

CONENOSE BUGS IN CALIFORNIA Information for Vector Control Agencies and Health Professionals

What are conenose bugs?

Conenose bugs are members of the assassin bug family. Most members of this family are predators of other insects. However, the conenose bugs in the genus *Triatoma* and *Paratriatoma* are blood-sucking parasites of rodents and a variety of other small vertebrates. Given the opportunity, they will also feed on humans and domestic animals. There are 11 species of conenose bugs found in the southern United States. *Triatoma protracta* is the most widespread and medically important species in California.



Adult *Triatoma protracta*

Adult bugs are $\frac{1}{2}$ to $\frac{3}{4}$ inch long, a uniform dark brown to black in color, with an elongated, cone-shaped head possessing a three-segmented beak folded beneath the head when not feeding. Wings are folded flat over the back when not in flight. Nymphs are similar in appearance to adults except that they do not have wings and are smaller.

Where are conenose bugs found?

Conenose bugs can be found throughout most of California in undeveloped wildlands, especially in foothill and mountainous areas. Conenose bugs frequently live in or near the nests of [woodrats](#) (*Neotoma* spp.), their preferred hosts. Female conenose bugs lay eggs in woodrat nests so that the newly-hatched nymphs can feed on the woodrats. The nymphs proceed through five stages of development within the nest, with the last nymphal stage molting to an adult the following spring. Each nymphal stage requires a blood meal to complete development. The *Triatoma* life cycle from egg to adult is completed in one year. Adult conenose bug dispersal flights typically occur during late spring and early summer on warm evenings. During these flights, conenose bugs may be attracted to and collect around lights and gain entrance into homes where they may feed on humans or pets.

What is the medical importance of conenose bugs?

As blood-sucking insects, conenose bugs pose a public health risk through their

incidental feeding on humans. Conenose bugs feed at night, usually within the house while the person is asleep. The bite is generally painless due to the conenose bug's anesthetic saliva, but the bite may result in a localized reaction. However, people may not be aware that they have been bitten. The most common reaction to a conenose bite is redness of the skin and the development of intensely itching welts. Bite reactions usually dissipate in 24-48 hours, but may persist for a week or more.

Occasionally, a person sensitized by previous bites may suffer a severe reaction to the injected saliva called an anaphylactic reaction. Symptoms may include weakness, sweating, shortness of breath, nausea, abdominal cramping, and vascular collapse. Anaphylactic reactions require immediate medical treatment and hypersensitive individuals may be advised by a physician to keep a kit containing epinephrine and antihistamines in their bedroom.

Some species of conenose bugs can carry and transmit Chagas disease, caused by the protozoan *Trypanosoma cruzi*. Symptoms of Chagas disease include swelling of the face and eyelids, high fever, nervous system disorders, and potential destruction of cardiac and skeletal muscles. Chagas disease can be fatal. The most well-known vector is *Triatoma infestans*, a South American species commonly found in rural dwellings. Transmission occurs when *T. infestans* takes a blood meal and then defecates *T. cruzi*-infected feces near the bite wound. When the feces are inadvertently scratched into the bite or transferred to mucous membranes, infection occurs. Though *T. cruzi* protozoa have been found naturally infecting other conenose bug species and vertebrate hosts in North America, North American conenose bugs typically defecate away from the host and rarely colonize human dwellings. For these reasons the risk of becoming infected with Chagas disease via a conenose bite in the U.S. is very low.

What can be done to prevent conenose bug bites?

Conenose bug management relies on removing likely bug and rodent harborage around residences, sealing points of entry into homes, and minimizing the attraction of night-flying adults to lighting.

Rodent nesting locations around homes can be reduced by removing piles of lumber, firewood, debris, and clutter. Vegetation in close proximity to structures should be minimized to discourage rodent attraction. Homes with frequent conenose bug entry may suggest that woodrats or other rodents are established inside or around the structure. Inspect attics and crawl spaces to make sure rodents have not gained entry. Rodents and rodent nests should be removed.

Structural gaps or damaged vents that permit rodent entry to attics, living areas, or crawl spaces should be fixed through screening or by other means. Chimney caps and all outdoor vents should be appropriately screened. Screens on windows, sliding glass doors, and exterior doorways (paying special attention to door sweeps) should fit tightly and be in good repair to prevent insects from entering. Pet doors should be tight-fitting or otherwise insect-proofed. Use weather stripping, silicone sealants, or caulk to repair cracks or seal openings around doors or windows where insects may enter. Chicken coops and other animal enclosures should be periodically inspected for the presence of conenose bugs.

Because conenose bugs are attracted to lights at night, minimize outdoor lighting or use yellow lights to greatly reduce bug attraction to the home. Draw curtains in lighted rooms during spring and summer months when adult conenose dispersal flights typically occur. Inspect bedroom spaces and bedding for the presence of conenose bugs. Bed frames and bedding should not contact walls, furniture, or other objects which may provide host-seeking conenose bugs access to the bed. A bed net, tucked in, is the best exclusionary item to use for those who live where conenose bugs exist and are sensitized to conenose bug bites and at risk for anaphylactic shock.

If problems persist despite following the above conenose management measures, property owners should contact a licensed pest control professional. Homeowners should not be encouraged to use pesticides for conenose bug control.

A published [Rural Residential Vegetation Management graphic](#) provides a visual diagram describing how to plant and manage landscape to minimize woodrat habitat (Reference 3 below).

What can a person do if they find a conenose bug or think they have been bitten by a conenose bug?

There are many species of harmless insects in California that could be confused with conenose bugs, thus proper identification is the first step. Photos of suspected conenose bugs that are found inside homes may be submitted to a local vector control agency or to the California Department of Public Health, Vector-Borne Disease Section (CDPH-VBDS) for confirmation. To contact CDPH-VBDS, send an email to VBDS@cdph.ca.gov, and include a name, contact information, how and where the bug was found, and if a bite is suspected (e.g., bug was squashed and full of blood) or visually confirmed (i.e. caught in the act of biting). Bugs suspected or confirmed of biting people may be eligible for Chagas parasite testing by the U.S. Centers for Disease Control and Prevention (CDC) via CDPH-VBDS. In these cases, a public health biologist with CDPH-VBDS may call the submitter to discuss if testing of the bug is warranted.

If a person reports a serious reaction to a conenose bug bite or has concerns about Chagas disease, they should contact a health care provider.

Where can I find additional information and references on conenose bugs and Chagas disease?

[U.S. Centers for Disease Control and Prevention webpage for *Triatomines*](https://www.cdc.gov/parasites/chagas/gen_info/vectors/index.html)
(https://www.cdc.gov/parasites/chagas/gen_info/vectors/index.html)

[U.S. Centers for Disease Control and Prevention Chagas disease webpage](https://www.cdc.gov/parasites/chagas/index.html)
(<https://www.cdc.gov/parasites/chagas/index.html>)

References

1. Bern, C., Kios, S., Yabsley, M.J., Montgomery, S.P. October 2011. [Trypanosoma cruzi and Chagas Disease in the United States](#). Clin. Microbiol. Rev. October 2011; 24(4): 655-681; doi:10.1128/CMR.00005-11. <https://cmr.asm.org/content/24/4/655.full>
2. Greenberg, L. et al Jul 2013. [Pest Notes: Conenose Bugs](#). Oakland: Univ. of Calif. Nat. Agric. Res. Publ. 7455. Available online: <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7455.html>
3. Shender, L. et al September 2016. [Habitat Management to Reduce Human Exposure to Trypanosoma cruzi and Western Conenose Bugs \(Triatoma protracta\)](#) EcoHealth: 13 (3): 525–534. Available online: <https://link.springer.com/article/10.1007/s10393-016-1153-5>
4. Vetter, R. [Kissing bugs and the skin](#). Dermatology Online Journal, Vol. 7(1):6. Available online: <http://dermatology.cdlib.org/DOJvol7num1/centerfold/triatoma/vetter.html>
5. Manne-Goehler J, Umeh CA, Montgomery SP, Wirtz VJ. [Estimating the Burden of Chagas Disease in the United States](#). PLoS Negl Trop Dis. 2016 Nov;10(11):e0005033. Available online: <https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0005033>
6. Klotz SA, Dorn PL, Klotz JH, Pinnas JL, Weirauch C, Kurtz JR, et al. [Feeding behavior of triatomines from the southwestern United States: an update on potential risk for transmission of Chagas disease](#). Acta Trop. 2009 Aug;111(2):114-8. Available online: <https://www.sciencedirect.com/science/article/abs/pii/S0001706X09000576?via%3Dihub>

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