

## ***Leaffooted Bugs Want Your Veggies, Not Your Blood***

Dawn H. Gouge, Ph.D. – University of Arizona, Department of Entomology

W. Eugene Hall, M.S. – University of Arizona, Department of Entomology

Salvador Vitanza-Hedman, Ph.D.



Courtesy of higher rainfall throughout 2021 and summer monsoon downpours, desert plant life flourished more consistently throughout last year. Along with the splendid carpet of plant colors came some unusually high numbers of insects. More notably the plant feeding species earlier in the year, but then detritivores like desert termites and predators like the black *Calosoma* beetle. Not all the insect blooms were welcome. Some communities were plagued by mosquitoes, and higher than usual populations of house and blow flies.

One insect that did not appear to be in noticeably higher numbers were kissing bugs. However, considering only inquiries sent in by the public, entomologists noted an unusually high number of concerned citizens submitting pictures of insects asking if the specimens were kissing bugs or not. Most inquiries turned out to be leaffooted bugs. To a lesser extent we also received submissions of assassin bugs and milkweed bugs. It is important to note that several common leaffooted bug species do resemble kissing bugs in appearance.

First, leaffooted bugs, assassin bugs, milkweed bugs, and kissing bugs are all true bugs (order Hemiptera), and to tell the groups apart you will need a hand lens, good light, and a specimen that has not been smashed to smithereens, so key characteristics are visible.

Leaffooted bugs are in the family Coreidae, while assassin and kissing bugs are in the family Reduviidae. Bugs in both families have impressive tubular piercing and sucking mouthparts that form a rostrum. The rostrum is held under the body when bugs are not actively feeding (Figure 1), and swings away from the body, pointing downward when feeding (Figure 2). However, while assassin and kissing bugs have a three-segmented rostrum, leaffooted bugs have a four-segmented rostrum (Figure 3) that is relatively long, often extending more than half the length of the body (Figures 1 and 3). Adults of common leaffooted bug species are  $\frac{3}{4}$  to 1-inch in length (excluding the length of antennae). Leaffooted bugs are generally plant feeders, while some can be predatory.

Leaffooted bugs, like many other terrestrial true bugs, have scent glands that generate a distinct odor. Adult Coreidae have two sets of glands, which exude complex liquids through ostiole openings located on each side of the thorax. Ostiole openings are always conspicuous, open, and located near to where the second pair of legs attach. Nymphs also have scent glands, but the ostioles are positioned on the top (dorsal) surface of the abdomen. Both adults and nymphs emit defensive secretions and alarm pheromones.

Many leaffooted bug species overwinter as adults. During March this year they began emerging from harborage locations and are, once again, getting noticed. Emerging adults are largely intent upon dispersing in search of fruits, vegetables, nuts, or ornamental flowers to feed on. Female bugs lay large numbers of eggs in clusters or rows throughout spring and summer. Nymphs emerge from the eggs in about a week and develop into adults over the following few months. By the end of June, we can find all life stages (eggs, nymphs, and adults) on plants in much of Arizona.

As cooler months arrive nymphs develop into adults and many species cluster in groups to overwinter. Population levels are influenced heavily by weather patterns and are generally higher after a mild winter. The availability of plants and abundance of natural enemies that naturally suppress bugs also influences populations.

Common leaf-footed bugs in Arizona include the Western conifer seed bug, *Leptoglossus occidentalis* (Figure 3), the giant mesquite bug, *Thasus neocalifornicus* (Figure 4), *Leptoglossus zonatus* (Figure 5), the Western leaf-footed bug, *Leptoglossus clypealis* (Figure 6), *Narnia snowi* (Figures 7 and 8), *Narnia femorata* (Figure 9), *Mozena arizonensis* (Figure 10), and the cactus coreid, *Chelinidea vittiger* (Figure 11).

While it is good to recognize that Arizona residents are increasingly aware of the blood-feeding nature of kissing bugs, we wish to allay concerns regarding harmless insects found in landscapes, and occasionally indoors. Following, are tips to aid the identification of common leaf-footed bugs in Arizona.

*What to look for:* Adult leaf-footed bugs have a 4-segmented rostrum (Figure 3), 4-segmented antennae (Figure 5), scent glands on each side of their thorax, opening laterally through ostioles (Figure 12), and clearly defined veins in the membrane of the fore wings (Figure 5).

*What may or may not be present:* Some, but not all leaf-footed bug species have conspicuous legs with flattened leaf-like paddles on the hind tibia (Figures 1, 2, 3, 5, 6). Similarly, an enlarged antennal segment may be observable in some species (Figures 4, 9, and 10).

*Immature nymphs:* The hind legs may be slender in earlier stages or have subtle expansions of the hind tibiae that become more obvious as they develop into adults, although not all species have the telltale flanges on rear legs even as adults. Immatures have external openings of scent glands visible as two projections or spots on the medial line of the upper surface of the abdomen (Figure 13).

Information on kissing bugs (Figure 14) can be found at <https://extension.arizona.edu/what-you-should-know-about-kissing-bugs>.



Figure 1. Adult leaf-footed bug (*Leptoglossus fulvicornis*), showing long rostrum held close to the body while the bug is not feeding. Photo credit: Lacy L. Hyche, Auburn University.



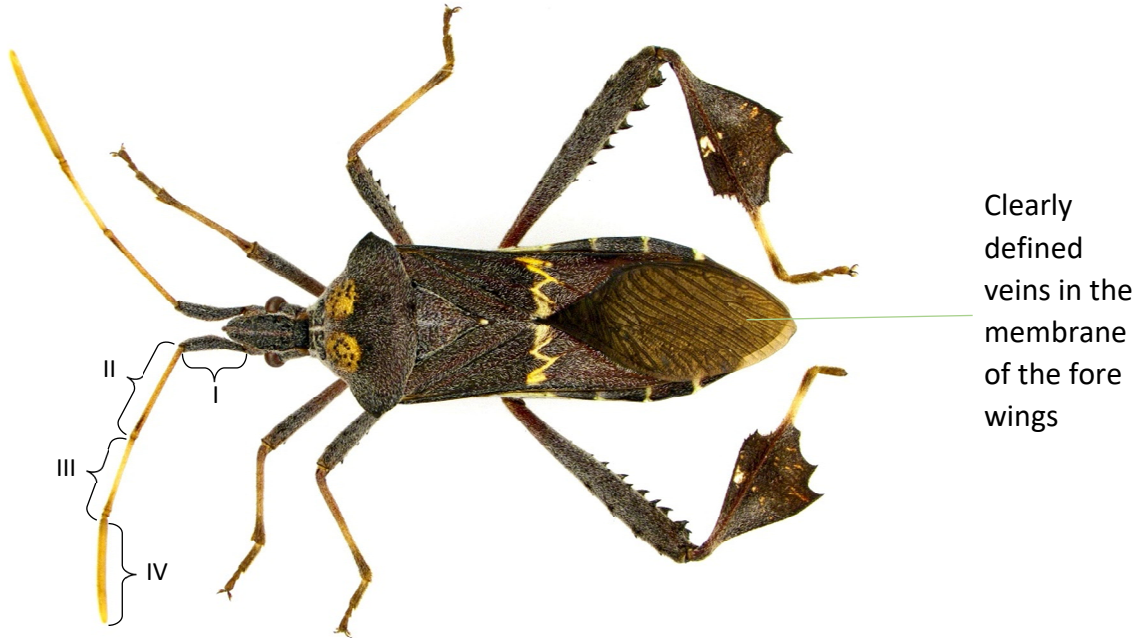
Figure 2. Leaf-footed bug (*Leptoglossus* sp.), feeding on thistle. Image credit: Dan Rieck.



Figure 3. The underside of a Western conifer seed bug (*Leptoglossus occidentalis*), showing 4-segmented rostrum, also called a stylet with segments I–IV. Image credit: Isselee Eric Philippe.



Figure 4. The giant mesquite bug (*Thasus neocalifornicus*). Both the adult (top left), and fifth instar nymph (top right) have enlarged III antennal segments. First instar nymphs (lower). Image credits: Top left – Chip Hedgcock, University of Arizona Insect Collection, top right and lower – Salvador Vitanza-Hedman.



Clearly defined veins in the membrane of the fore wings

Figure 5. Adult leaffooted Bug (*Leptoglossus zonatus*), showing 4-segmented antennae, and clearly defined veins in the membrane of fore wings. Image credit: Salvador Vitanza-Hedman.



Legs with flattened leaf-like paddles on the hind tibia

Figure 6. Adult Western Leaffooted Bug (*Leptoglossus clypealis*). Image credit: Salvador Vitanza-Hedman.



Figure 7. Adult leaffooted bug (*Narnia snowi*). Image credit: Salvador Vitanza-Hedman.



Figure 8. The leaffooted bug (*Narnia snowi*) have been documented feeding on the fruit of prickly pear cactus, *Opuntia*. Image credit: Salvador Vitanza-Hedman.



Figure 9. The leaf-footed bug (*Narnia femorata*), showing slightly enlarged IV antennal segment. Adult female (left) and adult male (right). Image credit: Salvador Vitanza-Hedman.



Figure 10. Adult leaf-footed bug (*Mozena arizonensis*), showing slightly enlarged IV antennal segment. Image credit: Salvador Vitanza-Hedman.

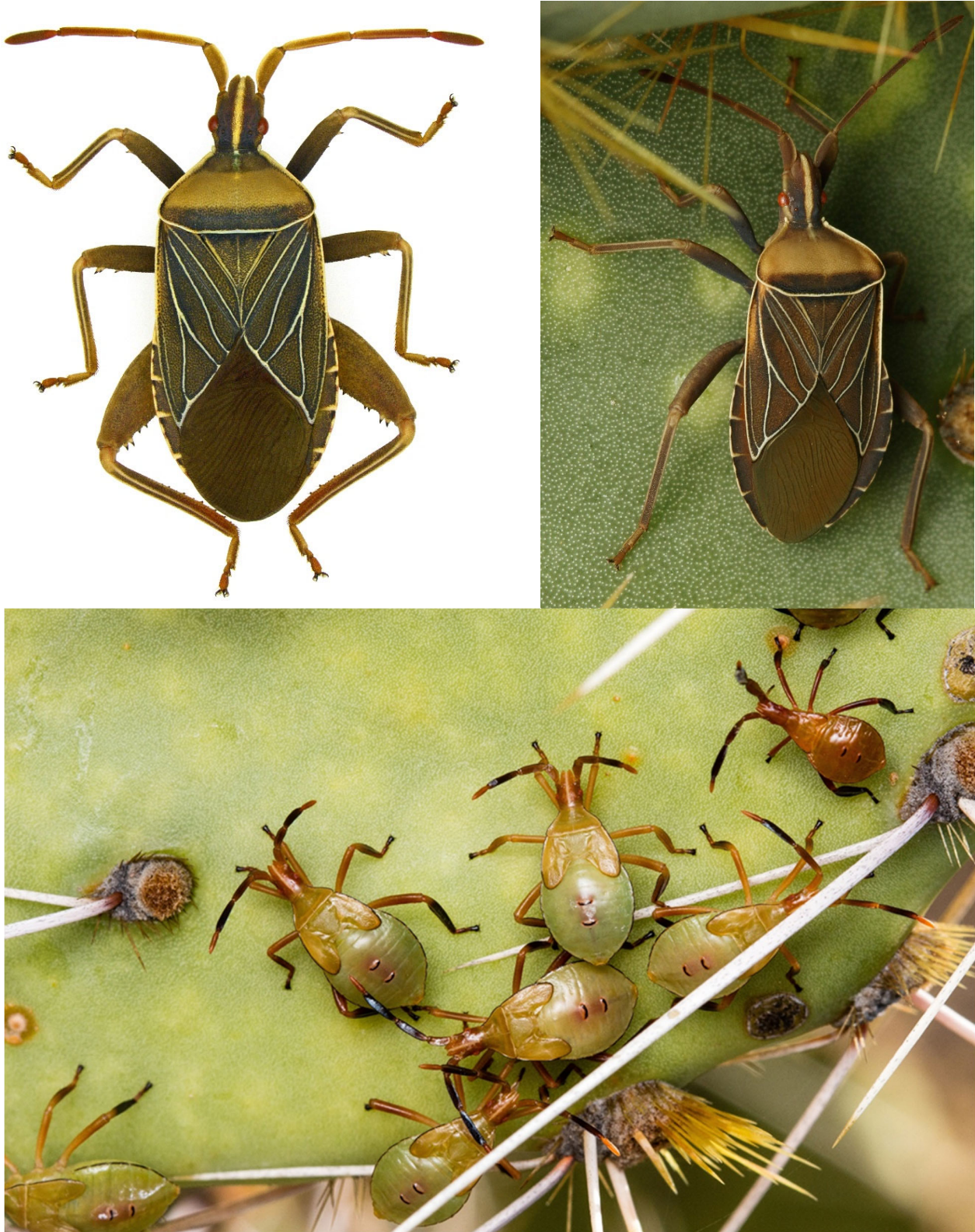


Figure 11. Adult cactus coreid (*Chelinidea vittiger*). Both adults (top left and top right). First and second instar nymphs (lower). Image credit: Salvador Vitanza-Hedman.





Figure 12. Adult leafhopper showing scent gland opening (ostiole) on the side of the metathorax, near where the second pair of legs join the thorax. Image credit: Frank Pears, Colorado State University.



Figure 13. External openings of leafhopper nymph stink glands visible as two projections or spots on the medial line of the upper surface of the abdomen. One at the anterior and one at the posterior edge on the fifth abdominal segment. Image credit: Seth Schubert, Adobe Stock.

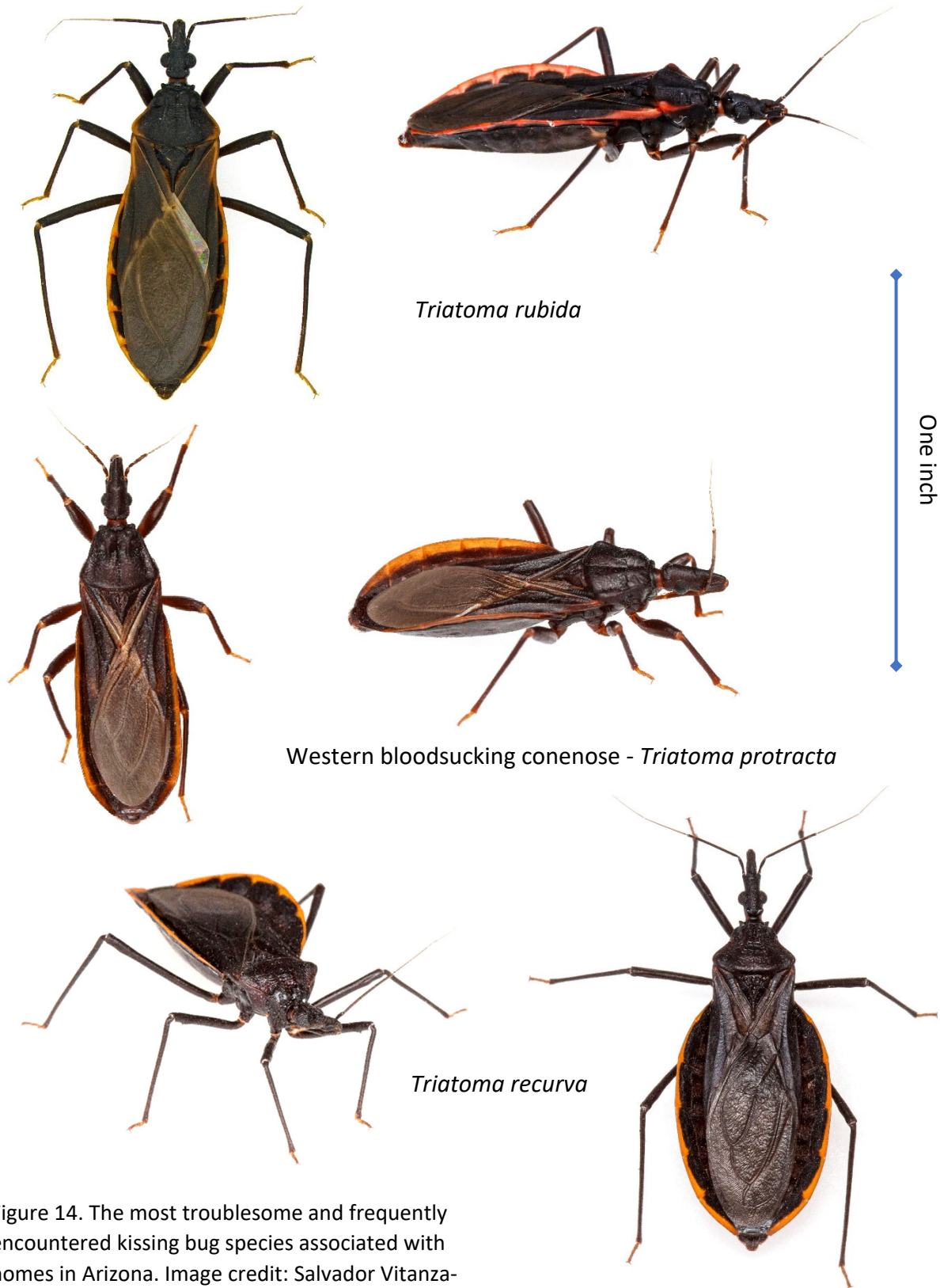


Figure 14. The most troublesome and frequently encountered kissing bug species associated with homes in Arizona. Image credit: Salvador Vitanza-Hedman.

## **Acknowledgement**

The authors thank Professor Martha S. (Molly) Hunter (Department of Entomology) for critical review of this document.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Edward C. Martin, Associate Dean & Director, Economic Development & Extension, College of Agriculture and Life Sciences, The University of Arizona.

The University of Arizona is an equal opportunity, affirmative action institution. The University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, veteran status, or sexual orientation in its programs and activities.

Any products, services, or organizations that are mentioned, shown, or indirectly implied in this publication do not imply endorsement by The University of Arizona. This material is based upon work supported by the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, under special project number 99- EWQI-1-0613.

Copyright ABOR for APMC released under a CC BY 4.0 license  
<https://creativecommons.org/licenses/by/4.0/>