



# Arizona Kissing Bugs

## *For pest management and Extension professionals*

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**Severe bite reactions require medical treatment.  
Call 911 if you have symptoms of severe allergic reaction  
listed on page 5 entitled Identifying anaphylaxis.**

Kissing bugs are true bugs in the insect Order Hemiptera, in the Family Reduviidae. Reduviids as a family, are sometimes called assassin bugs because most members of this family are predators of other arthropods and are in fact beneficial to humans. Kissing bugs are an exception, and are blood-feeding parasites that feed on a wide variety of domestic, wild animals, and occasionally humans. Kissing bugs are also known as conenose bugs, Triatomine bugs, Mexican bed bugs, and Wallapai tigers. Kissing bugs get their name because they often bite sleeping human victims on the face. Although kissing bugs are in the same insect order as bed bugs and both feed on blood, they have different life histories.

Although the bites are generally painless, they can cause intense itching and tenderness at the bite site, which can become swollen and reddish to purple. The irritation may last one to two weeks, but sensitive individuals may experience more severe or prolonged reactions. With multiple subsequent bites, anaphylaxis may occur and may be potentially life threatening. Individuals who experience an allergic reaction should seek immediate medical attention. Who would suspect that an insect with a nickname of “kissing bug” could cause life threatening allergic reactions (anaphylaxis) in sensitive individuals!?!

There are 11 species of kissing bugs in the United States (U.S.), of which seven species in the genera *Triatoma* and *Paratriatoma* are found in Arizona: *Triatoma incassata*, *Triatoma indictiva*, *Triatoma lecticularia*, *Triatoma protracta*, *Triatoma recurva*, *Triatoma rubida*, and *Paratriatoma hirsuta* (Klotz et al. 2014). The most troublesome and numerous species associated with human dwellings in Arizona are: *Triatoma rubida* (Figure 1); *T. protracta* (Figure 2); and *T. recurva* (Figure 3) (Wood 1950,

Ekkens 1981, Reisenman et al. 2010, Klotz et al. 2014). *Triatoma rubida*, although found throughout Arizona, is most prevalent in the foothill regions of Phoenix and Tucson; *T. protracta* is common in Madera Canyon, Pima County, and Coconino County; and *T. recurva* is easily found in Madera Canyon, Sabino Canyon, and Santa Catalina Mountains. This species is quite abundant in Bisbee, AZ. The Arizona-Sonora Desert Museum in Tucson, AZ, one of the top ten zoological parks in the world, supports large populations of *T. rubida* and *T. protracta* (Klotz et al. 2014).

## Identification

The kissing bug is a large, dark brown or black hemipteran (true bug) with patterns and markings that vary by species, which ranges in size from 0.5 to over 1 inch (13.0 – 33.0 mm) in length. True bugs may be distinguished from other insects by their piercing stylet mouthparts and two sets of wings, the outer pair thickened and not fully covering the folded inner wings while at rest. The wing covers form an X shape and there is a triangular scutellum (Figure 1A) at the base of the wing covers. It has an elongated, cone-shaped head, from which it derives the name “conenose bug” (Figures 1, 2, and 3). The head has four-segmented antennae, large eyes, and a three-segmented straight beak (mouthparts) that extends backward below the body (Figure 4). The beak is slender and tapered and almost bare (Figure 4). Wings are held flat over the back, and extend to the end of the abdomen, but do not cover the abdomen fully so abdomen margins are visible beneath them (Figures 1, 2, and 3).

*Triatoma rubida* adults (Figure 6) are 0.6 to 0.9 inch (15.5 – 23.0 mm) long, colored light reddish brown to dark brown, broad, flat, but stout-bodied, with six reddish orange spots

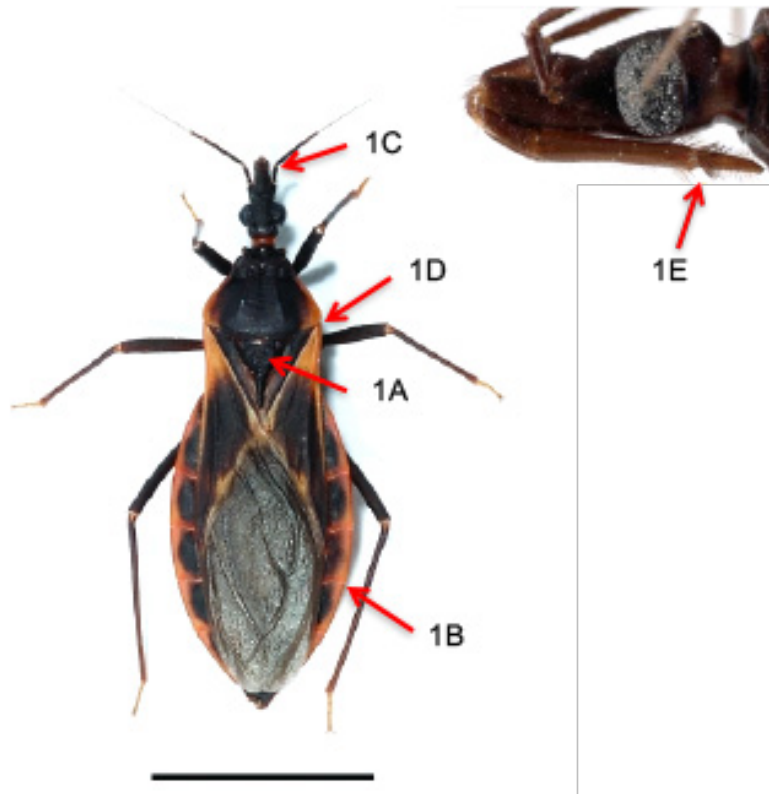


Figure 1. Adult female *Triatoma rubida*, the most abundant species of conenose bugs in Arizona. Scale bar = 1 cm. Photos courtesy C. Hedgcock and CDC.

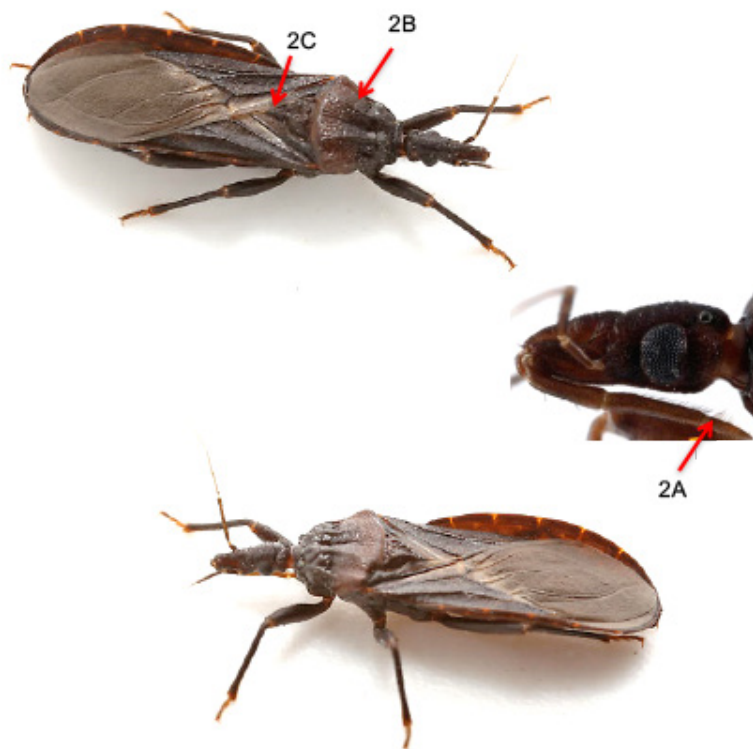


Figure 2. Adult western bloodsucking conenose bug, *Triatoma protracta*. Collected in Flagstaff, Coconino County, AZ. Specimens are located in The Museum of Northern Arizona. Photos courtesy Gary Alpert and CDC.

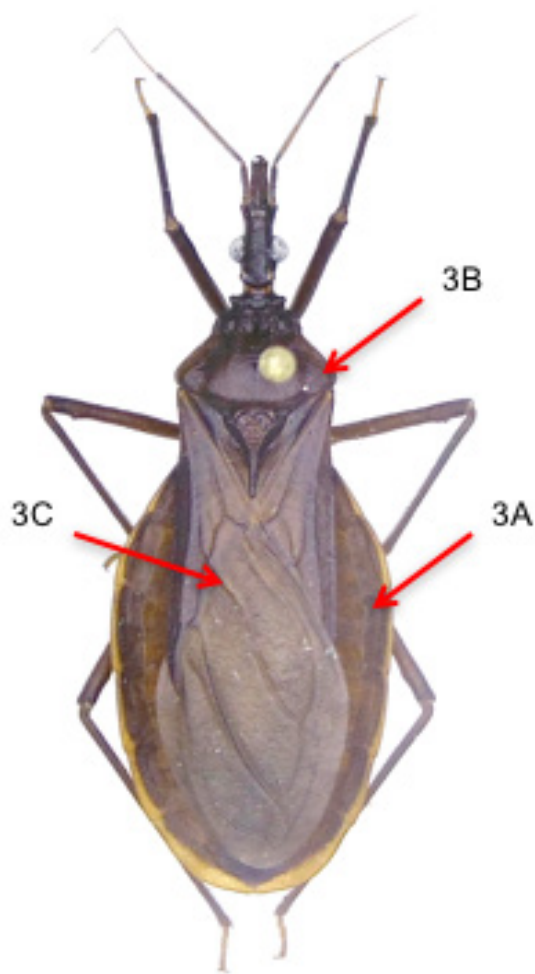


Figure 3. Adult *Triatoma recurva*. Photo courtesy Charles Bradley. Specimens are located in The University of Arizona Insect Collection.

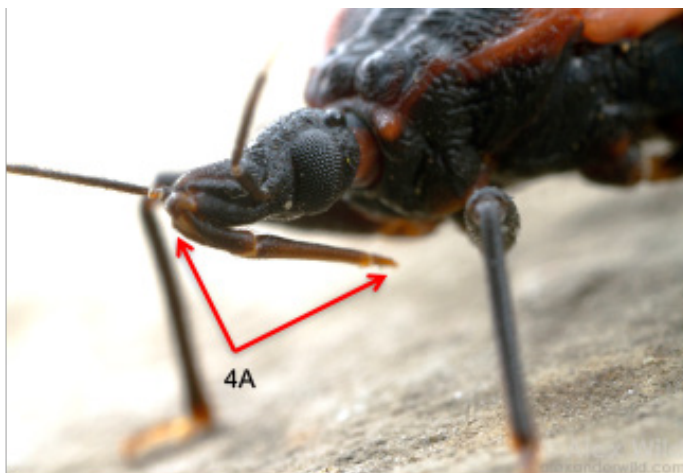


Figure 4. Side view of the elongated head of a kissing bug. Notice the three-segmented beak it uses to feed on its victims (4A). At rest, the beak is folded back. It stretches forward when in use. Photo courtesy Alex Wild. <https://www.alexanderwild.com>

on each side of the abdomen (Figure 1B). The abdomen is flattened. The 1st antennal segment reaches or surpasses the tip of the head (Figure 1C). The pronotum is dark with light areas on the sides (Figure 1D). Mouthparts have long hairs at the tip (Figure 1E). Its wings are normally folded across the back while resting or crawling and not usually noticed by the casual observer. Oval, pearly white eggs are laid singly from May to September, each batch laid after a blood meal. Nymphs have five instars, usually requiring one year for the life cycle.

Adults of *T. protracta* (Figure 7), the western bloodsucking conenose bug, are 0.5 to 0.9 inch (13.0 – 23.0 mm) long, overall dark brown to black, and have a lateral abdominal margin that is sometimes tan (Figure 2). Mouthparts have short hairs that become longer at the tip (Figure 2A). The pronotum is uniformly light brown to black (Figure 2B). The tip of the scutellum is short and broad (Figure 2C). Legs are short and stout. The wings are held flat over the back at rest. Nymphs are similar in appearance to adults except they are smaller and lack wings. Wing pads become apparent in the last instar.

*Triatoma recurva* (Figure 8) adults are 1 to 1.3 inch (25.5 – 33.0 mm) long, and have a yellow-orange margin around the outer edge of the abdomen (Figure 3). The abdomen is wide and often strongly curved up at edges (Figure 3A). Mouthparts are relatively hairless with longer hairs at the tip. The pronotum is uniformly dark colored (Figure 3B). The tip of the scutellum is long and narrow. Wings are uniformly dark colored (Figure 3C). Legs are long and slender.

In summary, *T. rubida* (Figure 6) is larger than *T. protracta* (Figure 7), and is easily distinguished by the reddish or brownish-red lateral markings on the abdomen seen just outside the folded wings. *Triatoma recurva* (Figure 8) is the largest among the three common species, with pronotum uniformly dark colored and strongly up-curved edges of its wide abdomen.

## Biology and life history

Kissing bugs live and breed outdoors, and are often associated with the nests of *Neotoma* woodrat species (also called pack rats), and other wildlife. However, they can also be associated with domesticated animals, and found in the bedding of doghouses and chicken coops.

They fly well and are attracted to lights after dark. In suburban and rural Arizona, the insect is often attracted to porch lights. At dawn, it may seek a way to avoid sunlight and heat, and may enter a residence through a doorway gap, or cracks around window screens. They also enter homes by moving up from crawlspaces beneath flooring. Once inside, the insect moves toward areas of low light intensity, hiding in and under furniture (between mattresses

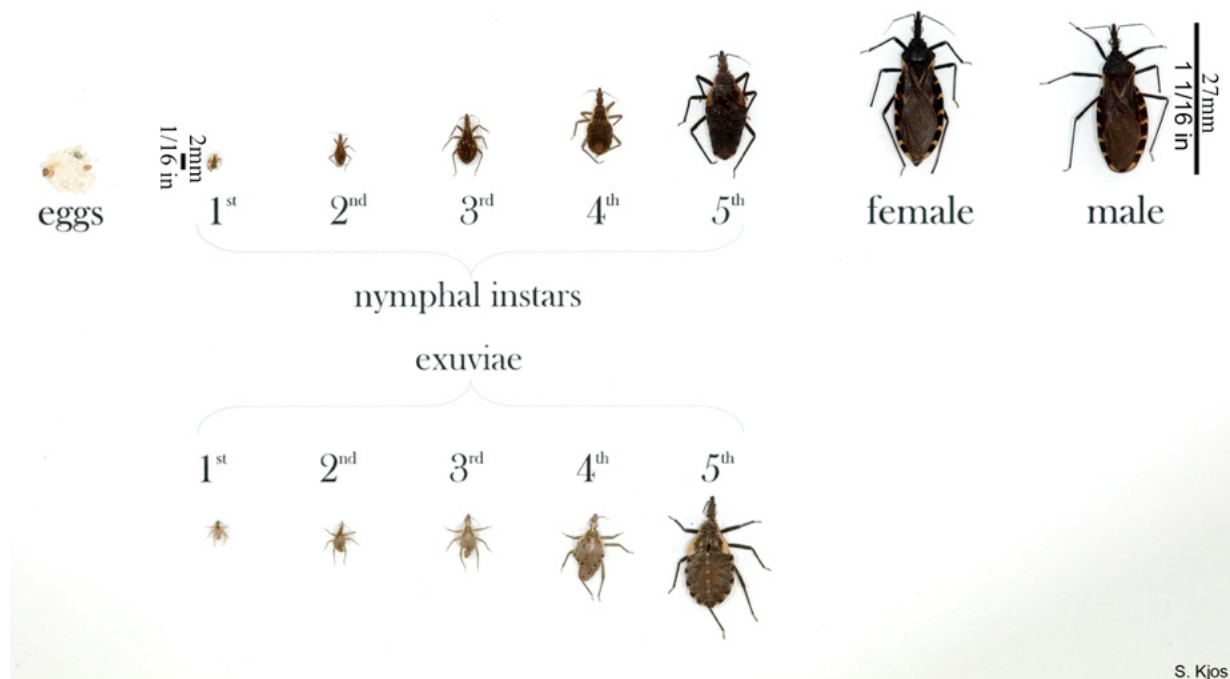


Figure 5. Various kissing bugs in all life stages, from eggs to nymphs to fully grown adults. A variety of true bug species, that share similar traits, are pictured. Source: CDC, Global Health - Division of Parasitic Disease.

is a favorite hiding place) and in closets during the daytime hours. Kissing bugs are most commonly encountered during their dispersal season, May through July, as adult kissing bugs fly towards home-related lighting (Wood 1950, Ekkens 1981). They actively seek out humans and domestic animals to feed on. They are attracted to the gases we exhale, skin odors, and to the warmth of our bodies. Feeding occurs mainly at night, after which they tend to move away from the host. Engorged bugs are often found amongst bedding and drapes close to the bed in the morning.

The kissing bug life cycle begins with the spring or summer nighttime dispersal flight of adults from rodent burrows and dens. Eggs are laid in rodent nests in summer or early fall and they hatch in three to five weeks. The newly hatched nymphs pass through five immature nymphal stages before turning into mature adults (Figure 5), and each stage requires a full blood meal to develop to the next stage.

Blood is taken rapidly with feeding lasting 10 to 30 minutes. Fully engorged bugs can take one to five times their weight in blood, and the bugs will feed about every one to two weeks when hosts are available and temperatures are warm. Adults live into mid- to late autumn. Kissing bugs overwinter as developing nymphs and molt into adults in spring.

Females can lay up to several hundred eggs over their lifespan depending upon conditions. Active dispersal is achieved by flight in adults, usually around dusk and early

evening. Immature kissing bugs can't fly but crawl when stimulated to find a food source.

## Kissing bug bites and health concerns

In parts of southern and central South America, kissing bugs are the primary vectors of Chagas disease, which is a severe, often lethal disease caused by the protozoan *Trypanosoma cruzi*. Unlike many mosquito and tick vectored pathogens which are transmitted through a bite, the kissing bug bite does **not** transmit the *T. cruzi* parasite. The protozoan is transmitted in their feces, which are scratched into the bite wound, ingested, or rubbed into moist tissues around the eyes, nose, and mouth.

Incidence of Chagas disease is low in the U.S., even though many species of kissing bugs carry *T. cruzi* in their gut. Studies (Reisenman et al. 2010) have shown that about 40% of the kissing bugs around Tucson, Arizona are infected with *T. cruzi*, but so far they have not been shown to transmit it to humans. Researchers attribute the low incidence of Chagas disease in the continental U.S. to poor efficacy of protozoan transmission by the bugs, infrequent human contact, and inability of the bugs to permanently colonize homes. However, it is important to recognize that higher populations of kissing bugs might be indicative of higher potential for incidences of Chagas disease. Reports of increasing numbers of Chagas disease cases in dogs have been reported in southern Texas (Reisenman et al.



2010). Overall, Chagas has been increasingly detected in the U.S., Canada, many European, and some Western Pacific countries. This is however likely due to the fact that human populations simply travel more.

Kissing bug bites usually occur at night, and are grouped as several bites on the face, neck, arms, legs, and sometimes on the chest or other body parts. Bites are initially painless because the insect saliva contains an anesthetic, but might soon itch, swell, and cause a substantial welt that can last for several days. More severe reactions range from huge, painful welts to allergic reactions, including difficulty in breathing, low blood pressure, and rapid heart rates due to anaphylaxis. Kissing bug bites can be confused with bites from other pests such as mosquitoes or bed bugs because the reactions can look similar.

**The biggest risk kissing bugs pose is one of severe allergic reaction. Some people develop a severe or life-threatening allergy to them after multiple bites. This makes it very important to avoid additional bites.**

**Severe reactions require immediate medical treatment.** If you find the bug, scoop the specimen up and put it in a container to take with you when seeking medical attention. Emergency allergy kits are prescribed for patients who suffer severe reactions to bites.

In the absence of a severe reaction, clean the bite site with soap and water. Oral antihistamines like diphenhydramine (e.g., Benadryl) help reduce itching and discomfort. Topically applied 3-4% ammonia solution, or bathing in Epsom salts solution may also help control itching. Bites alone cannot be identified as kissing bug bites.

**If a severe allergic reaction develops over time, call 911 immediately.**

## Identifying anaphylaxis

The symptoms of anaphylaxis vary greatly from person to person, and change over time for any one individual. Symptoms can develop very quickly, in seconds or minutes after exposure to an allergen, or may develop over an hour or more.

The most common signs and symptoms of a severe allergic reaction include:

- Cough, **difficulty or irregular breathing**, wheezing, itchy throat or mouth, and **difficulty swallowing**
- **Nausea, vomiting, abdominal pain, and diarrhea**
- Itchiness, red bumps or welts on the skin (hives), and skin redness

- **Dizziness, lightheadedness, heart palpitations, chest discomfort or tightness, mental confusion, weakness, lower blood pressure, rapid pulse, loss of consciousness, and fainting**

**Symptoms in red indicate a medical emergency.**

As soon as anaphylaxis is detected, call 911 immediately and administer epinephrine if available. Try to keep the person as calm as possible.

People who have severe allergies may be told by their doctor to take a dose of epinephrine even before serious symptoms develop.

**The Arizona Poison and Drug Information Center**  
**toll-free hotline number is 1-800-222-1222**

## Integrated pest management guidelines for kissing bugs

**Pest-proofing your home is the best preventative measure against kissing bug bites.**

An attempt should be made to reduce the number of kissing bugs present in and around the home.

1. First, vacuum up all visible insects from indoor areas, concentrating on cracks and crevices, drapes, and bedding.
2. Seal all cracks and openings into buildings as completely as possible. Use weather stripping, door sweeps, and silicone sealant to eliminate small cracks and crevices.
3. Screen all windows, doors and vents.
4. Inspect outside for hidden bugs, look beneath flowerpots and outdoor furniture, and any other dark, sheltered places.
5. Pest management professionals can remediate rodent nests under, against, or near buildings (within 350 feet). Only remove those nests close to homes. By leaving distant nests intact, the kissing bug has an alternative site to inhabit, which can discourage migration into the home.
6. Eliminate harborages including piles of lumber, firewood, and debris around buildings.
7. If you have pets, have your pets sleep indoors, especially at night.
8. Since these bugs fly at night and are attracted to light, keep doors closed and drapes pulled after dark, move inside lights away from doors and windows. Curtains should be drawn in lighted rooms at night.



Figure 6. Adult male *Triatoma rubida* taking a blood meal. Photo courtesy Justin O. Schmidt, Southwestern Biological Institute.



Figure 7. Adult female *Triatoma protracta*. Photo courtesy Justin O. Schmidt, Southwestern Biological Institute.



Figure 8. Adult male *Triatoma recurva*. Photo courtesy Justin O. Schmidt, Southwestern Biological Institute.

9. Change external and porch lights to LED lights that do not emit U.V. light to a great extent, LED lights are not attractive to most insects.
10. Regularly examine dark, quiet areas in the home mid-spring to mid-fall, especially sleeping areas.
11. **A bed net, tucked under a mattress, is the best exclusionary device for those sensitized and at risk for anaphylactic shock.**

**Over the counter pesticides do not provide effective control of kissing bugs.**

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