

Encountering Bed Bugs While Traveling



Hosted by
Jim Gauthier

Marcia Anderson
Center for Integrated Pest Management

epa.gov/ipm | IPM@epa.gov

www.webbertraining.com



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How Do Bed Bugs Travel?

They can catch rides on:

- clothes
- backpacks
- luggage
- bags
- furniture
- bedding
- family
- friends
- co-workers

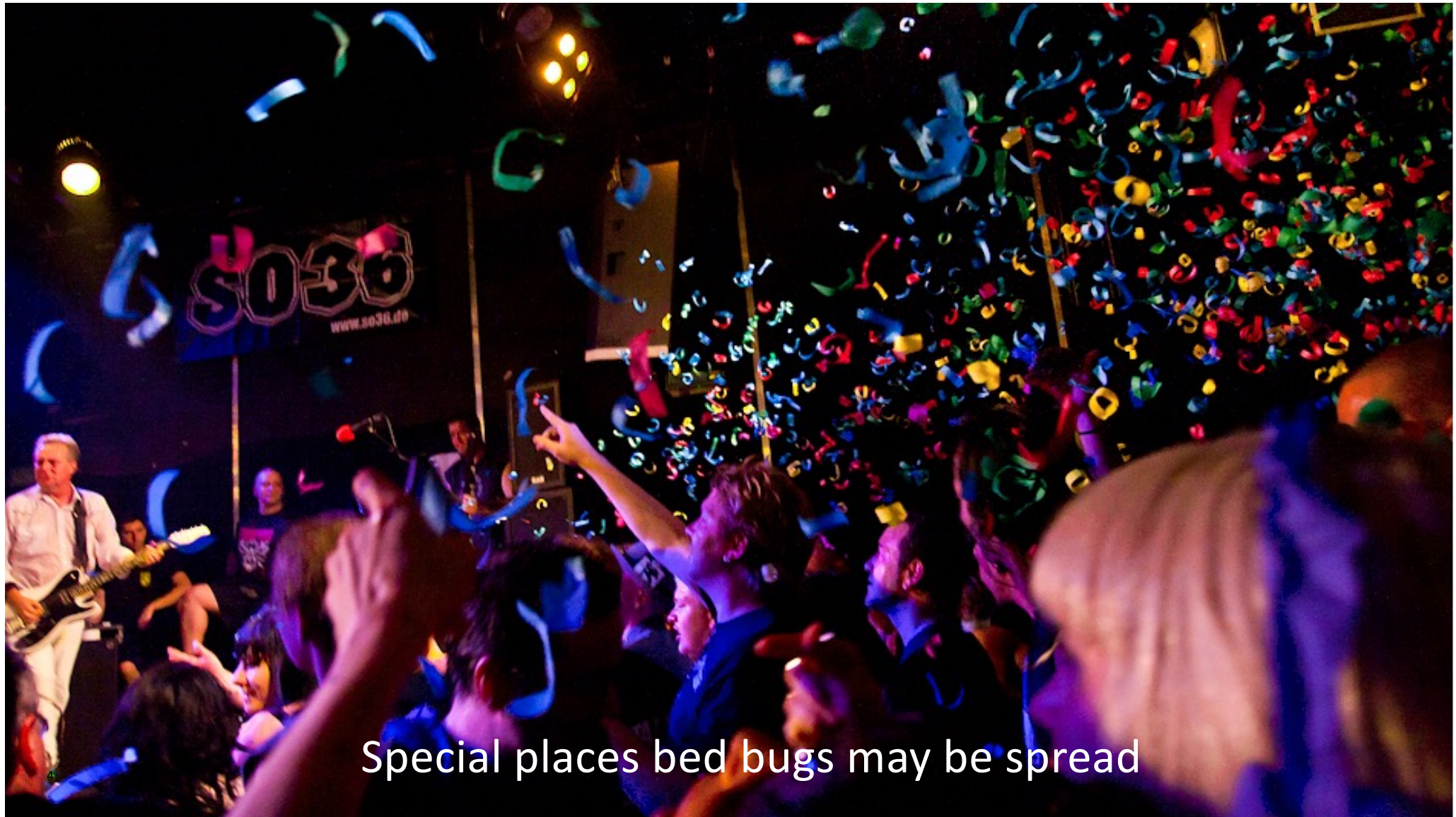




Why a Bed Bug Resurgence?

- More travel / transportation (bus, train, taxi, plane)
- Lack of knowledge about prevention especially when visiting public places (theaters, waiting rooms)
- Hard to detect in small numbers
- Increased insecticide resistance
- Ineffective pest control practices





Special places bed bugs may be spread

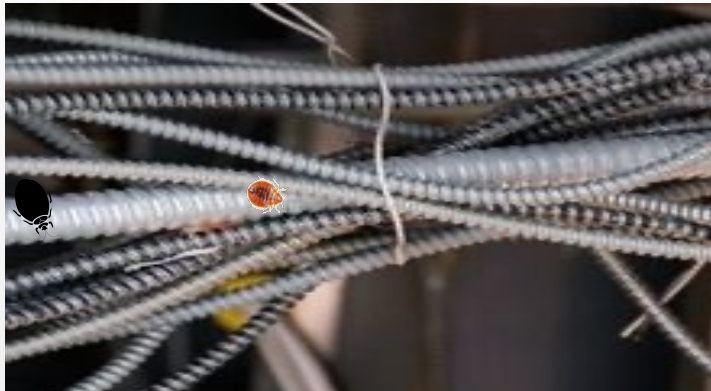
See something, Say something

Who to notify if you see bedbugs when traveling on mass transit or other public places:

- Airports
- Busses and stations
- Trains and stations
- Theaters
- Casinos



How Else Do Bed Bugs Travel?



- Walk from an infested area to new territory
- Move behind walls
- Move from one apartment to another via holes around pipes, telephone, cable or electrical wires
- Walk down a hallway after dropping off an infested item

Other Common Transport and Harborage Mechanisms



Identification

- Oval bodied, < ¼ inch
- Adults: brown to red in color
- Wingless – they do not jump
- Six legs
- Nymphs are nearly colorless
 - size of a poppy seed
- Eggs are white, 1-2mm
- Eggs glued to rough surfaces

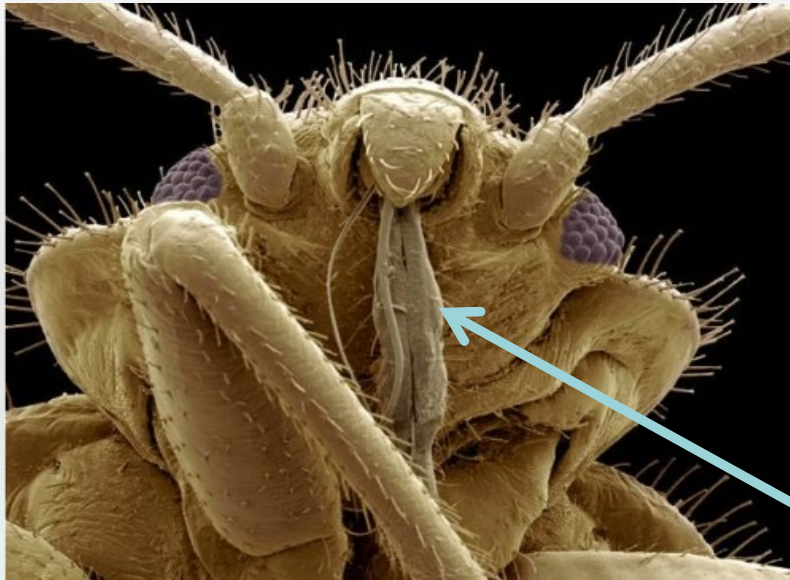




Characteristics

- Aggregate
- Usually active at night
- Activated by exhaled CO₂
- Attracted to body temperature and chemicals
- Attracted to each other
- May travel 15-20 ft to feed
- Adults can survive at least 3-4 months or even longer without feeding – based on temperature and climate
- Females larger than males with more rounded abdomen

How Do Bed Bugs Feed?



- Piercing-sucking mouthparts penetrate the skin and inject an anesthetic
- Generally, feed quickly while we sleep

Bed bugs ARE visible to the naked eye

- Although tiny, adults are easy to see
- Adults are a little smaller than an apple seed
- 1st instar nymph the size of a period at end of sentence.





Look carefully for the bed bugs on this backpack





Did you get bitten? What to expect:

- Varying sensitivity to bites, Everyone is different.
- Reaction types:
 - None (seen often in the elderly)
 - Delayed
 - Immediate
 - Both immediate + delayed
 - True hypersensitivity (may increase with bites)
- Mental health impacts
 - Anxiety, insomnia, extreme fear

Do bed bugs transmit diseases? NO.

No cases of bed bugs passing diseases from one host to another.

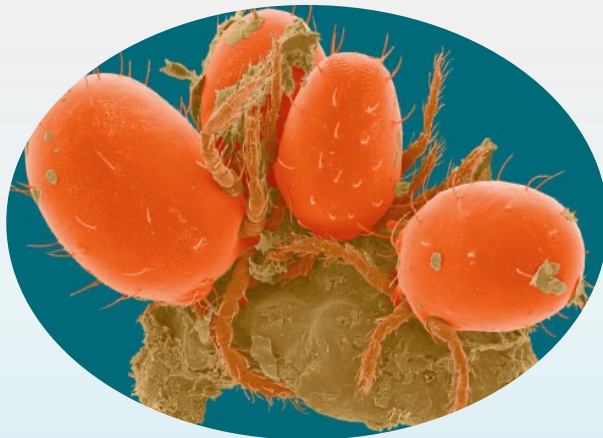


Other Pests Confused with Bed Bugs



Other Pests Confused with Bed Bugs (cont.)

- Bird mites
- Rodent mites
- Chiggers
- Fleas



chiggers above;
fleas right

Bed Bug Travel Misconceptions

Bed bugs are only active at night

- Keeping the light on at night won't deter them from feeding
- Prefer darkness but feeding activity can vary

Bed Bugs are found only in beds

- Beds are preferred but may occur anywhere else near bed too

Bed bugs only infest budget hotels

- Even clean hotels may have BBs. Guests spread them. Not a sanitation issue as for roaches



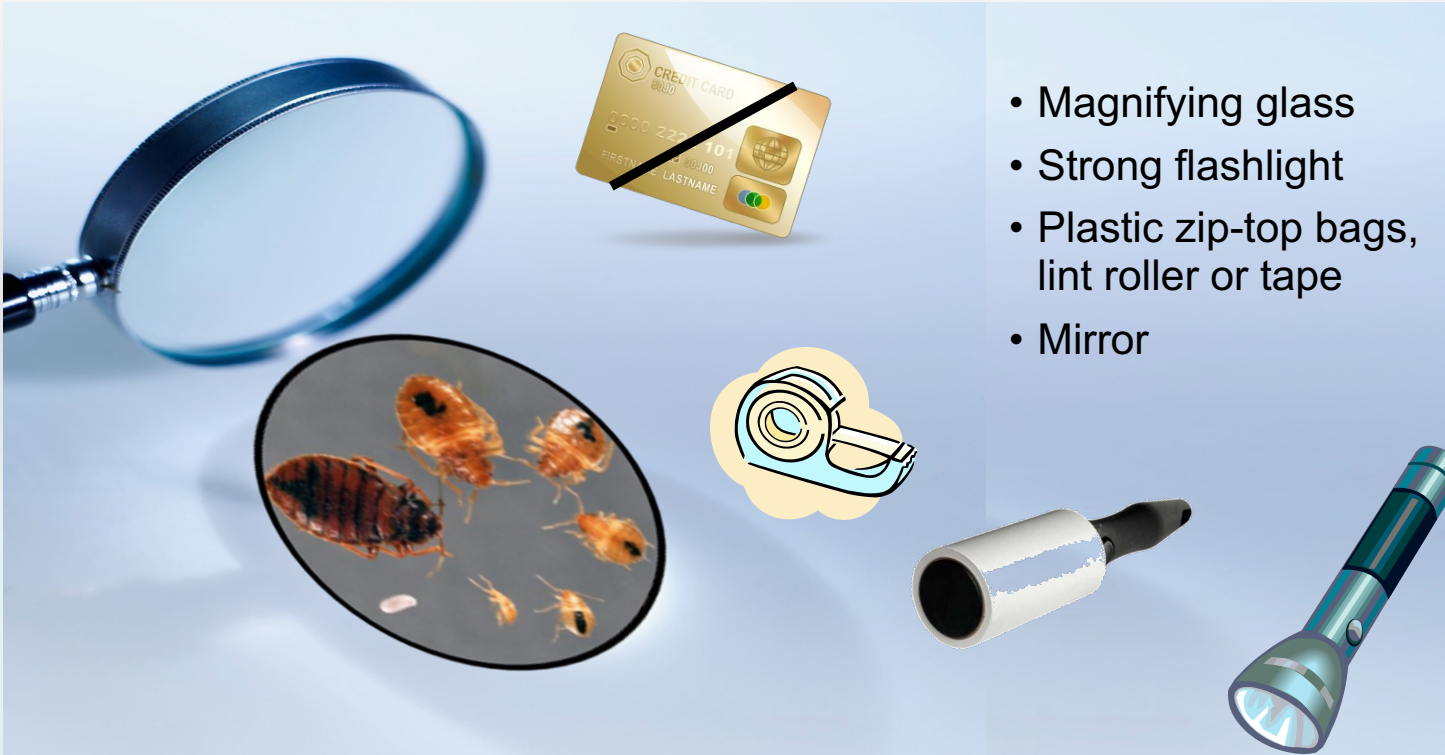
Myth

You only get bed bugs if you are dirty or from unsanitary buildings

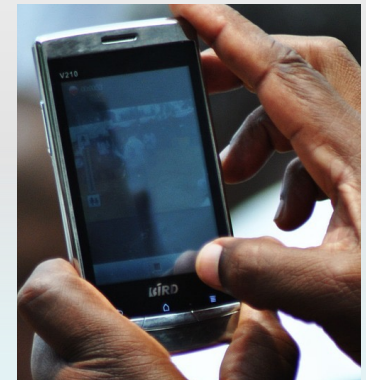


- Not a sign of sanitary issues
- Thrive where humans sit still for 1+ hours
- Exposure pest

Travel Supplies to Aid in Bed Bug Inspections



- Magnifying glass
- Strong flashlight
- Plastic zip-top bags, lint roller or tape
- Mirror



Personal Safety

- When traveling, protect your belongings
- Pack clothes and coats into large zip-top bags to protect them from the potential of picking up bed bugs



Hotel Room Bed Bug Protocols


- Upon entry, put your suitcase and other bags in the bathroom or on top of desk.
- Never put the luggage on the floor or on the bed.
- Hang jackets or other outer clothing in the closet.
- Then inspect.



More Bed Bug Travel Protocols

- Pull back sheets & inspect mattress seams, especially the corners, for bugs and spots.
- Check behind headboard and in chair or couch cushions.
- If you find or suspect bed bugs, try to take a picture or collect a specimen.
- Tell the hotel staff if you think there might be an infestation, show them evidence, and request a room change.
- And NOT next door.

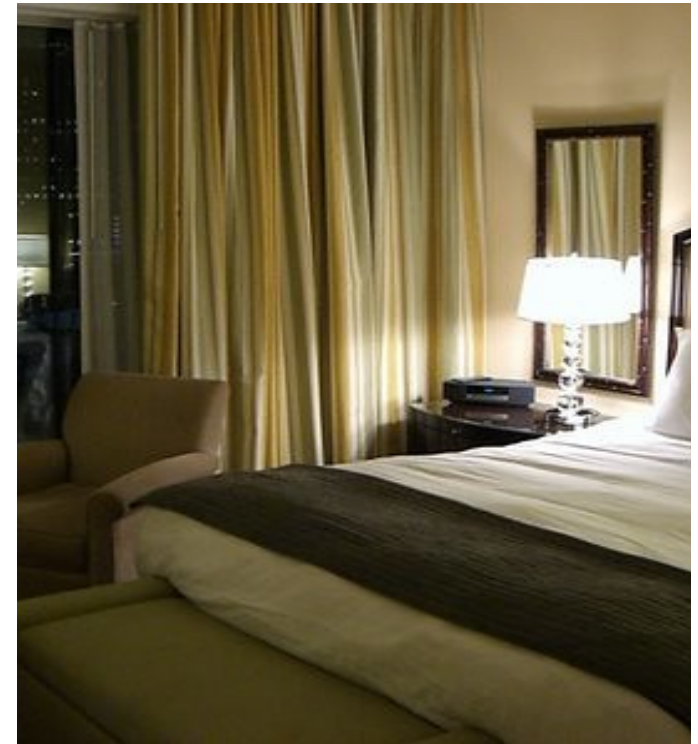
United States Environmental Protection Agency **for Travelers**



Bed Bug Identification

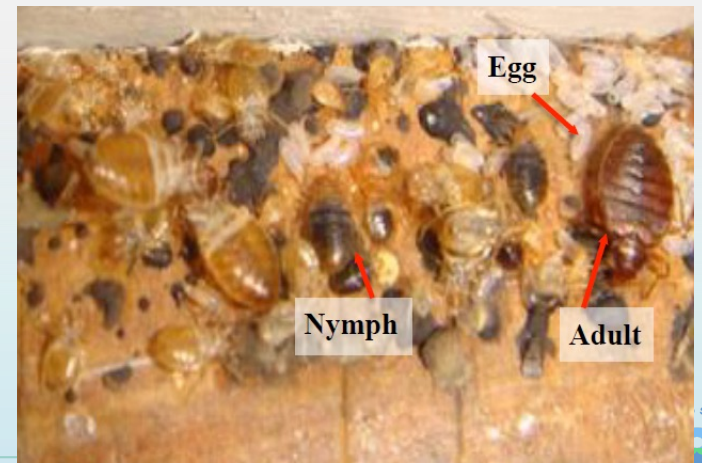
- ◆ Eggs are tiny, white, and glued to surfaces.
- ◆ Nymphs are light colored, from 1/16".
- ◆ Adults are rusty red, apple seed sized, 3/8".
- ◆ Six legs, oval, flattened from top to bottom.
- ◆ Do not jump or fly, but are good runners.
- ◆ They tend to congregate together.

For more information on bed bugs and Integrated Pest Management (IPM) go to:
<http://www.epa.gov/bedbugs>



Signs of Bed Bugs

- Dark and rusty colored droppings
- Shed skins
- Blood stains from crushed bugs
- Eggs and casings
- Voided material (tell-tale blood spots)
- Live bed bugs
- Offensive, sweet, musty odor in heavy infestation



Pic credit VA Coop Ext

Where are Most Bed Bugs Found? More Detail

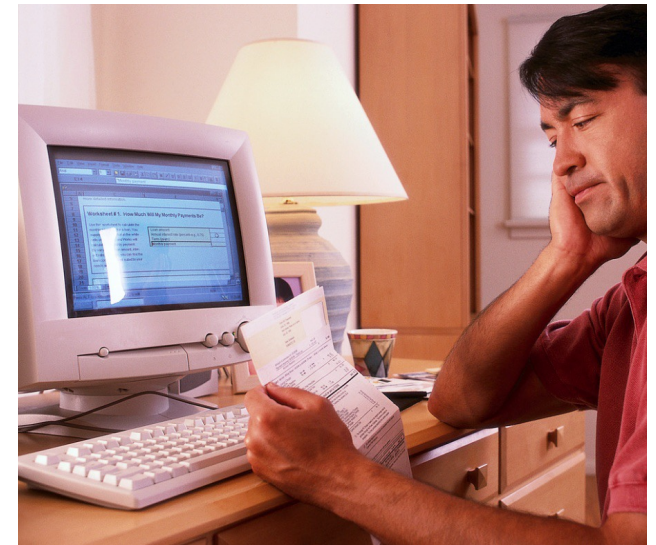
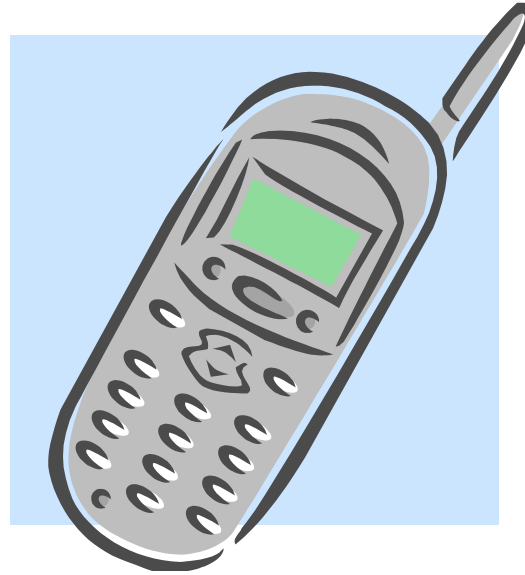
- Mattresses and Box Springs
 - Look along seams and each side of piping
 - Under handles and inside air holes, buttons, and labels
 - Between mattress and box spring platform
- Bed Frames
 - Check crevices on frames, and where the mattress touches the frame
- Plush Furniture and Pillows
 - Look at and under legs of chairs and couches
 - Pay special attention to pillows and cushions, especially along seams.



Photos: C. Wang; Rutgers University

Where Else Can Bed Bugs Hide?

- Carpet edges
- Television and other remote controls
- Telephones - cell and cordless
- Lamps
- Alarm clock
- Computers and other electronics



Review: Think You Found Bed Bugs?

Do not panic

Make sure you have bed bugs

Capture one in a clear zip-top bag, on sticky tape or in a jar and have it identified

Contact your host with evidence and ask assistance

Part 2: Encountering Bed Bugs While Visiting Friends or Relatives

- Traveling a distance such as to another country or state
- Staying with friends, relatives
- Booked a house, cottage, condo, Air B&B
- Height of travel season
- Unable to find an alternate place
- Need to address the problem and help with a solution





Visiting and Helping Those with Bed Bug Reservoirs

- Sometimes elderly people with physical challenges may not realize they have bed bugs.
- Without control, a few bed bugs may grow into an infestation, especially in a cluttered residence
- What to do?

Preventing Future Introductions

Clutter removal is an essential part of bed bug and overall pest elimination

- Use plastic storage containers
- Store coats, backpacks and purses at the end of the day after visiting potentially infested locations
- Inspect the bottom of empty containers for bed bug hitchhikers



Photo: K. McPherson, U.S. EPA

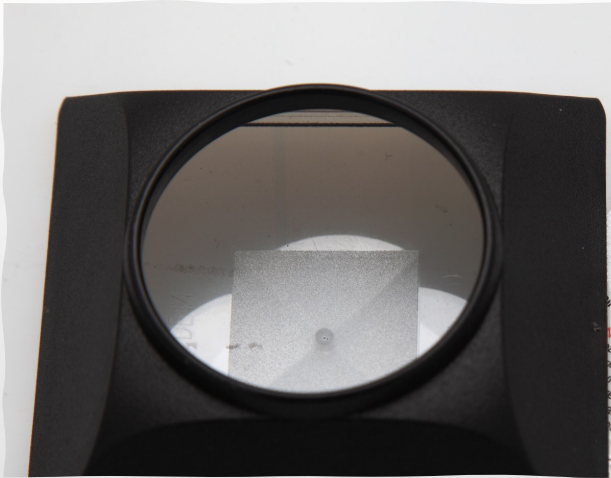


Make the Bed an Island



- Pull the bed away from walls and other furniture
- Keep bedding from touching the floor
- Put an interceptor under each bed leg





The Importance of Monitoring

Make Your Own Bed Bug Monitor (interceptor)



You need:

- 2 clean plastic containers (one small; one large) with sturdy steep sides, over 1 inch high
- Masking or painter's tape (rough texture)
- Talcum powder

- The small container needs to be large enough to hold a bed or couch leg
- Place tape around the outside of the larger container
- Glue or tape the two containers together, one in the other
- Add talcum powder
- Place under each leg of each bed, couch, and chair
- Clean every 1-2 weeks
- Dispose of captured bugs in a sealed bag

Prevention and Control: Vacuuming

- An effective control method
- Vacuum daily
- Vacuum curtains, walls, closets, and upholstered furniture
- Vacuum thoroughly - Use a crack and crevice tool to reach behind headboards, under beds, and on furniture surface or seams
- Immediately seal and dispose of the bag if bed bugs are suspected
- Empty bag-less vacuums into garbage outdoors



Prevention and Control: Washing & Drying

- Easiest bed bug control method
- Bagging keeps the infested items separate
- Wash and dry cloth bags
- Put freshly dried items in cloth bags
- Dryer heat is extremely effective at killing bed bugs and eggs
- Dry clothing, linens and other items that cannot be washed on high heat for 30 minutes



Home Sweet Home: Controlling Bed Bugs at Home



After-Trip Bed Bug Prevention Summary

- Transport suitcase in large plastic bag or luggage encasement.
- Unpack suitcase in bathroom.
- Shake clothing over bathtub.
- Load all clothing into washer to hot temp followed by dryer high heat.
- Dryer use is most important!
- Vacuum luggage thoroughly & dispose of vac bag. Inspect suitcase seams & pockets w/flashlight.
- Items unable to wash/dry can be sealed in plastic bag & hand inspected later.



Photos: credit Cornell Univ

Home Bed Bug Awareness After-Travel Summary

- Be observant for BB evidence within weeks of 1-2 months after travel.
- Note any welts on skin or blood stains or spots on bedding.
- If evidence found, DO NOT PANIC!
- Begin treatment protocols immediately and/or call a Pest Management Professional.

Controlling Bed Bugs at Home



Strategies best left for professionals

Prevention and Control: Encasements and Mattress Liners

- Use encasements or mattress liners on mattresses and box springs
 - Escape-proof encasements trap bed bugs and eggs inside where they eventually die
- Mattress liners
 - treated with a pesticide and kill bed bugs and dust mites crawling on it
 - remain effective even if torn
- Encasements
 - make inspection easier
 - must be kept on for at least one year
 - limit exposure to dust mites



DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

INDOOR USE: COCKROACHES, ANTS, EARWIGS, SILVERFISH, CRICKETS, MILLIPEDES, AND CENTIPEDES. Lightly coat a thin layer of dust in the areas where these pests are found or may hide such as cracks and crevices, behind and beneath stoves, refrigerators, sinks, cabinets, garbage cans, around pipes and drains, window frames, and in attics and basements. Hit insects directly where possible. Repeat as necessary.

BEDBUGS: Take bed apart. Dust into joints and channels. If hollow, such as square or round tubing, see that the interior of the framework is well dusted. Mattresses should be dusted, especially tufts, folds and edges. Picture frame molding and all cracks and crevices in the room should be treated.

INDICACIONES PARA EL USO

El uso de este producto de modo que no concuerde con la etiqueta constituye una violación a la ley.

USO EN INTERIORES: CUCARACHAS, AVISPAZ, MILPIES Y CIEMPIES. Áreas donde se encuentren estos insectos o donde se esconden, como grietas, hendiduras, frentes de estufa, gabinetes, basureros, fregaderos, gabinetes, basureros de ventanas y en áticos y sótanos. Golpee directamente a los insectos. Repita según sea necesario.

CHINCHES: Aleje la cama. Españe los huecos, como tubos cuadrados y redondos, para que la estructura esté bien espolvoreada. Españe los colchones, los pliegues y los bordes. Las molduras de marcos de cuadros y todas las grietas y resacas de la habitación deben ser tratadas.

USO EN EXTERIORES: TIJERETAS Y CIEMPIES. Cubra con una capa fina de polvo los insectos nocivos o donde puedan estar, como en las puertas y soleras, y fuera de las vías.

ALMACENAR EN UN LUGAR SECO Y OSCURO.

Pesticide Safety



- Use only EPA registered products (look for EPA Reg. No.) with bed bugs on the label
- Always read, understand, and follow pesticide label “Directions for Use”
- Never use products indoors that are intended for outdoor use
- Using more does not mean better results

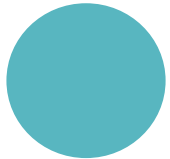
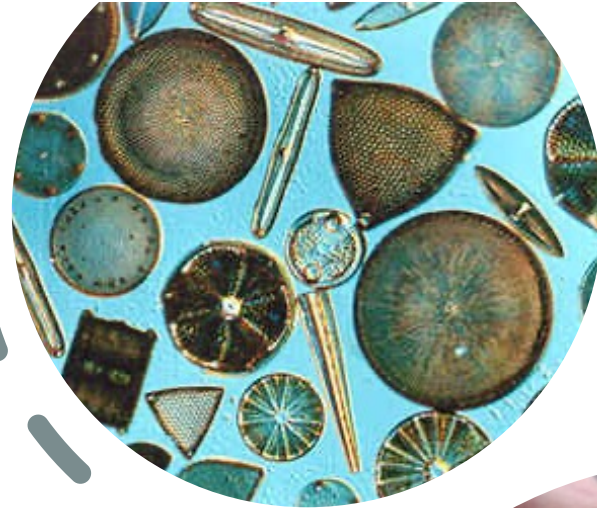
Insecticidal Desiccant Dusts

- Recommended for use only by professionals
- Must be applied with special duster
- Work better than liquids because they cover the entire bed bug
- Longer residual than liquids
- Useless if wet or misapplied in large amounts
- Cannot be applied where air currents might move dust around
- Last unchanged in wall voids for years in low humidity
- Types:
 - Diatomaceous earth (insecticide grade)
 - Silica dust



Diatomaceous Earth

- A natural, white, powder-like substance that kills insects
- Bed bugs crawl through it and die in 9-15 days
- Only use EPA-registered diatomaceous earth labeled for insects, and follow label instructions carefully; DO NOT use “pool grade”
- Apply to cracks and crevices in walls and behind wall plates, using a special duster
- Will kill chemical-resistant bed bugs, but can’t be applied as widely as other products



Silica Gels

- Pulls moisture from the bed bug's shell (cuticle)
- High mortality in 2-3 days
- Low toxicity to mammals
- Good supplement for killing pesticide-resistant bed bugs
- Recommended for application to voids, cavities, behind electrical plates, under carpet or skirting boards, and other non-obvious locations
- May also be applied sparingly round the perimeter of bedrooms and lounge rooms, on bed frames and sofas, or as a fabric-treated "dust band" on furniture legs – according to label



Steam Cleaning

- Steam kills bed bugs and eggs
- A short period of heat exposure kills all stages of bed bugs
- Time consuming and the rate varies with temperature
- Surface temperature must reach 160–180°F
- The steamer should not blow air forcefully or it may cause bed bugs to scatter (use a diffuser)
- All steam has a high temperature regardless of the size of the steamer
- Do not apply steam to electrical outlets



Ambient Heat Treatment

(by pest management professionals)

- Provides complete control when used properly
- Useful in areas where bed bugs can be easily reintroduced
- Popular where unit preparation cannot be done
- Non-toxic but expensive
- Insecticides are still needed around unheated perimeters
- Remove electronics, plants, medicine, perishables, art, pets
- May need permission of local fire department – disable sprinklers
- Service best provided by a pest management professional



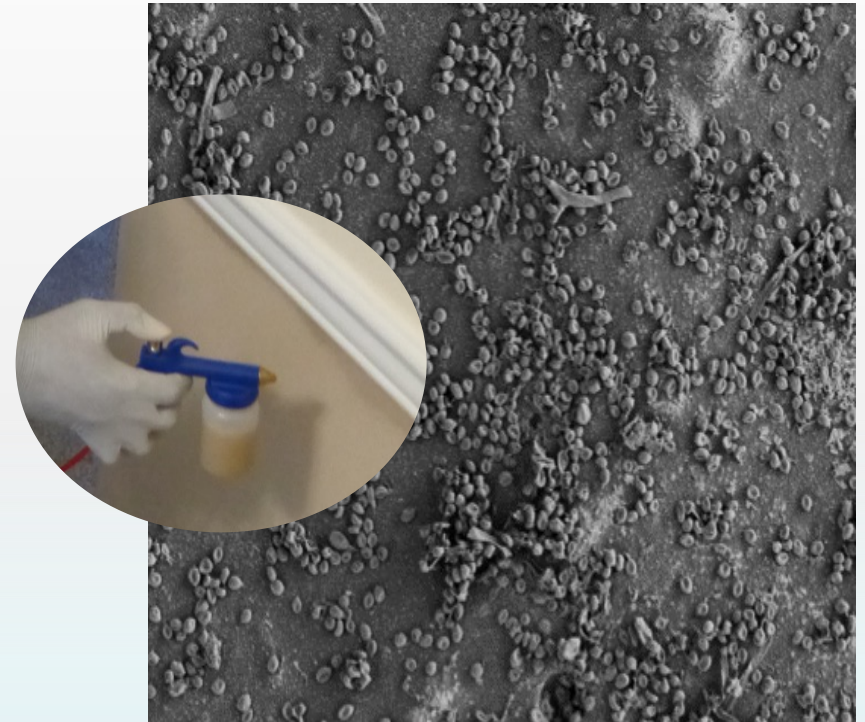


Carbon Dioxide Freezing

- Kills bed bugs and eggs
 - Kill temperature -22° F
- Non-toxic, non-staining, no odor
- Can be applied to most surfaces, including toys and books
- Can be used in all areas of a room, including beds, box springs, furniture, and electrical outlets
- Reaches into bed bug harborages
- Only available from a trained pest management professional
 - Exercise caution if using in enclosed spaces and keep children out of room during treatment
- Allows room to be occupied the same day of treatment

Emerging Microbial Pesticide: *Beauveria bassiana*

- Microbial pesticide (biopesticide)
 - causes disease in insects but is harmless to humans and pets
- Application
 - Professional application required
 - Specialized equipment and training needed
 - Applied at very low volume
 - Crack and crevice treatment – bed frames, box springs
 - Used as part of an IPM program
- How it works
 - Bed bugs cross treated surface
 - Spores germinate and penetrate cuticle
 - Spread by infected bed bug to colony
 - Death in 4-7 days
- Efficacy
 - Residual properties
 - Lethal to pesticide-resistant bed bug strains



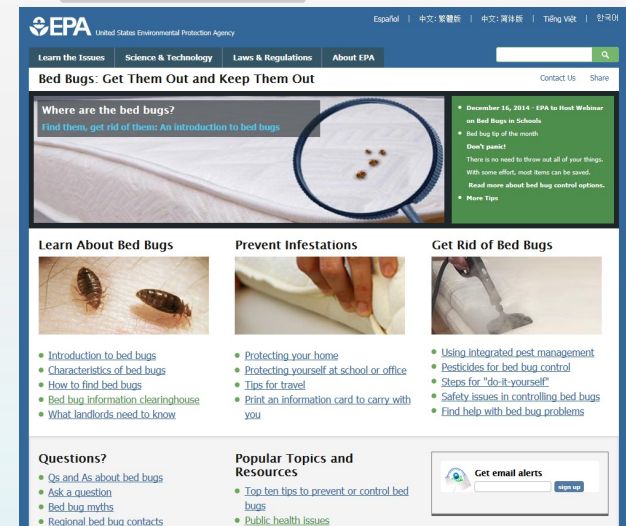
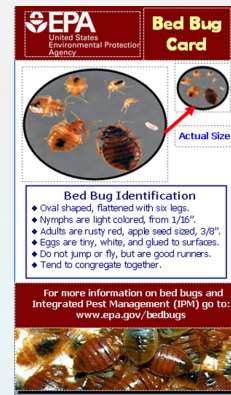
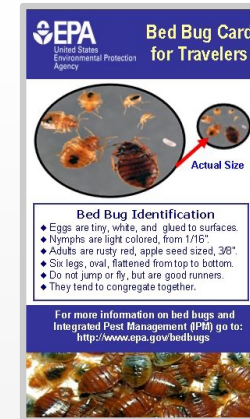
Sealing Harborage

- Use silicon caulk to seal cracks and crevices
- Create a perimeter barrier
- Pay attention to walls that are shared with other homes
- Be sure that plates covering wall openings are in place and sealed
- Seal the top and bottom of baseboards
- If there is too much to seal it may not be cost effective



EPA's Bed Bug Information Clearinghouse

- Recorded bed bug webinars
- Top publications from university partners
- Bed Bug Protection, Detection and Control Flier
- Bed Bug tips
- Bed Bug Traveler Precaution Card – Wallet sized
- Bed Bug ID Card – Wallet-sized
- DIY – bed bug monitor card – wallet size
- Bed Bug Tips as Door Hanger
- Bed Bugs in Laundromats poster



Bed Bug Resources Specific to Travelers

- **Bed Bug prevention While Traveling (NPMA)**
 - <https://www.pestworld.org/all-things-bed-bugs/bed-bug-prevention/tips-for-travelers/>
- **Tips for Travelers (Bed Bug Task Force)**
 - https://www.cuyahogabedbugs.org/wp-content/uploads/2016/02/tips_for_travelers-1.pdf
- **Cornell Bed Bug Tips for Travelers**
 - <https://ecommons.cornell.edu/bitstreams/4c17d644-43aa-4f46-98ed-61ea94b719c9/download>
- **Prevent Bed Bugs While Traveling (Central Ohio Bed Bug Task Force)**
 - <https://centralohiobedbugs.org/how-to-prevent-bed-bugs-when-traveling/>
- **Bed Bug Prevention for Travelers (Arkansas Dept. Health)**
 - <https://healthy.arkansas.gov/images/uploads/pdf/BedBugTravelers.pdf>
- **Avoid Bed Bugs on Travel (New York City Dept. Health)**
 - <https://www.nyc.gov/assets/doh/downloads/pdf/bedbugs/bed-bugs-travel.pdf>
- **Keep Bed Bugs from Moving In After Travel (Mich. State Univ.)**
 - https://www.canr.msu.edu/news/keep_bed_bugs_from_moving_in_after_travel



Bed Bug Prevention Methods

Dini M. Miller, Ph.D., Department of Entomology, Virginia Tech

Introduction

Prior to the 1950s, most people had a certain level of bed bug awareness. Whenever t of their minds, they were conscious that they might encounter bed bugs. People modified bringing bed bugs back home with them. For example, if a woman went to the theater, s



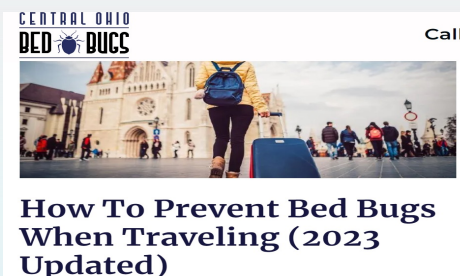
BED BUG TIPS FOR TRAVELERS

Contact with bed bugs can occur anywhere, especially when traveling. Many hotels and motels have developed bed bug surveillance programs to inspect rooms for evidence of bed bugs. However, even the most diligent surveillance may miss an infestation. Precautions can be taken to avoid sleeping in a bed bug infested room and to prevent transporting bed bugs from hotels, motels or other lodging to home.



Preparing For Travel

- If possible, use hard shelled luggage for traveling, which is less bed bug friendly than fabric luggage.
- Place shoes, electronics, books, jewelry, and toiletries, in sealable plastic bags (Ziploc® bags work well for this purpose). Keep these items sealed when not in use, especially during the nighttime hours.



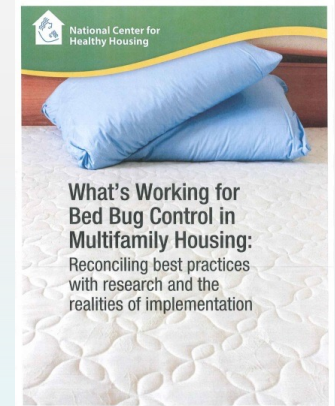
CENTRAL OHIO BED BUGS Call

How To Prevent Bed Bugs When Traveling (2023 Updated)



Bed Bugs: Additional Resources

- **EPA's Bed Bug Information Clearinghouse**
 - <https://www.epa.gov/bedbugs/bed-bug-information-clearinghouse>
- **National Pesticide Information Center**
 - <http://www.npic.orst.edu/pest/bedbug>
- **Stop Pests in Housing**
 - <http://www.stoppests.org/pest-solutions/bed-bugs>
- **Virginia Tech, Bed Bug & Urban Pest Information Center**
 - <https://www.vdacs.virginia.gov/pdf/bb-prevention1.pdf>
- **Rutgers, New Jersey Agricultural Experiment Station**
 - <https://njaes.rutgers.edu/bedbug>
- **University of Minnesota, Let's Beat the Bed Bug!**
 - <https://extension.umn.edu/biting-insects/bed-bugs>
- **Central Ohio Bed Bugs: Frequently Asked Questions**
 - <https://centralohiobedbugs.org/category/faqs/>



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- February 1, 2024 *(FREE Teleclass)*
DEVELOPING A BETTER UNDERSTANDING OF HYGIENE IS KEY TO DEVELOPING EFFECTIVE HYGIENE BEHAVIOUR IN HOMES AND EVERYDAY LIVES
Speaker: **Dr. Sally Bloomfield**, International Scientific Forum on Home Hygiene
- February 8, 2024
TARGETED HYGIENE: A RISK-BASED APPROACH TO APPLYING POLICIES AND HYGIENE INTERVENTIONS IN PUBLIC SETTINGS AND LARGE EVENTS
Speaker: **Dr. Lisa Ackerley**, International Scientific Forum on Home Hygiene
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HUMAN AMR SURVEILLANCE – WHERE ARE WE NOW AND WHERE SHOULD WE BE HEADING?
Speaker: **Dr. Paul Turner**, Cambodia Oxford Medical Research Unit, Angkor Hospital for Children, Cambodia
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