

Bed Bugs and Blood-Sucking Conenose¹

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Bed Bugs

Bed bugs (Figures 1 and 2) feed mainly on the blood of humans, but also suck blood from other animals, such as birds, bats, and rodents. Bed bugs usually feed at night when people are asleep. As they feed (Figure 3), they inject a salivary secretion into the wound to prevent coagulation. This fluid often causes the skin to itch and become swollen. Scratching causes sores which may become infected. Bed bugs are not known to transmit any human pathogens.

The adult bed bug is about 1/4 inch long, flat, ovoid in shape, and has no wings. It is generally brown in color except after a blood meal. The body then becomes swollen and the color changes to dark red. Newly hatched bed bugs are straw colored and similar in shape to the adult except they are much smaller.

During the day, bed bugs hide in cracks and outlets in the walls, behind baseboards, wallpaper and pictures, between bed joints and slats, around the tufts of mattresses and in bed linens. They have a sweetish, foul odor which is caused by an oily liquid they emit. Bed bugs are carried into homes by

infested clothes, suitcases, second-hand beds, furniture, and bedding, or by people.



Figure 1. Adult. Credits: Joe Smith, University of Florida



Figure 2. Engorged adult. Credits: Joe Smith, University of Florida

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Figure 3. Feeding adult. Credits: Joe Smith, University of Florida

Life Cycle

Female bed bugs deposit 3 to 8 eggs at a time. A total of 200-500 eggs can be produced by one female. The eggs are 1/25" long and are slightly curved. They are usually deposited in clusters and fastened to cracks and crevices or rough surfaces near adult harborages with a sticky cement-type substance.

The eggs hatch in 4-12 days. The newly hatched nymph is straw colored before feeding, and then turns red or purple in color after getting a blood meal (Figure 4). There are 5 nymphal stages for bed bugs to reach maturity, which usually take 35-48 days. Adult bed bugs can survive for 6-7 months without a blood meal and have been known to live in abandoned houses for 1 year.



Figure 4. Engorged nymph. Credits: Joe Smith, University of Florida

Control

To control bed bugs you must first locate where they are living. Inspect all of the locations described above including the less conspicuous places such as dressers, carpeting, and drapery. Remember, just because they are *bed bugs*, doesn't mean they can't feed and live in other places, such as a couches or recliners. Once the bed bugs are found, there are several different methods that may be used to combat them.

A non-chemical approach would be to vacuum all visible bed bugs from the mattresses and box springs and their other known harborages. Ensure the vacuum bag is removed, sealed, and disposed of off premises immediately after vacuuming. The mattresses and pillows can be steam cleaned, paying particular attention to the seams and tufts of the mattress, to kill any remaining bed bugs. Seal the mattress and box springs in plastic mattress bags to ensure any missed bed bugs do not attempt to reestablish themselves. Another effective exclusion technique is placing glass barriers around the bedposts and keeping the bed frame away from adjacent walls. Bed linens and draperies can be dry cleaned or washed with a detergent and borax additive in hot water.

Insecticides provide instant results for current bed bug infestations and lasting protection against future ones. A number of pesticides are available for use, as referenced by Table 1. They should always be used in accordance with the manufacturers' label.

Insecticides can be classified by the mode of application: Crack and Crevice, Indoor Surface, Indoor Space, and Fumigation. It is important to distinguish the differences between each category in order to provide the most effective treatment.

Crack and Crevice application is for areas that are normally inconspicuous and difficult to reach. Pesticide dusts and some sprays fall into this category. Dust can be applied using either a puff duster or a paint brush. Dusts are lighter and can penetrate further than insecticide sprays; therefore, they should always be used in areas where there are deep cracks and crevices and behind electrical outlets. NEVER SPRAY INSECTICIDES DIRECTLY ON

OR IN ELECTRICAL OUTLETS! Remove outlet cover and apply dust into the wall void. Dusts are also preferred over sprays when treating the tufts, folds, and sleeping surfaces of mattresses.

Indoor Surface application is for areas where the bed bugs are likely to crawl in route to either their harborages or to where they feed. This type of application is often referred to as residual sprays. They are designed to remain active for an extended period of time to maximize the effectiveness of the application. These sprays should be applied to the bed frame and the non-sleeping surfaces of mattresses. Dresser drawers should be removed and turned upside down, ensuring all surfaces are sprayed. Spray woodwork and all walls at least 2 feet above the floor for the entire perimeter of the room.

Indoor Space application is used to kill exposed insects on contact. These insecticides are often in the form of aerosols. When harborages are found, spray the insecticide in the air in the vicinity toward the bed bugs. Aerosols are preferred when treating sensitive materials such as clothing or stuffed animals. Sensitive items can be placed into a plastic garbage bag or a closet (which is also likely to be infested). Spray aerosol into the closet or bag and seal for 10-15 minutes.

Fumigation is the application of lethal gas to an enclosed structure to eliminate pests. This should be considered in severe infestations.

Blood-Sucking Conenose

The blood-sucking conenose (Figure 5), or “kissing bug”, primarily feeds at night on the blood of sleeping people or animals, such as raccoons and opossums that burrow in the vicinity. Most bites from conenose bugs are rarely felt, however, some can be quite painful. Infection can occur if the bite wounds are scratched. It is a potential vector of *Trypanosoma Cruzi*, which causes Chagas disease in Latin American countries.

The blood-sucking conenose is a brown, winged bug, 3/4 inch long with the edges of its abdomen alternating in light and dark colors. They have a slender straight beak with piercing-sucking



Figure 5. Blood-sucking conenose. Credits: James Castner, University of Florida

mouthparts. The antennae are inserted on the side of the head between the eyes and the end of the beak.

The blood-sucking conenose enters into a home by either crawling through cracks in the foundation, torn window screens, or other structural inadequacies; many times they enter by simply clinging to a domestic pet or to the clothing of an unaware person. Once indoors, they are found in bedding, cracks in the floors and walls or under furniture.

Life Cycle

The life cycle of the conenose varies considerably depending on temperature, humidity, and availability of hosts. Females lay one egg at a time, up to 5 eggs each day. A total of 200-300 eggs can be produced each year by one female. The females place the eggs in basements, attics, under baseboards, and other inconspicuous places.

The eggs are 1.5 mm long, white and hatch in approximately 13-35 days. There are 8 nymphal instars before the conenose reaches maturity. The adults can live from 6 months to 3 years.

Control

To control the blood-sucking conenose bug you must first locate where they are living and trace where they are entering into the home or structure. Inspect all point of entry locations for cracks or tears and check attics and crawlspaces for harborages.

Once they are found there are several different methods in combating them.

A non-chemical approach is by exclusion. Repair any damaged entry points to the home such as screens and foundation cracks. Reinforce caulking around windows and other cracks and crevices. Eliminate animal harborages and increase the distance of farm and domestic animal cages from the home.

While these bugs can be difficult to manage, a thorough crack and crevice application of an approved pesticide can control them. Unfortunately, because they are rare pests, most labels will not list them as a target pest. You may still use most of the common crack and crevice or indoor surface insecticides as long as the manufacturer's label does not forbid its use against pests not listed, the site of application is listed on the manufacturer's label, and the insecticide is not applied in a method prohibited by the manufacturers label.

Crack and Crevice application is for areas that are normally inconspicuous and difficult to reach. Pesticide dusts and some sprays fall into this category. Dust can be applied using either a puff duster or a paint brush. Dusts are lighter and can penetrate further than pesticide sprays; therefore, they should always be used in areas where there are deep cracks and crevices and behind electrical outlets. **NEVER SPRAY INSECTICIDE DIRECTLY ON OR IN ELECTRICAL OUTLETS!** Remove outlet cover and apply dust into the wall void.

Indoor Surface application is for areas where the conenose bugs are likely to crawl in route to either their harborages or to where they feed. This type of application is often referred to as residual sprays. They are designed to remain active for an extended period of time to maximize the effectiveness of the application. Spray woodwork and all walls at least 2 feet above the floor for the entire perimeter of the room.

Table 1. Insecticides labeled for Homeowner Use.

Formulation	Common Name	Trade Name	Signal Word
Crack and Crevice			
Dust	Corn Gluten Meal/Limestone	NIC Natural Insect Control	Non-Toxic
Ready-to-Use	Cyfluthrin	Advanced Home, Home Pest Control Indoor & Outdoor Insect Killer (Bayer)	Caution
Ready-to-Use	Deltamethrin	Household Insect Control (Bonide)	Caution
Ready-to-Use	Tetramethrin, Permethrin, PBO	Flying & Crawling Insect Killer (Bonide)	Caution
Indoor Surface Spray			
Ready-to-Use	Cyfluthrin	Advanced Home, Home Pest Control Indoor & Outdoor Insect Killer (Bayer)	Caution

Table 2. Insecticides labeled for Commercial Use.

Formulation	Common Name	Trade Name	Signal Word
Crack and Crevice			
Aerosol	Pyrethrins (0.5), PBO (4.0%)	P.I. Contact Insecticide (Whitmire Micro-gen)	Caution
Aerosol	S-Hydroprene	Gentrol Aerosol (Zoecon)	Caution
Dust	Deltamethrin	DeltaDust (Bayer)	Caution
Dust	Pyrethrins	Tri-Die Silica & Pyrethrum Dust (Whitmire Micro-gen)	Caution
Dust	Pyrethrins and Others	Tri-Die Pressurized Silica & Pyrethrin Dust (Whitmire Micro-gen)	Warning
Dust	Pyrethrins, PBO, Silica Gel	Drione (Bayer)	Caution
Emulsifiable Concentrate	Cyfluthrin	Cy-Kick CS (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Cyfluthrin	Tempo SC Ultra (Bayer)	Caution
Emulsifiable Concentrate	Deltamethrin	Suspend SC Insecticide (Bayer)	Caution
Emulsifiable Concentrate	Hydroprene, Pyrethrins & others	ULD BP-100 Plus (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Lambda-cyhalothrin and others	Demand CS (Syngenta)	Caution

Table 2. Insecticides labeled for Commercial Use.

Formulation	Common Name	Trade Name	Signal Word
Emulsifiable Concentrate	Permethrin	Dragnet SFR Termiticide/Insecticide (FMC)	Caution
Emulsifiable Concentrate	Permethrin	Tengard Perimeter (United Phosphorous, Inc.)	Caution
Emulsifiable Concentrate	Pyrethrins	Kicker (Bayer)	Caution
Emulsifiable Concentrate	Pyrethrins	ULD BP-300 (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins and Others	ULD HydroPy-300 (Whitmire Micro-Gen)	Caution
Emulsifiable Concentrate	Pyrethrins (0.5), PBO (5.0%)	ULD BP-50 (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins, PBO, and others	ULD HydroPy-300 CF (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins (0.5), PCO (5.0%)	Pyrenone 50 (Bayer)	Caution
Emulsifiable Concentrate	S-Hydroprene	Gentrol IGR Concentrate (Zoecon)	Caution
Fumigation			
Fumigant	Sulfuryl fluoride	Vikane (Dow AgroSciences)	Danger
Indoor Space Spray			
Aerosol	Pyrethrins (0.5), PBO (4.0%)	P.I. Contact Insecticide (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Cyfluthrin	Tempo SC Ultra (Bayer)	Caution
Emulsifiable Concentrate	Pyrethrins	Kicker (Bayer)	Caution
Emulsifiable Concentrate	Pyrethrins and Others	ULD BP-300 (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins and Others	ULD HydroPy-300 (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins (0.5), PBO (5.0%)	ULD BP-50 (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins (0.5), PCO (5.0%)	Pyrenone 50 (Bayer)	Caution
Emulsifiable Concentrate	Pyrethrins, PBO	Vampyre Misting Concentrate (McGlaughlin Gormley King)	Caution
Emulsifiable Concentrate	S-Hydroprene	Gentrol IGR Concentrate (Zoecon)	Caution
Indoor Surface Spray			
Aerosol	S-Hydroprene	Gentrol Aerosol (Zoecon)	Caution
Emulsifiable Concentrate	Cyfluthrin	Tempo SC Ultra (Bayer)	Caution

Table 2. Insecticides labeled for Commercial Use.

Formulation	Common Name	Trade Name	Signal Word
Emulsifiable Concentrate	Deltamethrin	Suspend SC Insecticide (Bayer)	Caution
Emulsifiable Concentrate	Lambda-cyhalothrin and others	Demand CS (Syngenta)	Caution
Emulsifiable Concentrate	Pyrethrins	Kicker (Bayer)	Caution
Emulsifiable Concentrate	Pyrethrins and Others	ULD BP-300 (Whitmire Micro-gen)	Caution
Emulsifiable Concentrate	Pyrethrins (0.5), PCO (5.0%)	Pyrenone 50 (Bayer)	Caution
Emulsifiable Concentrate	Pyrethrins, PBO	Vampyre Misting Concentrate (McGlaughlin Gormley King)	Caution
Ready-to-Use	Cyfluthrin	Advanced Home, Home Pest Control Indoor & Outdoor Insect Killer (Bayer)	Caution