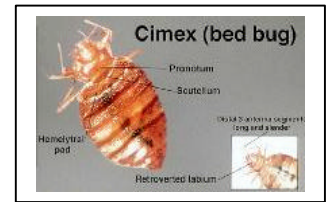


THE COMMON HUMAN BED BUG (*Cimex lectularius*)

Control recommendations for multi-unit dwellings

Introduction

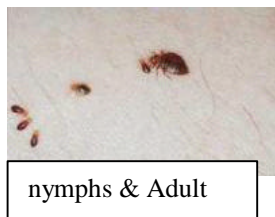


There are two genera and six species of “bed bugs” in California. Included are the common bed bug (*Cimex lectularius*) and other lesser species, *Cimex latipennis*, *Cimex antennatus*, *Cimex incassatus*, the bat bug (*Cimex pilosellus*), and the swallow bug (*Oeciacus vicarius*).

Though once rare, bed bug infestations have become fairly common. Bedbugs are easily transported and can become quite a problem in multi-unit dwellings. Most adults and immatures are moved about in infested clothing, mattresses, and upholstered furniture (e.g., couches, hide-a-beds, recliners, etc.). Eggs, nymphs or adults can be acquired when using public transport, at public gatherings, purchase of used furniture and clothing or traveling to or visiting infested places. First instar nymphs are only 1mm and can easily go undetected.

Since these bugs feed while the human host is sleeping, their presence is often indicated by the appearance of small blood spots on light colored sleep wear and linen. Bed bugs are active at night and when disturbed they emit a disagreeable musky odor. The bite of the bed bug is painless. Their bites, instead, produce a small hard wheal that is white in color accompanied by swelling and inflammation. This reaction is caused by the saliva introduced early during the feeding process. Some individuals are more sensitive to the bite than others, therefore, reactions can vary. In addition to the allergic reaction, there is also the possibility of secondary infection suddenly appearing in association with excessive scratching that introduces bacteria, etc. into the abraded area. Some people do not react to the bite and may not even be aware of a bed bug infestation.

General Characteristics



nymphs & Adult

The common bed bug (*Cimex lectularius*) is wingless, approximately 1/4 in. (6 mm) in length with a flattened (dorso-ventral/top-bottom) oval shape, and dusky red in color that changes to a more vivid red when the insect is actively feeding. During feeding (engorgement), their bodies tend to elongate to 3/8 in. (8 mm). Bed bugs have a four-segmented antenna and beak. The bed bugs have a beak specialized for sucking blood. Bed bugs are not known to vector disease to humans.

- ?? Adults are wingless and are 5mm (1/5”) in length.
- ?? Life cycle: egg – nymph –adults. Completed in 37 to 128 days.
- ?? The female **glues 200 plus eggs** in batches of 5 to 50 eggs in cracks and crevice. **Egg are resistant to pesticides.**
- ?? Nymphs and adults **can survive up to a year or more without feeding** especially at low temperatures (18°C).
- ?? Bed bugs hide in confined spaces such as cracks, crevices, behind peeling paint, wall hanging, folds and buttons of mattresses and furniture. They tend to be gregarious.
- ?? Bed bugs are usually nocturnal. Bed bugs can travel long distances for a blood meal but are usually found near the host.

In the past bedbugs were associated with poor sanitation and maintenance, however any house has good habit for bed bugs. As with any pest, the level of sanitation and maintenance determines the size and extent of the pest population. Motel, hotels and other establishments with transient tenants are more prone to infestations.



Male (top) & female bedbug relative to dime

Inspection:

1. Inspect the interior. Look for nymphs, adults, skin casings, fecal spots and blood spots. Inspect mattresses, box frame, bed frame, adjacent furniture, walls, baseboards and door and window casings and trim, wall hangings.
2. Inspect adjacent units.
3. There may be times when no evidence is found (recent infestations). Description of bites are characteristic and a bed bug infestation may be assumed.

Control

Elimination of bed bugs requires **meticulous** treatment of all cracks and crevices of the infested room and its furnishings. Most important is to treat every crack and crevice especially around the food source (sleeping place). This would include bed frame, box spring, behind and in wall hangings, cracked or peeling paint or wallpaper, baseboards, door and window trims, mouldings, furniture and personal items and books.

There are various techniques to treat for bed bugs. These are some methods. Use a residual pesticide (a long lasting insecticide) or dust to treat cracks and crevices such as bed frames, interior areas of furniture, mouldings, door and window casings and baseboards. A compressed-air sprayer with an adjustable nozzle or an aerosol can with a crack and crevice tube attachment can be used for this purpose. Using a steam-cleaning unit with appropriate nozzles is also very effective and non-toxic. It is best not to use repellent pesticides as space applications (ie. Pyrethrum, pyrethroids, “bug bombs”). Bugs can escape to adjacent areas or wait until pesticide has broken down. The most commonly available insecticides used for household insects are the pyrethroids including bifenthrin, tralomethrin and tetramethrin that are sold under a variety of trade names. NIC 325 (limestone dust) by ACM-Texas, LLC and Drione® dust (Pyrethrin, amorphous silica gel) by Aventis is labeled for bedbug control. Always read the pesticide label and follow instructions! As eggs are resistant to pesticides, re-treatment after 10 to 14 days is advisable.

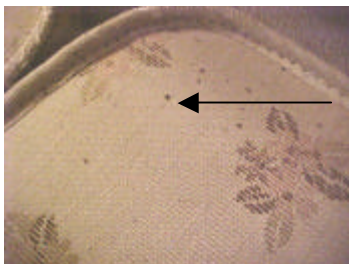
There are non-pesticide methods that are effective. Non-residual pesticide and non-pesticide treatments usually require repeated treatments and careful re-inspections. The following are some non-pesticide methods: A) Use rubbing alcohol in a spray bottle. B) Use a soapy water solution. C) Use a disinfectant i.e. Lysol to treat harborages. D) Thorough vacuuming. E) Place clothes, books etc. in black plastic bags in direct sunlight or spray space insecticide into bags. F) Steam cleaning areas where pesticides would be used (cracks & crevices, furniture etc). G) NIC-325 desiccant Dust can be applied to carpets, folds in the mattress, box springs and upholstery.

Dusting wall voids is effective. This may be very important for long-term control in multi-unit dwellings. Bed bugs may hide in walls and also use these to move from one unit to another. Wall voids can be dusted with insecticidal dusts (Drione®, Deltadust (deltamethrin) or NIC 325), especially where pipes pass through to other units. This should kill existing bugs and also dissuade others from using these voids. Electrical outlets and fixtures can be dusted as well. Small holes can be drilled in wall to apply dust.

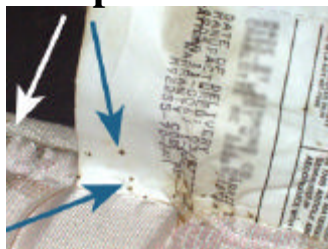
Another important aspect in control especially in multi-unit establishments is to reduce or eliminate areas where bed bugs hide. This would entail sealing (with caulk or paint) all accessible cracks where bed bugs may hide such as window and door casings, around pipes, cabinets, and mouldings. Bed frames (top and bottom) should have a smooth surface, metal or painted.

Mattresses may be treated in the following ways: 1) regular and thorough vacuuming. 2) Steam cleaning 3) Treat with a registered pesticide. 4) Spray with isopropyl alcohol. 5) Clean with upholstery cleaner. 6) Dust with Drione dust or NIC 325. 7) Fumigate with Vikane or heat. 8) Replace with new mattress.

Resident should launder clothes and bed linens just prior to or just after treatment. Dry at high temperature.



Fecal spots



Harborage (hiding) site