

Rice Bug (suggested common name) *Leptocorisa acuta* (Thunberg) (Insecta: Hemiptera: Alydidae)¹

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The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Distribution

Broad-headed bugs belong to the family Alydidae, a well-known but relatively small family of plant-feeding true bugs. These bugs are usually seen feeding on the foliage and flowers of leguminous and graminaceous crops. *Leptocorisa acuta* (Thunberg) can be found on many crop plants in the family Poaceae (grasses), especially rice, and is a reported pest of economic significance in rice-producing countries like India, Australia, and China (Schaefer and Panizzi 2000).

Leptocorisa acuta is typically found during the flowering stage of the rice crop, which coincides with rainfall and high humidity at the beginning of the wet season (Reji and Chander 2007). Nymphs and adults use their piercing-sucking mouthparts to feed on developing rice grains. These bugs prefer to feed when the host plants are young, at a time when the starches within the grains are not yet fully formed.

Leptocorisa acuta is crepuscular—active during the early morning and late afternoon. During the heat of midday,

they leave the rice crop in search of wild grassy areas (Pathack and Khan 1994). These bugs also seek shelter during dry months (Corbett 1930). *Leptocorisa acuta* is known to transmit *Sarocladium oryzae* and *Sarocladium attenuatum* (fungi), the cause of sheath rot disease. Sheath rot disease damages the panicle (branched arrangement of flowers) of the rice plant, which causes the plant to produce under-developed or damaged rice grains. In severe cases, the infected plant may not produce rice grains.

Distribution

Leptocorisa acuta has not been found in the US despite the large acreage of rice grown in California, Louisiana and Arkansas. Rice bugs have been found in Australia, Bangladesh, Burma, China, Fiji, India, Indonesia, Malaysia, Papua New Guinea, the Philippines, Thailand, and Samoa as well as in several Central American countries. Due to its broad distribution in other rice-producing countries, *Leptocorisa acuta* is a potential invasive pest for the US, but has not yet been reported.

Description

Adults

Leptocorisa acuta adults are long (14–17 mm (~½–¾ in)) and slender (3–4 mm (~⅛ in) wide). They are a light yellow-green to yellow-brown color (Figure 1). The head is broad, often similar in length and width to the pronotum

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(upper surface of the first plate on the thorax) and the scutellum (triangular shaped plate on the thorax, posterior to the pronotum). These bugs have globular, protruding eyes in addition to small ocelli (simple eyes), which are difficult to see. The fourth antennal segment is curved and longer than the third segment (Corbett 1930).



Figure 1. An adult rice bug, *Leptocorisa acuta* (Thunberg).
Credits: Larry E. Reeves, UF/IFAS

Adults are usually found in aggregations. Like all true bugs, they have piercing-sucking mouthparts that puncture the substrate they are feeding on, which can damage plant tissue and reduce grain yields. When disturbed, adults emit an unpleasant odor considered to be stronger than the odor emitted by true stink bugs (Pentatomidae). Corbett (1930) noted that adults can disperse by flying from plant to plant in a field, but do not appear capable of sustained flight.

Eggs

Eggs are oval with the tops slightly flattened. Females lay eggs in batches of 10–20 in rows on the upper surface of the leaf blade. When they are freshly deposited, eggs are a cream-yellow color, turning to a reddish-brown after approximately one week.

Nymphs

A week following oviposition, the eggs hatch, and within 3–4 hours the nymphs begin feeding (Corbett 1930). There are five wingless nymphal instars with a total nymphal period of 25–30 days. Nymphs are mostly pale yellow-green and have long antennae. Each nymphal instar looks remarkably similar to the one before it, except each successive nymph is larger than the last and wing pad enlargement occurs. Unlike other species in the Alydinae subfamily, the nymphs of *Leptocorisa acuta* do not mimic ants.

Description

Leptocorisa acuta adults are crepuscular (active during the early morning and late afternoon). After 8–29 days, adults of both sexes are fully mature. Adults may live up to 69 days. Females live longer than males on average: 60 and 48 days, respectively. Rice bugs are most abundant at conditions of 80°F–82°F and around 80% relative humidity (Pathack and Khanv 1994). Populations tend to increase during the flowering stage of the rice crop, which coincides with warmer weather.

Upon adult emergence in the spring, rice bugs feed on wild host plants for one or two generations before migrating into rice fields. It is believed that after the rice is harvested, the bugs overwinter in wild grasses or other grass crops. According to Schaefer and Panizzi (2001), females lay up to 25–87 eggs over their lifetime. Eggs are deposited in single or double rows of 10 to 20 on the upper surfaces of the leaves of the host plant. Eggs are attached to the leaf by an adhesive substance secreted by the female during oviposition.

According to Corbett (1930), newly emerged nymphs can live for at least 24 hours without food. Although they vary in size, the five nymphal instars are not easily distinguished from one another because of their similarity in appearance.

Damage

Rice bugs feed by inserting their needlelike mouthparts into new leaves, tender stems and developing grains. Consequently, the plant reacts to repair the tissue and seal the wound. When injuries accumulate, the plant becomes stressed, which can lead to growth retardation of the grains and some grain and plant deformation. Excessive feeding can cause yellow spots on the leaves. This reduces photosynthesis and, in extreme cases, can damage the vascular system of the plant. Puncture holes also serve as points of entry for several plant pathogens, such as the fungus that causes sheath rot disease. The most economically important damage is caused when the adults and nymphs feed on the developing grains. Such damage causes discoloration of the grains, which reduces market quality.

Host Plants

Leptocorisa acuta feeds primarily on graminaceous plants such as rice, wheat, and sugarcane (Hill 2008). It is thought that rice in the flowering stage is the preferred host. Other important hosts include many well-known weeds, such as millet (*Echinochloa* spp.) summer grass (*Alloteropsis cimicina* (L.)), Indian bluegrass (*Bothriochloa pertusa* (L.))

A. Camus), Crow-foot grass (*Dactyloctenium aegyptium* (L.)) and swollen finger grass (*Chloris barbata* Sw). Other reported hosts include mango (*Mangifera indica* L.), guava (*Psidium guajava* L.), jackfruit (*Artocarpus* spp.), and beans (*Phaseolus vulgaris* L.).

Management

Cultural

As a preventive measure, the removal of alternate hosts, especially graminaceous weeds, can prevent rice bug populations from reaching damaging levels. This is because the bug requires a wild host to feed and reproduce upon before moving into the rice field in early spring. The use of late-maturing cultivars can reduce feeding damage from the rice bug, as their activity corresponds with warm weather and the flowering stage of host grasses.

Irrigation should be managed to avoid excess humidity. Corbett (1930) indicated that nymphs and adults may be attracted to trap crops of grasses or early-planted rice and the insects can be collected before the flowering of the main crop. Flooding is effective in killing rice bug eggs, as well as driving adults to the tops of the rice plants where they are more easily targeted with pesticides.

Chemical

Rice bug control relies mainly on chemical insecticides and a number are available.

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