



# Prescription Treatment<sup>®</sup> brand Pest Management

Volume 2



Photo courtesy of Clemson University Extension Service

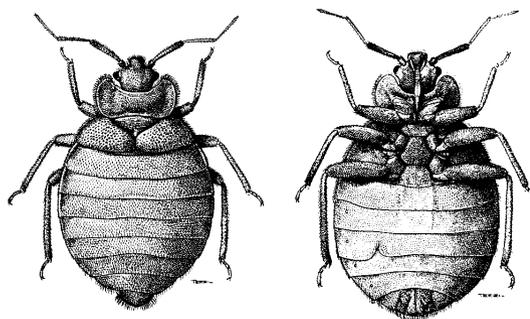
## Bed Bugs

There are few “true bugs” (Hemiptera) that require the attention of the pest management professional (PMP). The two mentioned most often are the boxelder and chinch bug. However, another bug, an old foe, which has been spotted throughout the country and on the rise is the bed bug. This insect belongs to the Cimicidae insect family in the order Hemiptera (Heteroptera).

Prior to World War II, bed bug infestations were common. Since the development of synthetic organic insecticides such as DDT and chlordane, bed bug infestations in buildings have declined significantly. In fact, in the United States, bed bug infestations have been exceedingly rare in the past fifty years.

Prescription Treatment Pest Management is a system consisting of five interrelated components:

- Inspect
- Prescribe
- Treat
- Communicate
- Follow-Up



**It's important to differentiate between the common bed bug and other cimicids.**

The most frequent bed bug encountered in the United States is *Cimex lectularius*, the common bed bug. However, one other bed bug species occasionally found in the southern United States, is *Cimex hemipterus*, the tropical bed bug. Both of these species are oval, flat and reddish-brown. They range from one-fourth inch to five-eighths inch in length. Nymphs and adults have piercing-sucking mouthparts and are incapable of flight. However, small stubby wing remnants can be observed on the prothorax of adults.

Occasionally, PMPs will observe other cimicids which resemble the common bed bug including the bat bug and swallow bug. Both of these species superficially resemble the common bed bug. However, their primary hosts are bats and birds and there are small but diagnostic morphological differences. Problem infestations with these bugs may occur in attics or unused chimneys. Typically, when one host is gone these bugs seek an alternative host blood meal. This is when humans are bitten. It is important to differentiate between the common bed bug and other cimicids that feed on bats and birds because control efforts can be targeted at the wrong sites and infestations can continue.



Box springs provide excellent harborage for bed bugs.



Bed bugs often reside in tufts and folds of mattresses.



Phone junction boxes, wall plates should be opened during inspection.

Bed bug females lay between 200 to 500 eggs during their lifetime in batches of three to four eggs per day. These eggs hatch after six to 17 days. Nymphal bed bugs molt five to six times before becoming adults. Under the best conditions, the life cycle is complete in four to five weeks, but since ideal conditions are rarely found it can take four to five months. Adult bed bugs can live 10 months or more without food (blood). In one case, a female bed bug survived for more than 560 days without food. Nymphal bed bugs are known to survive for more than two months without feeding.

Bed bugs tend to live in clusters similar to German cockroaches. Adult bed bugs generally travel 15 to 20 feet, or less, from their harborage sites.

Common bed bugs feed on human blood just below the surface of the skin with their piercing-sucking mouthparts. Those bitten by a bed bug may develop small, white to red, hard welts at the bite site. These bites itch intensely. Bed bugs have an odor that is pronounced and in severe infestations has been described as an “obnoxious sweetness.”

Bed bugs feed exclusively at night. They take approximately three to five minutes to engorge on blood. Once feeding is complete, they return to their harborage. Feedings take place every few days and nymphs require approximately six blood meals for complete development.

Bed bugs are found in all types of dwellings and transportation vehicles including single-family homes, apartments, public housing, hotels and motels, movie theaters, buses and trains. Within these environments, harborages include:

- ▶ Tufts, seams, and buttons on mattresses
- ▶ Box springs
- ▶ Bed frames and covers
- ▶ Couches and chairs
- ▶ Window and door moldings
- ▶ Behind wall paper and pictures
- ▶ Cracks in hardwood flooring
- ▶ Under carpet along walls
- ▶ Wall voids behind switch plates and outlets
- ▶ Luggage

Habitual harborage sites are marked by brown or black spots of dried blood on surfaces where bugs rest.

No one knows why bed bugs are becoming more common, but it seems reasonable that one or more of the following conditions are responsible.

- 1 People are traveling more which increases the likelihood of transporting bed bugs from infested to uninfested areas.
- 2 The United States is experiencing a tremendous amount of immigration from parts of the world where bed bug infestations are common. Some of the immigrants may bring bed bugs with them. (Just as the original North American infestations were started.)
- 3 Reduced use of residual insecticides in buildings. Surface applications of broad-spectrum residual insecticides are no longer used indoors which permits bed bug infestations to survive.
- 4 PMPs may be missing some bed bug infestations. Since bed bugs have not been common for more than 50 years, it's doubtful that PMPs practicing today have seen a bed bug much less treated a bed bug infestation.
- 5 Ineffective treatments. PMPs unfamiliar with bed bugs and their biology may be using inadequate treatments. As a result, infestations survive and spread.



**Top to Bottom:** There are many possible harborage sites within 10-15 feet of hotel room beds. • Night stands need to be emptied. Drawers removed, and overturned for inspection and treatment. • Disassemble bed frames for potential harbor sites. • All furniture should be overturned during inspection and treatment for thoroughness.

## Inspect

Inspection for bed bug infestations must be thorough. Your primary tool is a flashlight. Since bed bugs are cryptic insects and spend most of their time hiding, you will need a flashlight to find them. You must move and/or disassemble some items while searching including beds, dressers, carpets and rugs.

While you inspect, be alert for a “bed bug smell” which has been described as an “obnoxious sweetness” or fresh, red raspberries. You should also look for accumulations of cast nymphal skins and for stains or blood spots on sheets and linens. A common location for bed bug infestations is a box spring. The framework is often made of wood and contains cracks and crevices suitable for harborage. Other common areas include wall voids, behind switch plates, interior corners of bedside tables, under the edges of wall-to-wall carpeting, couches and stuffed chairs.

## Prescribe

Following your inspection which includes identifying the bed bugs, assessing the structure and considering your customer’s needs and concerns, prescribe your treatment strategy. The focus of service should be:

- 1** Control the source.  
The source in this case is bed bugs in their harborages.
- 2** Reduce the symptoms.  
The symptoms are feeding activity and/or visible presence.

### Choose your treatment techniques

Since bed bug clusters are found in cracks and crevices and voids, treatments specifically formulated for crack and crevice and void techniques are best to control the source. Use a vacuum to remove bed bug adults and nymphs exposed in the folds of linens, mattresses or other places.

### Choose your materials

Bed bugs are susceptible to a variety of insecticides. They can be killed on contact with pyrethrin-based products such as PT® brand 565 Plus XLO® and PT brand P.I.® when non-residual insecticides are appropriate.



However, it’s often best to use residual insecticides in cracks and crevices where bed bugs harbor. Both PT brand Cy-Kick® and PT brand Cy-Kick® CS are excellent choices. PT brand Tri-Die® is an excellent choice for void applications. It kills populations in voids and creates a repellent, hostile environment which reduces the likelihood of bed bugs traveling through voids to other areas.

While not always successful, there are other methods of bed bug control. For example, using heat above 98° F or cold under 45° F is lethal to bed bugs. Steam applications are sometimes used to treat mattresses. Sticky traps are used but are generally inadequate for complete control and must be properly placed to work as a monitoring device. The use of vacuums is becoming increasingly popular to quickly remove exposed insects.

INSPECT  
PRESCRIBE  
COMMUNICATE  
TREAT  
FOLLOW-UP

INSPECT  
PRESCRIBE  
COMMUNICATE  
TREAT  
FOLLOW-UP

INSPECT  
PRESCRIBE  
COMMUNICATE  
TREAT  
FOLLOW-UP

## Treat

Your thoroughness in your treatment is as important as your thoroughness during inspection. Bed bug treatment can begin after you remove the bedding, disassemble the bed, empty nightstands, pull up carpet edge and vacuum.

Every crack and crevice within 10 to 15 feet of the bed should be treated, particularly those closest to the bed. Use the “running method” of moving the application tip along the length of the crack. Look for cracks from the ground level to the ceiling as you treat each section of the room.

Dust wall and furniture voids with PT brand Tri-Die. Specifically treat wall voids with the four-way injection tip and drill access holes discreetly between studs. Hollow bed-frames, platforms, headboards and any other voids discovered during inspection should also be considered for void treatment.

Also, place PT brand Insect Monitors in concealed locations to monitor pest activity if appropriate.



## Communicate

Educate your customer about bed bugs. Explain what they are, how infestations are established and control measures. Education and communication are important components of a complete pest management program. Be sure to explain and get cooperation about room preparation and housekeeping which are vital to the successful management of bed bugs. Give your customer a fact sheet about bed bugs which includes common concerns and the customer’s role in bed bug management.

Professionalism is always a plus and you can extend your professionalism by moving furniture back, reassembling anything that was disassembled and cleaning up after yourself.

Review the action steps to manage bed bug infestations with your customer and make arrangements for follow-up inspections as necessary.

## Follow-up

It is important that you follow-up on all bed bug treatments. Within a week or so after the initial treatment, you should reinspect the infested premise to determine if the treatment was effective. Document all your findings, recommendations, actions and important communications made during the service call. If calling on a hotel or apartment, record the room number(s) serviced and actions needed in follow-up visits.

**For additional information and bed bug photos visit:** [www.pt-u.com/bedbugs](http://www.pt-u.com/bedbugs)

**Also, join our Bed Bug chat with the experts on December 3, from 7:00 p.m. to 8:00 p.m. (Central Standard Time) at [www.pt-u.com/library/convos.asp](http://www.pt-u.com/library/convos.asp).**

\* Addition of bed bugs on these labels is currently at the EPA. Check your local regulations concerning this use.



800.777.8570 [www.wmmg.com](http://www.wmmg.com)