

# Entomological Notes

Department of Entomology

## BED BUGS

*Cimex lectularius* L.

All members of the bed bug family feed on the blood of birds or mammals. The common bed bug, *Cimex lectularius*, attacks man, as does the Eastern bat bed bug, *Cimex adjunctus*. There are also other species which attack bats, pigeons, and rodents. Bed bugs are active only at night, usually just before dawn. During the day they hide in cracks and crevices in walls, floors, beds and furniture. When only a few bed bugs are present, they live close to human sleeping areas; when numerous, they can be found in many rooms of the house. A characteristic "bed bug odor" is frequently present in a home infested with bed bugs.

### LIFE HISTORY, DESCRIPTION AND BIOLOGY

Bed bugs are oval, chestnut brown insects, and are flattened from top to bottom. Adult bed bugs (Fig. 1) measure about 1/4 inch in length. The mouthparts are shaped into an elongated proboscis which, when not used, is held directed backwards underneath the body. When a bug is ready to feed, the proboscis is extended forward and the stylets within are thrust into the skin of a host. Mated female bed bugs deposit their eggs in their resting places. One female will produce about 345 eggs during her life span.

Bed bugs grow by molting several times. Nymphs look very much like the adults except they are smaller and not sexually mature. There are five nymphal molts and each nymph must have a blood meal to be able to molt to the next stage. Adults feed once a week on the average, but feed many times during their four months or longer life span.

Common bed bugs often come into a home via second hand articles and furniture. They may also migrate between homes via wires, plumbing or rain gutters. In addition, since warehouses, trucks and railroad cars may be infested, common bed bugs can infest homes by stowing away on new furniture stored or shipped from these places.

The Eastern bat bed bug comes into homes in the spring with colonies of bats. They will be found in the living quarters of homes in many of the same places as common bed bugs, but the source of the infestation is located within walls or attic areas.

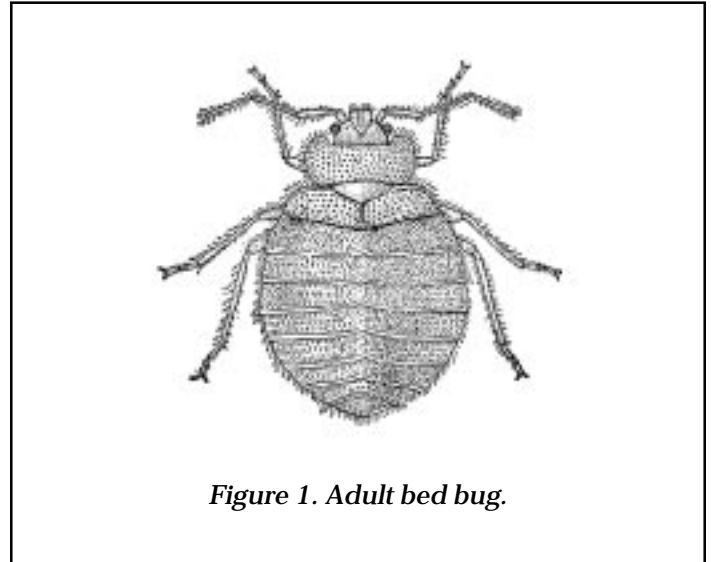


Figure 1. Adult bed bug.

### INJURY

Despite the fact that the bed bugs can acquire many human disease organisms during feeding, there have been no documented cases of disease transmission as a result of bites. However, their bite can produce irritating, itching and burning sensations. Bed bugs feed rapidly, becoming engorged in less than ten minutes. The act of biting is usually not felt, but later there is an allergic reaction to the protein found in the bed bug's saliva. A colorless wheal or lump develops at the bite location; in contrast, flea bites have reddish centers. Discomfort from bed bug bites may last a week or more. Occasional bites indicate a beginning light infestation of adults; many bites result from a heavy, long standing population of nymphs and adults.

### MANAGEMENT

Common bed bugs become established in structures when they hitch a ride in boxes, baggage, furniture, bedding, laundry, and in and on clothing worn by people coming from infested sites. Poultry workers can carry bed bugs to their residences from their places of work. Bat bugs, poultry bugs, swallow bugs and others are typically transported to new roosts by the principal host. An accurate identification of the bed bug species involved is essential to an effective control strategy. Many control failures can be traced to an incorrect identification.

The common bed bug hides in cracks, crevices and seams during the day. They prefer narrow crevices, with a rough surface, where their legs and backs touch the opposing surfaces. Wood and paper surfaces are preferred to either stone, metal or plaster, although in the absence of preferred sites or during high population numbers the later will also be utilized. The aforementioned cracks and crevices should be filled with appropriate fillers such as caulking.

Bugs will sometimes hide in the crevices of upholstered furniture and mattresses created by folds, buttons and cording. Thoroughly vacuum all upholstery (undersides also), mattresses and pillows. Launder bedding and dry in a warm air dryer.

Pesticides can be applied to cracks and crevices of dressers, wooden bed frames and headboards, door and window trim, baseboards and similar sites. Three classes of insecticides are reviewed: (1) Botanical insecticides containing natural pyrethrins will repel insects and can 'knock down' bed bugs for a period of time, but natural pyrethrins quickly deteriorate and do not provide the necessary residual action of some other materials. Finishes on furniture and other wood items may be damaged from the petroleum carriers contained in aerosol pyrethrins. (2) Inorganic materials such as silica gel, boric acid and diatomaceous earth will provide long-term control provided they are used in an environment with low humidity. These inorganic materials have very low repellency, have a long residual life, and can provide good control if thoroughly applied to cracks and crevices. However, they are typically white in color and may leave the surface of items with an undesirable film unless they are carefully applied. (3) Synthetic pyrethroids such as deltamethrin, lambda-cyhalothrin and others can provide good control if they are carefully and thoroughly applied to suspected bed bug harborages. They are relatively long-lived residuals and will not damage materials that are not harmed by water. Consideration should be given to the fact that people typically spend in excess of 8 hours per day in the bedroom. If the insecticides are properly applied, there should be little risk of exposure.

For bed bug infestations other than the common bed bug, *C. lectularius*, the bird or bat that has occupied the structure should be removed and measures taken to prevent the re-entry of the animals. The materials listed for the common bed bug will also control the other species providing that treatment considerations be given to the potential harborages (i.e. crevices between rafters, cracks in chimney flues) that will differ from the common bed bug.

## WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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