



BUG BIZ

Pest Management and Insect Identification Series



Orius insidiosus, Insidious Flower Bug (Hemiptera: Anthocoridae)

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Description

The insidious flower bug (*Orius insidiosus*) is a member of the predatory bug family Anthocoridae (Hemiptera), collectively known as minute pirate bugs. Adults are small (up to 4.5 mm long), oval-shaped, with triangular heads. The pale, membranous hind wings extend beyond the abdomen and the bases of the thickened portion of the forewings (hemelytra) are pale brown in contrast to the darker brown color near the tips. The head and thorax are shiny black. Mouthparts are modified into a long, piercing beak that extends under the head, typical of other members of the order. Eggs are around 1.4 mm long, and newly hatched nymphs are similar in size. Nymphs are yellow to orange-brown in color, lack wings, teardrop in shape and smaller than adults. Nymphs become darker with age.

Insidious flower bug is the most common member of the family in eastern United States, but the family includes almost 100 species in North America, including a number of species that are similar in appearance to each other. For positive species identifications, an experienced diagnostician or taxonomist should be consulted.

Life Cycle

Insidious flower bug can complete multiple generations during the year. The metamorphosis of the nymphal stages is incomplete, meaning they undergo several growth stages (instars) as they mature that are superficially similar to the adults. Females may lay up to 75 eggs inside plant tissues and nymphs hatch within six to 10 days. Five instars are completed prior to adulthood. Depending on temperature and prey availability, the nymphal stages require at least 10 days to complete. Adults live three to four weeks, but may enter a quiescent (dormant) stage under certain conditions such as decreasing day length, which extends the life span. Life cycles may be completed in three weeks at 21 C, but development may be extended by cool temperatures or lack of prey.



Insidious flower bug (*Orius insidiosus*) adult feeding on insect egg (John Ruberson, Kansas State University, Bugwood.org, Creative Commons 3.0).



Insidious flower bug nymphs (Melissa Schreiner, Colorado State University, Bugwood.org, Creative Commons 3.0).

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Both adults and nymphs are predators on a wide variety of small arthropods, including spider mites, aphids, whiteflies, thrips, scale insects, small caterpillars and eggs of various arthropods. The beak is used to pierce and immobilize active prey. Salivary enzymes are injected into the prey's body cavity and the resulting partially digested fluids are imbibed using suction created by muscles in the front of the head.

Ecology and Significance

Insidious flower bugs are widely distributed in the Americas and the Caribbean. The species is one of the most common members of the family in Louisiana and serves as an important natural control agent of many soft-bodied phytophagous pests in agricultural systems. Despite being a generalist predator, it is particularly aggressive against several thrips species of the family Thripidae including *Frankliniella invasor*, *F. occidentalis*, *F. tritici* and *F. bispinosa*. These thrips cause direct damage to important economic plants like pepper, tomato, cucumber, soybean, cotton, peanut and several ornamental plants. Insidious flower bugs and other minute pirate bugs feed voraciously on thrips and can be an effective biological component of thrips management in commercial crops. They consume all stages of thrips from eggs to adults. They are also important predators of spider mites (*Tetranychus urticae*) in bean plants and soybean aphids (*Aphis glycines*) in soybeans. When prey is not available, pirate bugs can feed on pollen and plant juices to survive and reproduce. They are highly mobile and aggregate where prey density is high.

Although regarded as beneficial predators, insidious flower bugs and other member of the family Anthocoridae may become nuisance pests in urban landscapes when present in large numbers. They probe bare skin with their mouthparts, presumably testing to determine edibility. These small probing events can be surprisingly painful for such small insects, leading people to mistake them for fleas, biting midges or other small biting insects. Treatment for bites is not needed and simply minimizing skin exposure is effective at preventing bites.

Conservation

Conservation of beneficial predators such as insidious flower bugs is essential to maintain proper insect pest management in agriculture. Effective beneficial species management can reduce the use of pesticides and associated health risks and environmental hazards. However, beneficial species are also sensitive to many factors that affect their survival and effectiveness. These factors include the availability of appropriate food sources, shelter, presence of competitors and nontarget impacts of pesticides. Proper conservation practices include: (1) providing various flowering plants such as buckwheat, sunflower, marigold and alfalfa to provide pollen, nectar and alternative prey; (2) minimizing use of broad-spectrum or soil-applied systemic insecticides; (3) using economic thresholds to guide decisions about insecticide use instead of preventive insecticide applications; and (4) using pest-specific microbial insecticides such as *Bacillus thuringiensis* formulations whenever possible.

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