

PREVENTION AND CONTROL OF BED BUGS IN RESIDENCES: INFORMATION FOR HOMEOWNERS AND TENANTS

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Bed bugs, *Cimex lectularius*, have resurged to quickly become a very important pest of the 21st century, as they invade numerous urban areas including hostels, hotels and residences. Our society has had a “30+ year vacation” from this pest, when bed bugs were almost removed from North America as a result of mass treatments with older types of insecticides (DDT, Chlordane, Lindane). Recently though, bed bugs have found ample opportunity to increase in number and spread through society. Their success is a result of: increased travel of people; improved treatment methods that specifically target other insect pests; and the lack of public awareness.



WHAT DO THEY LOOK LIKE?

Bed bugs are oval, flattened, brown, and wingless insects approximately ¼ to 3/8 inch long (5 – 9 mm). They are similar in appearance to a ‘wood’ tick. After the bug has taken a blood meal, its color will change from brown to purplish-red. Also after feeding, it is larger and more cigar-shaped making it appear like a different insect. Young bed bugs are much smaller (1/16” or 1.6 mm when they first hatch) and nearly colorless except after feeding, but resemble the adult in general



2nd instar bed bug (Scale in 32nds of an inch)

shape. You may also find cast skins, which are empty shells of bugs as they grow from one stage to the next. After a blood meal, bed bugs deposit fecal spots (composed of digested blood) in areas adjacent to the feeding site or back at their hiding places.

WHAT IS THEIR LIFECYCLE?

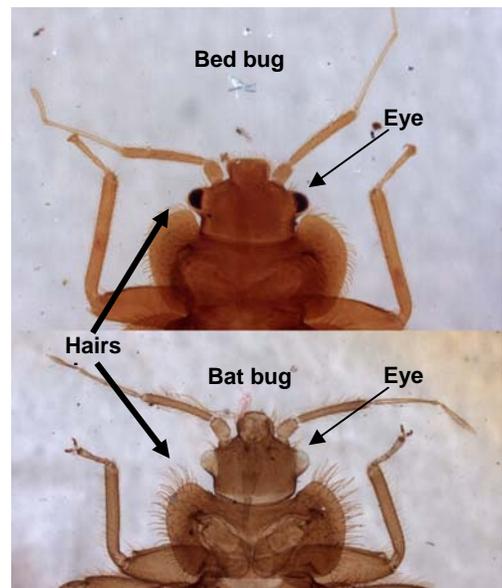
Bed bugs are active at night and hide during the day. After mating, females lay white, oval eggs (1/16 inch long) into cracks and crevices. An individual bed bug can lay 200 – 250 eggs in her lifetime.



The eggs hatch in about 6 – 10 days and the newly emerged bed bug nymphs seek a blood meal. Immature nymphs molt five times (i.e., they shed their outer exoskeleton in order to grow) before reaching adulthood. They need to feed at least once before each molt, although they could feed as often as once a day. There may be three or more generations per year. All ages are found in a reproducing population. Immature bed bugs may live for several months without feeding while adults may survive as long as one year without a meal. Under normal circumstances, adult bed bugs will live for about ten to eleven months.

BAT BUGS

Another bed bug species that you may see is the bat bug, *Cimex adjunctus*. They can be common, but they are not encountered as often as bed bugs. Bat bugs can be identified by the longer hairs along the lateral edges near the head. We recommend that you have a specialist examine the sample for proper identification. Bat bugs live in attics (and eaves) associated with bats and birds, so inspection and control measures must be expanded to include areas where these animals (bats and birds) may be found.



LESS FREQUENTLY ENCOUNTERED BED BUGS

Other species of bed bugs may be encountered in Minnesota. The chimney swift bug, *Cimexopsis nyctalis*, and the swallow bug, *Oeciacus vicarius*, feed primarily on birds. However, they can occasionally be

pests in houses when host birds are nesting in the home (including the attic and eaves). Like bat bugs, these other species will also feed on humans when their normal hosts are absent.

WHY ARE THEY IMPORTANT?

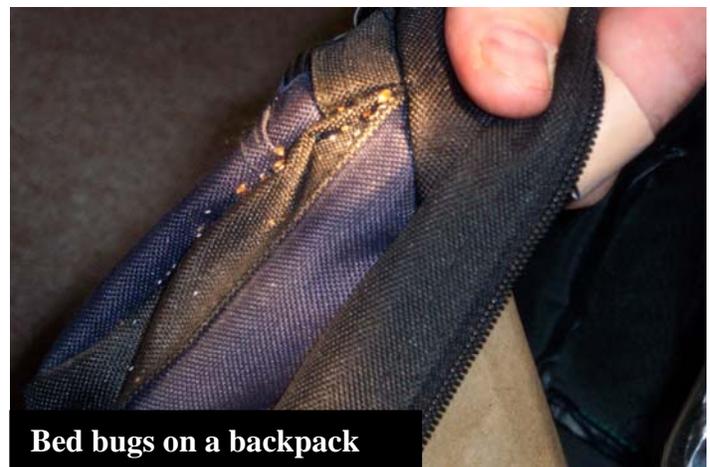
Bed bugs are parasites that feed on the blood of people and certain animals, and they require these blood meals to grow and reproduce. They live close to areas where people typically sleep, rest, or sit for long periods. Hungry bugs will move out from their hiding places, in search of exposed skin. Typically, the head and neck are bitten, but bed bugs will also bite bare arms, hands, and legs. When searching for a place to feed, these bugs can move very quickly. Once an appropriate site is found, they feed for 2 – 5 minutes until full, and then move quickly away from the person.

In addition to bed bugs moving towards a person when they are least likely to be noticed, the result of their bites may also go unnoticed, or can be mistaken for the bites of other pests. All people are not equally sensitive to bed bug bites, so while some victims break out in rashes from the bites, other people may not display symptoms. When a reaction does occur, the results of feeding can be mild (a simple red spot) to severe (rash or even hives). The reaction caused by feeding might be mistaken for other problems. Fleas, mosquitoes and other biting insects, sensitization to detergents and soaps, and irritants (e.g., poison ivy) are some of the conditions victims of bed bugs thought they were dealing with.

Bed bugs have been discovered to harbor 28 different human pathogens, but fortunately, the transmission of these diseases to people has not been demonstrated.

HOW CAN I DETECT AN INFESTATION?

Bed bugs typically cluster together in favorable harborage areas. However, some bed bugs will live by themselves, away from the majority of the infestation. The best way to determine if you have an infestation is to look for bed bugs where you sleep (or rest) and where you typically set down luggage (or bags) when you enter the residence. Your luggage and places where your luggage may be stored are also some of the first areas to look. In bedrooms, look particularly around boxsprings, mattresses, bed frames, tufts, folds, and buttons on mattresses, furniture, such as desks and chairs, behind wall paper, clocks and pictures, cracks in wood floors, and under the edge of carpet. While bed bugs are most commonly found in bedrooms, infestations can also occur in other rooms, including: bathrooms; living rooms; and laundry rooms.



Dark blood spots on sheets and bedding may indicate bed bug feeding. Bed bugs will sometimes excrete while they are feeding. This results in darker (reddish or brownish) spots or smears placed on bed sheets, pillowcases and mattresses, or in nearby areas. This material is composed mostly of digested blood and the stains are very characteristic.

Remember these insects are small (1/16" to 1/4") and very flat, so they can move into very tight corners and cracks. In some infestations, they were found under picture frames, in between the glass and the frame! Be prepared to do some close inspection and when in doubt, consider having the inspection done by a pest control service.

In severe infestations, bed bugs may be more noticeable. The accumulation of bugs, cast-skins and fecal spots will be very apparent upon close inspection.

If at any time a bed bug is found: discontinue inspection and initiate control activity!

Do not continue with the inspection alone, as bed bugs will move from their hiding places once disturbed.

Further inspections must be accompanied by control measures.

HOW CAN I CONTROL AN INFESTATION?

We highly recommend that you seek assistance from a professional pest control company.

Controlling an infestation requires very detailed work and much moving (and disassembly) of furniture. Careful inspections must be completed in conjunction with non-chemical controls (such as vacuuming, and steam treatments) and insecticide treatments. The insecticides available are commercial products requiring special equipment and training, that is not readily available in "over-the-counter" products.



For additional information about control measures, please see the factsheet entitled: “*Control of bedbugs in residences US commercial.pdf*” on the website www.ipmctoc.umn.edu.

HOW CAN I PREVENT AN INFESTATION?

The greatest risk for encountering bed bugs appears to be while people are traveling. Regardless of the type of accommodations you stay at, it is a good precaution to check your room. Please refer to the section “*How can I detect an infestation?*”, and check around the headboard and adjacent area of the bed. Also inspect luggage stands or other areas where suitcases are typically set down. Be aware of any unexplained bites you may find in the morning; that could be the result of bed bugs. Also watch for fecal spots, which could occur on bed sheets or nearby areas. Inspect your luggage when you get home after a trip for any bed bugs that may have escaped your earlier attention.

Other sources may be associated with the scavenging of used furniture. ***Residents and Tenants are strongly cautioned against “scavenging” beds and furniture*** that have seemingly been discarded and left by the curb for disposal, or behind places of business. Bed bug infestations are not limited to beds and mattresses, and they can be found on tables, drawers, and even electronics if these items were located in a bedroom or other place that could support an infestation.

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