

Bed Bugs and What to Do about Them

What Are Bed Bugs?

Bed bugs are small, flat, oval-shaped, wingless insects that feed on the blood of warm-blooded animals such as humans, bats, birds, and pets (**Figure 1**). The common bed bug, *Cimex lectularius*, has been associated with humans for thousands of years. The word *Cimex* is derived from the Roman designation for bug, and *lectularius* from the Latin name for couch or bed.



Figure 1. Adult bed bug feeding.

Bed bugs are common in the developing world, and especially in areas of extreme poverty and crowding. These blood-sucking parasites had nearly disappeared in developed countries until fairly recently, when a dramatic increase and spread of the insects began in the 1980s. Bed bugs have been increasingly reported inside U.S. hotel rooms, dorms, and apartments.

Bed bugs are found in temperate and tropical regions worldwide. Another bed bug species, *Cimex hemipterus*, is also widespread but is found mostly in the tropics. Several other bed bug species are found on bats, but they do not usually bite people.

Adult bed bugs are approximately 5 millimeters long, oval, and flattened. They somewhat resemble unfed ticks or small cockroaches. Adults are reddish-brown (chestnut-colored); immature bugs resemble adults but may be yellowish-white. Bed

bugs have a pyramid-shaped head with prominent compound eyes, slender antennae, and a long snout or proboscis tucked backward underneath the head and thorax.

Bed bugs have stink glands and emit an odor. Sometimes homes heavily infested with the bugs have this distinct odor. Bed bugs feed at night, hiding in crevices during the day. Hiding places include seams in mattresses, crevices in box springs, and spaces under baseboards or loose wallpaper.

There are five nymphal stages that must be passed before development to adulthood. Once an adult, the bed bug has a life span of 6 to 12 months. At each nymphal stage, the bed bug must take a blood meal in order to complete development and molt to the next stage. The bugs take about 5 to 10 minutes to ingest a full blood meal.

Bed bugs can survive long periods without feeding, and when their preferred human hosts are absent, they may take a blood meal from any warm-blooded animal.

Why Are Bed Bugs Resurging?

Changes in pest control practices (increased use of baits versus spraying of residual pesticides) and increased worldwide travel are believed to be two main reasons for the resurgence of bed bugs. In addition, researchers have found populations of bed bugs highly resistant to many of the pesticides being used to control them.

What Are the Bite Reactions?

Bed bugs have piercing/sucking mouthparts typical of the insect order Hemiptera. The bites are usually not noticed; however, some people do experience allergic reactions to saliva from the bites (much like mosquitoes) and can develop itchy welts, even blisters sometimes (**Figure 2**). Excess scratching can lead to secondary infection. Bed bug bite reactions usually clear up on their own and require little specific treatment other than antiseptic or antibiotic creams or lotions to prevent infection.



Figure 2. Bed bug bites on arm 5 days post-bite.

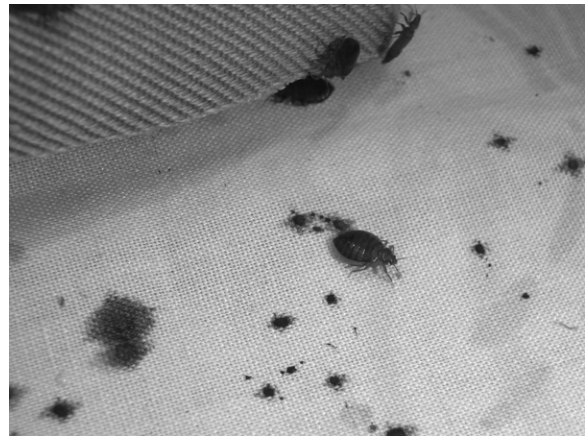


Figure 3. Bed bugs and fecal spots on a mattress. Photo courtesy Armed Forces Pest Management Board/ Dr. Harold Harlan.

Do Bed Bugs Spread Disease?

Bed bugs have been found naturally infected with several human disease agents, but that's not unusual for insects that suck blood from animals. Whether or not bed bugs can *transmit* those human disease agents is controversial, although most scientists say they cannot.

Attorneys representing plaintiffs bitten by the bugs in hotel rooms often firmly state that the risk is real and warrants compensation. However, until further evidence proves otherwise, the best summary of current data goes something like this: "Even though bed bugs have been found naturally infected with many disease agents, they have never been proven to transmit even one."

What Do I Do if I'm Staying in a Hotel?

First, don't get things out of perspective. Not every hotel room has bed bugs, but some do. Interestingly, bed bugs are just as prone to be found in five-star hotels as they are in low-budget hotels, so it helps to always be on guard when traveling.

Simple precautions may help protect you and your belongings from bed bug infestation. Leave all unnecessary items in your vehicle, such as extra clothing, gear, and equipment. When first entering your hotel room, place luggage on the bathroom vanity until you have had a chance to inspect the premises (do not place luggage on the bed, floor, chair, sofa, or luggage rack). Pull back the sheets and check the mattress and box springs for live bed bugs or black fecal spots (**Figure 3**).

If possible, pull the bed from the wall and inspect behind the headboard. If any bugs or suspicious signs of infestation are noted in the room, go back to the reception area and request another room.

How Do I Keep Bed Bugs Out of My House?

Keeping bed bugs out of your house can be a daunting task, especially if you travel a lot or have frequent guests. Furthermore, there are other ways bed bugs may enter your home, such as on used furniture, goods, or items purchased at second-hand stores or garage sales, so those items need to be disinfected (more precisely "dis-insected").

First of all, after traveling, be sure to wash all clothing from your luggage in hot water, and dry it on high heat if possible. Alternatively, you may just place clothing directly in the dryer on high heat.

You should seal luggage in plastic bags between uses. It's a good idea never to purchase used mattresses, no matter how good a bargain you think it is. Other used items brought into the home should be thoroughly inspected for evidence of bed bugs. Call a pest exterminator to professionally treat those items if bed bugs are found or suspected.

What If I Think I Have Bed Bugs?

If the bed bug infestation is in a hotel room, you should immediately report the incident to the hotel management. In addition, bed bug incidents in Mississippi hotels can be reported to the local or district health department office, or to the state health department in Jackson. When calling, ask to speak to a public health environmentalist.

If bed bugs are found in your home, it's best not to try to spray them yourself with over-the-counter pesticides. Not many insecticides are specifically labeled for bed bugs, and you might actually make things worse by only partially controlling them. The best thing to do is contact a competent pest exterminator for professional pest service.

If you find small insects in your house that you suspect to be bed bugs, you may submit them to the MSU Extension Service for identification. Contact your [local county office](#) for more information.

What about Over-the-Counter, “Natural” Pesticides for Bed Bugs?

Over the past few years, many so-called safe and natural products for pest control have entered the market. These natural pesticides contain all sorts of ingredients that are generally regarded as safe (“GRAS”) and include things like cinnamon, soybean, garlic, rosemary, mint, other oils, geraniol, and sodium lauryl sulfate, to name a few.

These products, also called “25b” products, do not have to be registered with the U.S. Environmental Protection Agency and can be manufactured and sold without restriction. The problem is that these products are rarely effective in killing bed bugs other than the few bugs they directly contact. The only thing most of these products can do is kill bed bugs when sprayed directly on them, and this fact is often claimed on the product label (“Kills bed bugs on contact!”). But alcohol and even soapy water will kill bed bugs on contact.

A recent study at Rutgers University found that only two out of eleven natural products tested had any real effectiveness against bed bugs. Even those two best products caused no more than a 75 percent death rate in bed bugs after three days. Seventy-five percent control may sound good, but with bed bugs, you need 100 percent control!

Homeowners should beware of these natural products for bed bug control and be cautious when choosing pesticides. If manufacturer claims about a product sound too good to be true, then be very hesitant to purchase them. Your money would be better spent on a professional pest control company for bed bug control.

Bed Bug Quick Facts

- ▶ The human bed bug, *Cimex lectularius*, is the most common cause of problems, but other species of bed bugs that feed on bats and birds may occasionally bite humans.
- ▶ Bed bugs primarily feed at night and often go unnoticed.
- ▶ The average female can lay 200 to 500 eggs in her lifetime, laying about three to four eggs per day.
- ▶ A single mated female is enough to start a bed bug infestation.
- ▶ Eggs take about 1 to 2 weeks to hatch.
- ▶ It takes about 40 days to go from egg to egg (total life cycle).
- ▶ A single bed bug can bite multiple times.
- ▶ Bed bugs typically travel 5 to 20 feet each way for a blood meal; however, they have been known to travel as far as 100 feet.
- ▶ Adults generally feed every few days if a host is available; however, bed bugs may survive months or even a year or so without feeding.
- ▶ Nymphs require a blood meal in order to molt to the next stage.
- ▶ It generally takes 3 to 15 minutes for a bed bug to complete a blood meal.

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