this instance.

1. Type of Feeding

Prior to 1970, purslane sawfly larvae were regarded as the leaf-mining species, *Schizocerella pilicornis* (Holgren). In the mid-1970s, there appeared a report of an external-feeding larvae also identified as *Schizocerella pilicornis* (Holgren). Utilizing genetic data, recent studies determined that the two similar species are, in fact, separate species. The adults of the leaf-mining larvae [*Schizocerella pilicornis* (Holgren)] **have a black mesonotum**, whereas the adults of the external-feeding larvae [*Schizocerella lineata* (Rohwer)] possess an orange-red mesonotum.

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As seen in Figure 5, my purslane sawflies possess the black mesonotum making them the leaf-mining species, *Schizocerella pilicornis* (Holgren). Thus even if I had been on hands and knees, the sawfly larvae would not have been visible as they were feeding unseen within the purslane leaves.

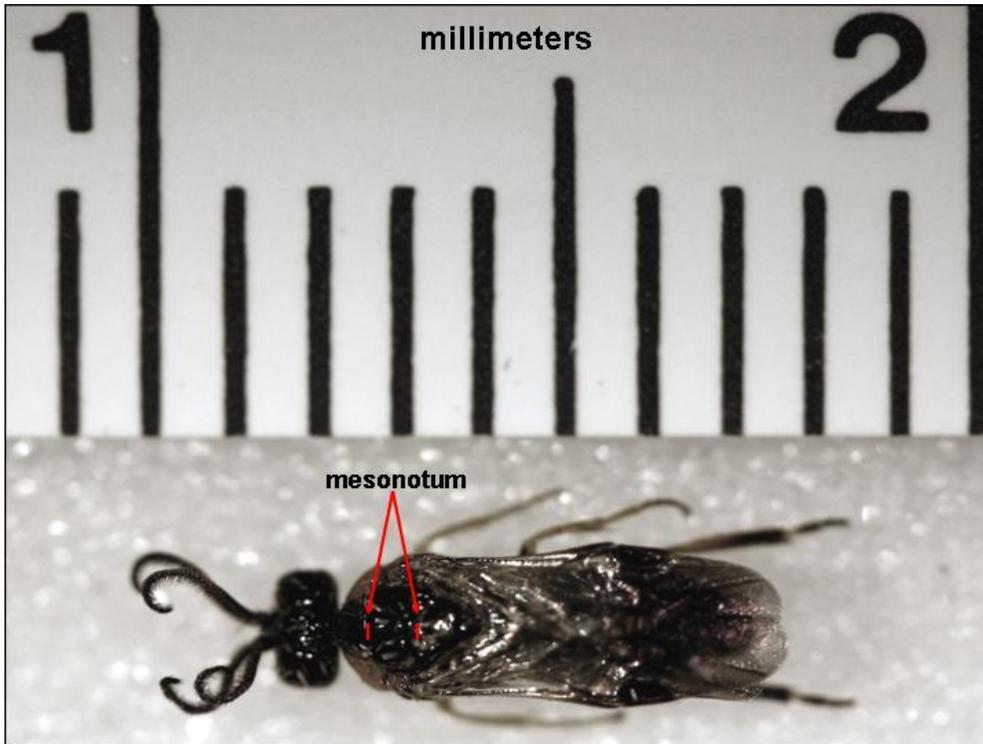


Figure 5 (Note the 3rd antennal segment which is “double” only in the male)

2. Developmental Rate

Another contributing factor to the “sneak attack” has to do with the developmental rates of purslane sawflies” QUICK! Within 15 minutes of emerging from the soil, females will mate ----- a 90-second event. Within the next 5 minutes, she begins to deposit eggs (1 egg per leaf) at a rate of 1 egg per minute for the first 25 minutes, after which the rate of egg deposition slows down. Females live for but a day. QUICK!

The average period from egg laying to egg hatch is 3.4 days. QUICK!! Larvae progress through 5 developmental stages in an average of 5.3 days. QUICK!!! The pupation period averages 8.7 days. QUICK!!!! Thus only a bit than 17 days is required from the time of egg laying to the emergence of adults. Even unmated female sawflies deposit eggs ---- the resultant being that the larvae from those eggs become males. This rapid developmental cycle allows purslane sawflies to produce multiple generations: 6-7 generations per season recorded in central Illinois (Latitude 40.48). Manhattan, KS (Latitude 39.18) conceivably would have a similar number of generations.

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3. Cultural Practices

Whether this is applicable in my situation is questionable. But, in an Invasive Species Compendium, it states that cultural practices (not specifically defined/elaborated) kill many overwintering pupae, and thus the population buildup in the spring is slow, with noticeable control of purslane occurring by late in the 3rd generation and complete defoliation by the end of the fourth generation. This could, then, be what has happened in my situation.

Of note: I am not sure that the purslane sawflies will successfully eliminate my purslane patch. As of now a week later, plants seem to be rebounding (Figure 6). But I also noted a myriad of sawflies swarming over the purslane patch. Maybe they will have their way!



Figure 6

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Sincerely,

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