
BED BUGS

Integrated Pest Management In and Around the Home

Bed bugs are in the insect family Cimicidae and include three species that attack people. Of these, the most important is *Cimex lectularius*, which may also bite bats, birds, and rodents.

Cimex lectularius is a cosmopolitan species, most frequently found in the northern temperate climates of North America, Europe, and Central Asia. It occurs more sporadically in southern temperate regions. In Florida and tropical regions it is replaced by *C. hemipterus*. Problems with bed bug infestations used to be quite severe, but with the use of DDT after World War II the incidence of these pests has been greatly reduced, although infestations still do occur. Currently this insect can be a pest wherever sanitary conditions are primitive, or if there are birds or mammals nesting on or near a house. Crowded and dilapidated housing can also facilitate the insect's movement between residences.

IDENTIFICATION AND LIFE CYCLE

Adult bed bugs are oval, wingless, about 1/5 inch long, and rusty red or mahogany in color. Their bodies are flattened, they have well-developed antennae, their compound eyes are small, and the area behind the head (the prothorax) expands forward on either side of the head (Fig. 1). The immatures appear identical to the adults except for their smaller size, thinner cuticle, and a lighter, yellowish white color. Bed bugs are readily distinguished from another more common bloodsucking species, conenose bugs (see *Pest Notes: Conenose Bugs*, listed in References), by their smaller size, more

rounded shape, and lack of wings as adults.

Female bed bugs lay from 200 to 500 eggs (in batches of 10 to 50) on rough surfaces such as wood or paper. Eggs are covered with a glue and hatch in about 10 days. After hatching, the egg shells frequently remain on the substrate. There are five progressively larger nymphal stages, each requiring a single blood meal before molting to the next stage. The entire life cycle from egg to adult requires anywhere from 5 weeks to 4 months, depending on temperature. When temperatures are in the range of 70° to 82°F, development occurs most rapidly. Nymphs and adults generally feed at night and hide in crevices during the day. Common hiding places include seams in mattresses and box springs, cracks in bed frames, under loose wallpaper, behind picture frames, and inside furniture and upholstery.

Bed bugs can go without feeding for 80 to 140 days; older stages can survive longer without feeding than younger ones. Adults have survived without food for as long as 550 days. A bed bug can take six times its weight in blood, and feeding can take 3 to 10 minutes. Adults live about 10 months and there can be up to 3 to 4 generations of bed bugs per year.

Occasionally bed bugs may be picked up in theaters, on buses and trains, or brought into homes on clothing, bedding, luggage, or firewood. Bed bugs that live on other mammals and birds found near the home (chickens, mice, rats, and rabbits) may under certain

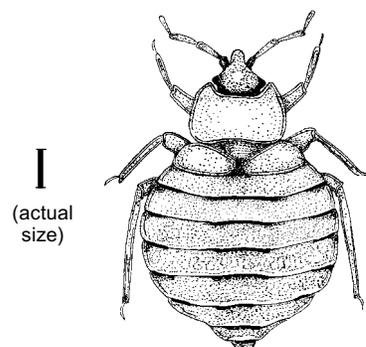


Figure 1. Adult bed bug.

circumstances feed on humans if their primary hosts are removed.

DAMAGE

Bed bugs are not usually considered to be disease carriers. They do suck blood from their host with piercing mouthparts that contain two stylets: one stylet has a groove that carries saliva into the wound, while the other has a groove through which body fluids from the host are imbibed. Saliva that is injected during the feeding can produce large swellings on the skin that itch and may become irritated and infected when scratched. In addition, bed bugs have stink glands that leave odors; they also leave fecal spots on bed sheets and around their hiding places.

MANAGEMENT

Infestations of bed bugs can be detected by looking for their fecal spots, egg cases, and exuviae (shed skins) under wallpaper, behind picture frames, and inside cracks and crevices

near beds. Carefully inspect the bed frame, undersides of windows, door casings, and loose moldings.

Indirect measures can go a long way in controlling bed bugs: keep bats and birds away from houses; clean furnishings, launder bedding and mattress pads, and steam-clean mattresses; and prevent bed bugs from getting into homes by removing debris from around the house, repairing cracks in walls, and caulking windows and doors.

Simple physical control methods include standing the legs of beds in soapy water, coating the legs with petroleum jelly or double-sided sticky tape. Bed bugs cannot climb polished glass or metal easily and they don't fly,

so that the legs of beds can also be placed inside glass jars or metal cans. Heating to 97° to 99°F will kill most bed bugs, as will temperatures below 48°F.

Chemical control includes the use of a residual insecticide (usually pyrethroids) in cracks and crevices. Sprays containing natural pyrethrins can also be used. Sorptive dusts such as fumed silica (also called diatomaceous earth) are useful in closed, hard-to-reach places. These treatments are best done by a professional pesticide applicator.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash nor pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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