

Arizona Conenose Bugs

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Conenose bugs belong in the insect Order Hemiptera, Family Reduviidae, commonly called assassin bugs because most members of this family are predators of other arthropods and are in fact beneficial. Conenose bugs are an exception to the family rule and are blood-feeding parasites that feed on a wide variety of domestic and wild animals, and occasionally humans.

Conenose bugs are also known as kissing bugs, Triatomine bugs, Mexican bed bugs, and the Wallapai tigers. The name “kissing bug” refers to a South American species that usually bites its sleeping human victims around the mouth. Although conenose bugs are in the same insect order (Hemiptera) as bed bugs, and both feed on blood, they have very different habits.

There are 11 species of conenose bugs in the U.S., of which 7 species in the genera *Triatoma* and *Paratriatoma* are found in Arizona: *Triatoma incrassata*, *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). *T. rubida* 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 St. Catalina Mountains. 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).

Conenose bugs live outdoors and are often associated with the nests of woodrats (also called packrats) and other rodents. They fly well and are attracted to lights after dark. During their dispersal season (beginning of May through July), adult conenose bugs may invade homes due to their attraction to lights (Wood 1950, Ekkens 1981). Once indoors, they actively seek out humans and other domestic animals to feed.

Although the bite is generally painless, they can cause intense itching, and tenderness may be experienced 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, including anaphylaxis which is potentially life threatening. Who would suspect that an insect with a nickname of “kissing bug” could cause life threatening allergic reactions (anaphylaxis) in sensitive individuals!

Identification

The conenose bug is a large, dark brown or black hemipteran (“true bug”) with patterns and markings that vary by species, which range in size from 0.5 to over 1 inch

(13.0 – 33.0 mm) in length. It has an elongated, cone-shaped head, from which it derives its name (Figure 1, 2 and 3). The head has four-segmented antennae, conspicuous eyes, and a three-segmented straight beak (mouthparts) that extend 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 (Figure 1, 2 and 3).

T. rubida adults 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 6 reddish orange spots on each side of the abdomen (Figure 1A). The abdomen is flattened longitudinally underneath. The 1st antennal segment reaches or surpasses the tip of the head (Figure 1B). The pronotum is dark with light areas on the sides (Figure 1C). Mouthparts have long hairs at the tip (Figure 1D). 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 5 instars usually requiring 1 year for the life cycle.

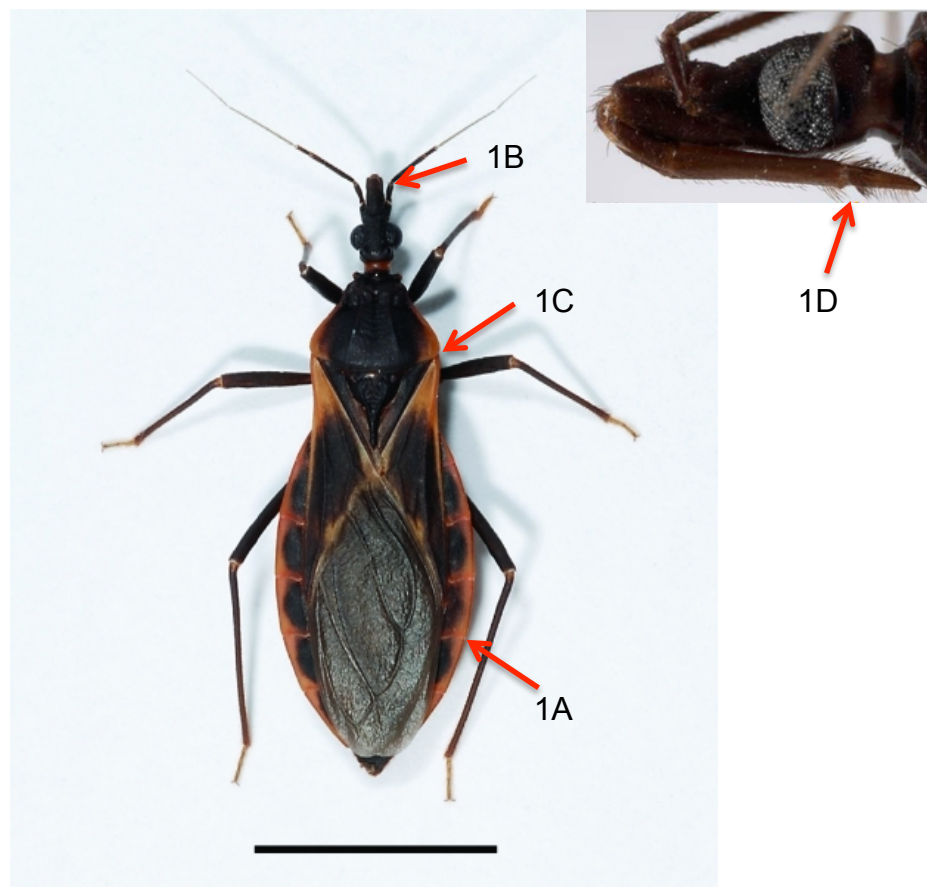


Figure 1. Adult female *Triatoma rubida*, the most abundant species of conenose bugs in Arizona. Scale bar = 1 cm. Photo courtesy C. Hedgcock and CDC.

Adults of *T. protracta*, 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.

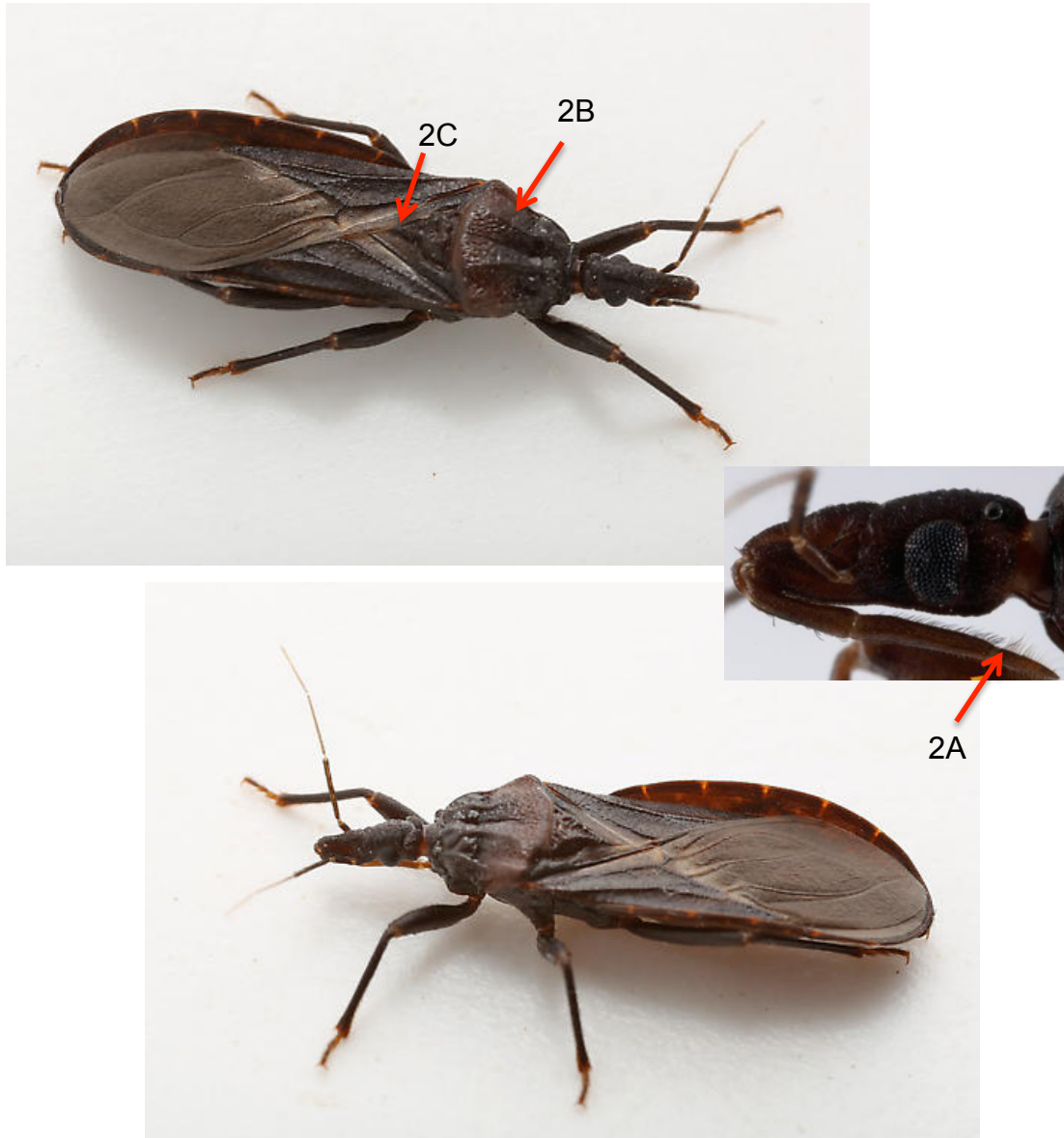


Figure 2. Adult western bloodsucking conenose bug, *T. protracta*. Collected in Flagstaff, Coconino County, AZ and the Museum of Northern Arizona as host for specimens. Photo courtesy Gary Alpert and CDC.

T. recurva 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.

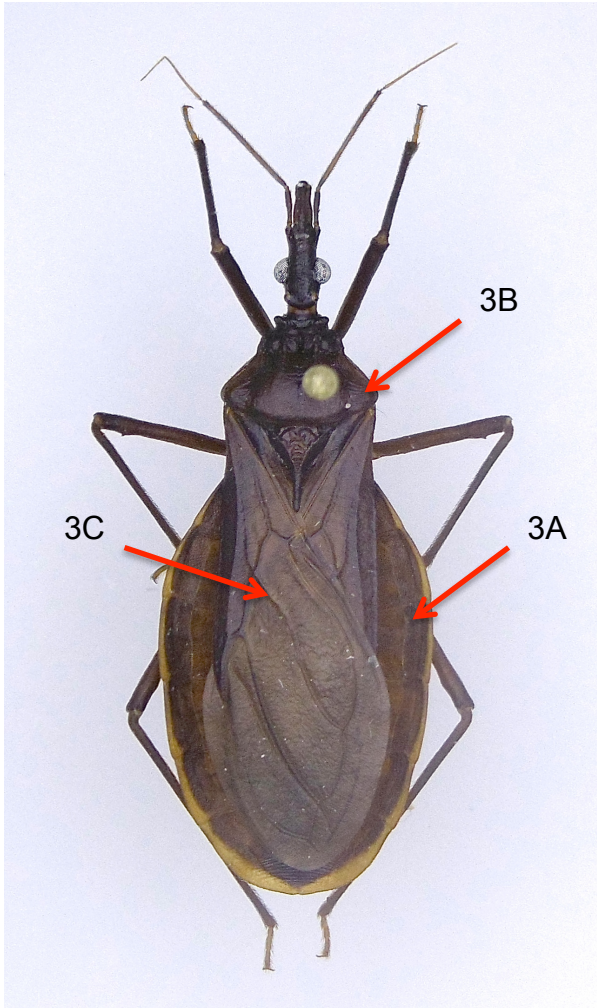


Figure 3. Adult *T. recurva*. Photo courtesy Charles Bradley. The University of Arizona Insect Collection as host for specimens.

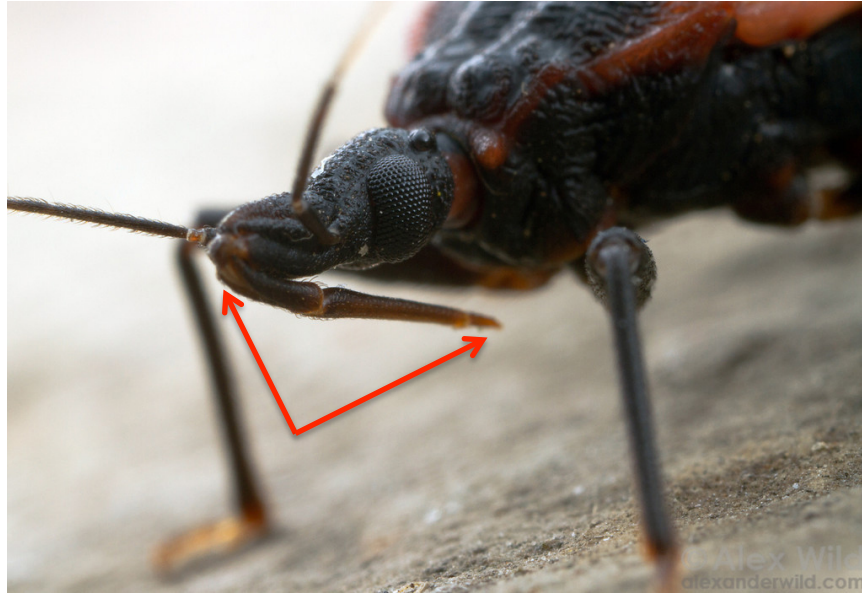


Figure 4. Side view of the elongated head of a conenose bug. Notice the three-segmented beak it uses to feed its victims. At rest, the beak is folded back. It stretches forward when in use. Photo courtesy Alex Wild. <https://www.alexanderwild.com>

In summary, *T. rubida* is larger than *T. protracta*, and is easily distinguished by the reddish or brownish-red lateral markings on the abdomen seen just outside the folded wings. *T. recurva* 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

Conenose bugs live and breed outdoors, in the nests of woodrats or packrats (*Neotoma* species) and other wildlife. Adults can fly and are drawn to outside lights at night. Feeding occurs mainly at night, with the bugs hiding in cracks and other dark, tight places during the day. After feeding they generally tend to move away from the victim, though engorged bugs are sometimes found among bedding in the morning. Outside they can often be found in animal nests and nesting material, including bedding in doghouses and chicken coops.

The conenose 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 pass on to the next.

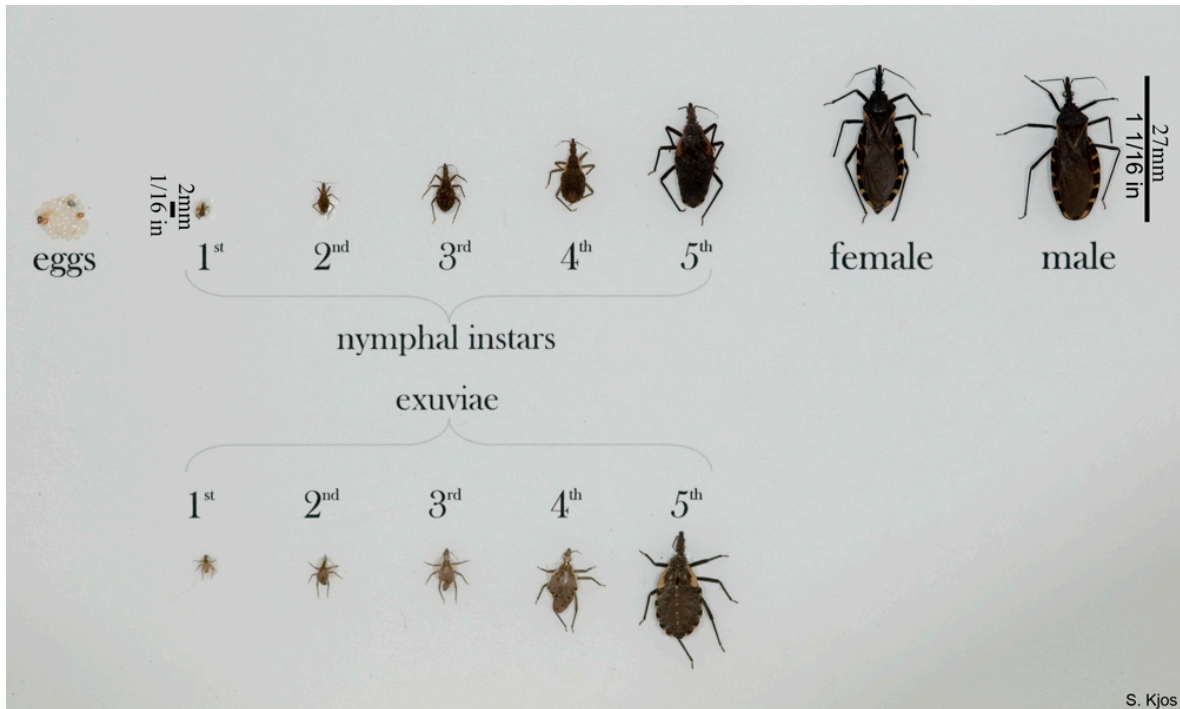


Figure 5. Various conenose bugs in all life stages, from eggs to nymphs to fully grown adults. A variety of bug species, that share similar traits, are pictured. Source: CDC, Global Health - Division of Parasitic Disease.

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. Conenose 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.

The conenose bugs are attracted to the lights in our houses, the odors that we exhale, skin odors, and to the warmth of our bodies. Bugs that enter a house will feed on household pets as well as humans. In suburban and rural Arizona, the insect is attracted to porch lights. At dawn, it looks for a place to get out of the sunlight and the heat. It may enter a residence through a doorway, gaps around doors and screens, or up from crawlspaces under flooring. Once inside, the insect moves toward areas of low light intensity, hiding in and under furniture (between mattresses is a favorite hiding place) and in closets during the daytime hours. At night, the kissing bug ventures forth in search of a blood meal, which may be a sleeping pet or human.

Conenose bug bites and health concerns

In parts of southern and central South America, conenose bugs are the primary vectors of Chagas disease, which is a severe, often lethal disease caused by the protozoan *Trypanosoma cruzi*. They are called “kissing” bugs because of their habit of biting sleeping victims on the tender skin around the mouth.

Trypanosoma cruzi, the Chagas disease-causing protozoan which some conenose bugs carry, is transmitted via their feces. Unlike most fly- and tick-transmitted diseases, the bug bite itself doesn't transmit the organism or disease. Rather it is transmitted when conenose bug feces are scratched into a wound, ingested, or rubbed into moist tissues around the eyes, nose, and mouth.

Incidence of Chagas disease is low in the United States, even though many species of conenose bugs carry *T. cruzi* in their gut. Studies (Reisenman et al. 2010) have shown that about 40% of the kissing bugs around Tucson, Arizona were 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 humans in the U.S. to poor efficacy of disease 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 conenose bugs might be indicative of higher incidences of Chagas disease. Reports of increasing numbers of Chagas disease cases in dogs have been reported in southern Texas (Reisenman et al. 2010).

Conenose 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's 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. Conenose bug bites can be confused with bites from other arthropod pests such as spiders, scorpions, or bed bugs because they can look similar. A useful clue that might be helpful to identify the source of bites is that conenose bug bites usually occur in late spring to early summer, and not at other times.

The biggest risk with conenose bugs is the possibility of a severe allergic reaction. Some people develop a severe or life-threatening allergy to them with multiple bites. This makes it even more important to locate the bug and kill it before the reactions worsen.

If you are bitten by a conenose bug, you should keep the bite sites clean with soap and water. Antihistamines like Benadryl, diluted ammonia solutions and bathing in Epsom salts solution may control itching. Severe reactions require medical treatment. Emergency allergy kits often are prescribed for patients who suffer severe reactions to use in case of future bites.

Call the tollfree national hotline at 1-800-222-1222 to reach your local poison center. If you live in Arizona outside of Maricopa County, this number will get you to our experts at the Arizona Poison and Drug Information Center in Tucson.

Integrated pest management guidelines for conenose bugs

Various measures can be taken to prevent problems with conenose bugs. Pest-proofing your home is the best preventative measure.

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

1. First vacuum up all visible insects and all visible cracks and crevices.
2. Seal all cracks and openings into buildings as completely as possible. Use weather stripping, caulk, or silicone seal to eliminate small cracks and crevices.
3. Screen all windows, doors and vents.
4. Inspect outside for hidden bugs – look beneath flower pots and outdoor furniture, and any other dark, sheltered places.
5. Clear away rodent nests and trash piles against or near your home (within 350 feet). Destroy the nest after removing any rodents from the nest. Only destroy those nests close to the homes. By leaving distant nests intact, the conenose bug has an alternative site to inhabit, which can discourage migration into the home.
6. Eliminate harborages including piles of lumber, firewood, and debris.
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.
9. Change outdoor and porch lights to yellow bulbs which do not attract the pesky creatures.
10. Regularly examine dark, quiet areas in the home mid-spring to mid-fall, especially sleeping areas.
11. **A bed net, tucked in, is the best exclusionary device to use when sleeping for those sensitized and at risk for anaphylactic shock.**

No registered pesticides have been specifically approved in the United States for use against these bugs. Long lasting insecticide treated bed nets and curtains have been shown to kill these bugs. A licensed pest control operator should be consulted if you are considering the use of insecticides.

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