

# Got Bed Bugs? Don't Panic! There Are Steps You Can Take

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In the last few years, the bed bug, *Cimex lectularius*, has rebounded from many years of practical eradication in the United States, Australia, and Europe, even though this insect has been continually present at low to moderate levels in less developed countries. All the reasons for the bed bug resurgence is unclear, even to scientists.

Bed bugs do not transmit diseases, but the very thought of an insect sneaking out of hiding places and feeding on us at night is troubling to many people. People are panicking and acting irrationally. Bed bug infestations are causing families to shun other family members; workers are being told to not come to work until their bed bug infestation

is gone. This irrationality is not helpful in understanding the problem and solving the problem. Unsafe insecticide practices can injure people. There has even been a death attributed to over-the-counter (OTC) products applied incorrectly.

One possible reason for the resurgence is today's bed bugs are hard to control. They have changed physiologically to survive chemical treatments. Today's bed bugs have a thicker cuticle which prevents insecticides from penetrating into the body. They also have increased levels of enzymes which detoxify pyrethrin and pyrethroid chemicals into non-toxic substances. Even when subjected to a treatment, bed bugs may survive. Most OTC products are either pyrethroid or pyrethrins, even those with the words "Bed Bug"

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Typical bed bug spots and smears on a mattress.



Photos by Barb Ogg, UNL Extension

Bed bug spots and eggs under the fabric stapled to the framing of box springs.



Bedbugs are reddish brown and have flattened bodies (magnified view).



Immediately after feeding, bed bugs are bright red and have an engorged and elongated body (magnified view with pin head).

Photos by Vicki Jedlicka, UNL Extension



At left — approximate size.



Bed bugs (adult and nymphs) under dust cover of sofa where fabric was stapled to the frame.

**Know how. Know now.**

prominently displayed on the label. This is why do-it-yourself bed bug treatments are unlikely to work.

In Nebraska, like other states, it is the responsibility of landlords to provide a pest-free environment for their tenants. But, because bed bugs are hard to control, treatments are expensive and not all landlords are willing to spend the money necessary for eradication. Because bedrooms must be treated, pesticide applications must be done carefully.

Our recommendation is to turn bed bug eradication over to a pest management professional who has experience in bed bug control and knows how to do it safely. But because bed bugs are not easily controlled, pest control professionals (PMPs) cannot usually eradicate bed bugs with a single treatment. It will take two or three very thorough treatments to control bed bugs. When bed bugs are well-entrenched in a home or there is a clutter problem, eradication may not be achieved even after five treatments.

PMPs have experience in treating bed bugs and know where to treat. They have application equipment that allows them to treat cracks and crevices, and they can purchase products not available in hardware stores.

The following steps will be helpful for people who suspect they have bed bugs. There are also suggestions for people who do not have the resources to hire a pest control company and may wish to tackle the problem themselves.



Photo by Barb Ogg, UNL Extension

**Pest control professionals have specialized application equipment to treat cracks and crevices where bed bugs live. In this photo, the interior of a box spring is being treated.**

**1. First, make sure you have bed bugs.** Search for bed bugs in and around the bed. Take the mattress off the bed and flip over the box springs. This is the most likely place you'll find bed bugs. Tear off the dust cover and look where pieces of wood are nailed together. Lift where fabric is stapled to the wood framing ... bed bugs like to live in tight places like this. If people sleep on the sofa at night, it also may be infested. Take or send the bed bugs to an expert who can identify them.

If you don't find bed bugs, you probably don't have them. Sometimes people claim they are being bitten, but cannot find bed bugs. This could be a medical problem or skin disorder. Allergic reactions to environmental substances, like detergents or personal care products, can sometimes look like insect bites. In the wintertime, itchy-ness can be caused by dry skin. Bed bugs are not seasonal and do not come and go. An infestation starts slowly with just a few bites and gets worse as time progresses.

There is a wide range of bite reactions. About 20–25% of people between 12–65 years have no reaction to the bites at all. There is even a higher number of elderly people who do not react to bites.

Some people get a red spot on their body that does not itch. Other people have bites that become inflamed and itchy. More severe responses include large blister-like reactions that are painfully itchy. Some unfortunate individuals react to bed bugs with hives and even asthma.

**2. If bed bugs have been identified and you rent, talk to your landlord.** If he decides to hire a PMP to treat your home, you'll need to be as cooperative as possible to help solve this problem. You should know the PMP will apply insecticides but will not do the rest of the steps given below. These are actions you must take to help eradicate bed bugs.

**3. If you find bed bugs during your search, use a vacuum cleaner to suck them up.** This is a very important step in reducing the bed bug population right away. When most people hear the word vacuuming, they think of vacuuming carpets. While bed bugs can be found

in carpets, they are most likely to be found in cracks and crevices in and around the bed itself. Bed bugs leave tell-tale signs in places where they hide; look for spots and smears and vacuum those places thoroughly. Tear the bed apart and use a crevice tool to vacuum bed bugs you find.

Bed bugs can often be found in the space created where the carpet meets the baseboard. Vacuum this area thoroughly. Remove electrical outlet covers; if you find signs or bugs, carefully vacuum. Vacuuming should be done weekly or even more frequently, until the bed bugs are gone. After vacuuming, immediately place the vacuum bag in a plastic bag, seal it, and discard it in an outdoor trash receptacle or freeze it overnight. As you go through the following steps, have your vacuum ready to suck up bed bugs you find.

**4. Next, you'll need to make a decision about what to do with infested items, specifically the mattress, box springs, and upholstered furniture.**

Sofas are generally more difficult to treat than beds, so discarding a sofa might be a wise move. Mark or deface it in some way so it is not picked up by some unsuspecting dumpster diver. Some mattresses have metal grommets on the sides that reinforce handles. These grommet holes are large enough for bed bugs to enter and live inside the mattress. The inside of these mattresses cannot be treated and must either be encased or thrown away.

**5. The next important step is to get rid of all extraneous stuff in the bedroom.** You need to start doing this as soon as you can after you know you have bed bugs. It is extremely important because the more "stuff" you have near where you sleep, the more hiding places you are providing for bed bugs. Simplifying the bedroom also makes treatments more effective.

Place items to be discarded in heavy garbage bags so you don't spread bed bugs in other places in your home or apartment building. Do not reuse these bags. If there are important items you want to keep, place them in sealed garbage bags until

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you have time to deal with them. Any item that has been in the bedroom could have a bed bug inside. Bed bugs have been found in purses, billfolds, cell phones, clock radios, and pictures on the wall.

**6. Start bagging washable clothing and linens to launder them.** Washing and/or drying kills bed bugs. Wash in warm water with regular laundry detergent. Dry clothing for 30 minutes on medium heat. If you cannot wash an item, like a wool coat, you can still kill bed bugs by drying it for 30 minutes. Laundry does not have to be done all at once, but you must do this methodically so you don't put clean (bed bug-free) clothing back into dresser drawers where bed bugs might be hiding.

**7. If you are lucky enough to have a garage or another place away from your home, you can take bagged items from the bedroom to this staging area.**

Items must be de-bugged before you return them. A rental unit can be used for this purpose. In the winter, items can be taken outdoors, if it is very cold. This might kill bed bugs, if temperatures are cold enough. One researcher suggests four days at 23°F. In the summertime, bed bugs can be killed in vehicles when the interior temperature gets over 120°F.

**8. If you have the money, you can encase your mattress and box springs, which will prevent bed bugs from living there.** Encasements also make bed

bugs easier to see and vacuum. Both mattress and box springs should be encased, but the box spring encasement is generally more important because more bed bugs will live there. Mattress encasements must be fabric, not vinyl or plastic that rip easily. Two brands that have been tested against bed bugs are Protect-A-Bed™ and Sentry™. They are expensive and cost \$60–\$90 for each piece, depending on the size of your bed and where you purchase them. They may be difficult to find locally, but can be purchased through pest control companies or through the internet.

To prevent bed bugs from biting you, place encased mattress/box springs on a simple metal frame and

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## What About Chemicals?

It is best to let pest control professionals do chemical treatments; after all, they are trained and licensed to do these treatments safely. They also have access to professional-use products not available locally.

As I mentioned earlier, bed bugs are resistant to pyrethroid and pyrethrin insecticides and these are the most common OTC products available. These products may kill some bed bugs, but the secret to eradicating them is to *find and directly treat all the locations* where bed bugs are hiding. There will be no long-lasting residual control after the insecticide is dry.

So, if you choose to do treatments yourself, you need to use these products as *contact* treatments. Right now, this is the trick to eradicating bed bugs. It is also the reason why treatments cost so much because it takes a lot of time to find all the hiding places and treat them. Spraying insecticides along baseboards and on the legs of the bed won't control a bed bug infestation.

Over-the-counter products claiming to be "green" or safe

may not be very effective against bed bugs. There has been a recent explosion of products coming on the market claiming to control bed bugs, but not all of these products have actually been tested against bed bugs. You should choose a product that has an EPA registration number on the label.

Some locations can be best treated with dust formulations, like in wall voids, behind electrical receptacles, and switch plates. Diatomaceous earth has shown to give good results, although it is not very fast acting. This can be purchased at hardware stores or online. It can be placed in many locations where bed bugs hide and is safe for use on mattresses.

### What NOT to Do

- Do not use any product that isn't labeled for indoor use.
- Do not spray the mattress with any product unless it specifically says you can do this.

- Do not treat linens with any insecticide.
- Do not buy and use OTC foggers (i.e., bombs). These do not work against bed bugs. Research at Ohio State showed bed bugs located only two feet from a discharged fogger did not die from the treatment. It is obvious that bed bugs located in cracks and crevices won't be killed either.
- Do not buy and use OTC aerosols. They are expensive for what you buy and do not work very well.
- Do not *even consider* using a chemical that does not have an insecticide label. There have been reports of fires started when flammable liquids have been used to kill bed bugs.
- Do not buy or use boric acid. It does not work for bed bugs. Boric acid is useful for cockroach control because roaches groom themselves and boric acid is a slow-acting stomach poison. Bed bugs cannot ingest it.

### When Using Any Insecticide, Be Sure To:

Read, understand, and follow label directions. Use personal protective equipment as the label directs. Wear long sleeves, pants, and shoes. Keep insecticides out of the reach of children.

pull the bed away from the wall. If you have a headboard, remove it and store it until the infestation is over or discard it. Remove bed skirts and bedding that might serve as a bridge. Place each bed leg in a Climbup® insect interceptor (see photo). Researchers have found that bed bug populations can be reduced over time, using only these simple steps (encasing, simple metal frame, and interceptors) to catch bed bugs. You are preventing bed bugs from developing by removing their food source, but it can take a long time, and may not completely eradicate them.

### 9. What about bagged items?

Items you want to keep that might be infested must be treated in some way. Heat or freezing are options. Another way is to keep these items sealed in the plastic bag at room temperature for 4-6 months.

*Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the University of Nebraska–Lincoln is implied.*



**ClimbUp® insect interceptors may help prevent bed bugs from crawling up the bed's legs.**