

“Bed Bugs: The New Vampires”

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Bed Bugs

- Class Insecta, Order Heteroptera
- Family Cimicidae – blood feeding insects
- Probably evolved as cave-dwelling ectoparasites of bats and then humans



Bed Bug History

- Bed bugs have been associated with humans since the beginning of civilization.
- Aristophanes and Aristotle both noted bed bugs.
- Bed bugs migrated (with humans) & by Medieval times were widespread throughout Britain. The first to have bed bugs were the upper class (*Better Hovels & Castles, Spring; 1328*)
- Thanks to changes in living conditions and the proper use of modern pesticides such as DDT by the 1960's bed bugs were a very limited pest.

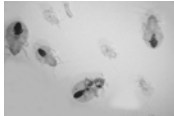




What Do Bed Bugs Look Like?



- Size – adults 5 mm long or 1/4 to 3/8”
- Shape – oval, flattened until fed
- Color – light beige - reddish brown - red
- Nymphs / instars 1.5 – 3 mm. 5 stages, sesame seed shape and color, until they feed.



Bed Bug Behavior

- Nocturnal and secretive behavior
- They tend to congregate (exceptions)
- Feed only on blood of warm-blooded animals (humans, pets, *birds*, bats)



- Eggs are laid on rough surfaces and coated with cement in batches of 10 – 30
- But sometimes eggs are laid in isolated locations
- Wood and fabric are favorite surfaces
- Young emerge in 6-17 days



Feeding

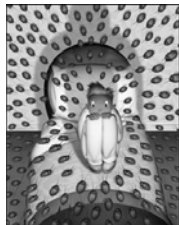


Feed





Why Is There a Resurgence of Bed Bugs Worldwide?



- Globalization, travel, human migration
- War and collapse of governments
- Crumbling infrastructure of many cities
- More people living in cities, more multiple dwelling homes and more occupants
- Reduced use of residual insecticides indoors
- Increase in species specific baits
- Underground economy
- Changes in chicken farming



How are people reacting to bed bugs?

- Fear, desperation
- Throwing out possessions
- Do it yourself remedies
- Over the counter use and misuse of pesticides.
- BASICALLY



FREAKING OUT



\$\$ ECONOMICS \$\$



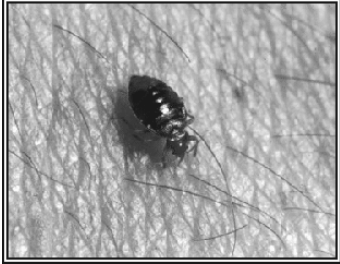
CIVIL COURT OF THE CITY OF NEW YORK HOUSING PART

LUDLOW PROPERTIES, VS PETER H. YOUNG



- Loss of tourism
- Claims against landlords, hotels, mattress, furniture & moving companies etc.
- Eviction
- The cost to those who are suffering from bed bug infestations can be costly & emotional.

Public Health Concerns



"My what a bite that bed bug gave me!"

- Ectoparasite on humans primarily
- No evidence of disease vectoring including AIDS and Hepatitis per **CDC**
- Nearly painless bite, but reactions differ with some people showing no signs while others may have serious reactions.
- Bed bugs pierce the skin and inject saliva
- Area may become red and itchy due to an allergic reaction to bed bug saliva which contains anticoagulants and anesthetics






- Bed bug bites may pose a mental health issue to some due to the distress and loss of sleep that some victims experience
- Uncontrolled bed bug infestations can cause anemia in young children.
- Bed bugs may be an asthmagen.
- Secondary infections from scratching.






OTHER SUSPECTS

SPIDER BEETLE

- ✓ FLEAS
- ✓ TICKS
- ✓ SPIDER BEETLE
- ✓ LICE (HEAD, BODY & PUBIC)
- ✓ BED BUGS
- ✓ PSOCIDS
- ✓ COLLEMBOLA (SPRINGTAILS)
- ✓ MOSQUITOES
- ✓ SOME MITES SUCH AS BIRD MITES OR SCABIES
- ✓ Allergies or Skin irritation
- ✓ Drug Reactions

OR IS IT A CASE OF ...




Delusory Parasitosis

Methods of bed bug introduction

• **CAPTIVES**

In this instance the bed bug is introduced from another infested location but not by its own locomotion.

- Furniture
- Mattress
- Guests
- Employees
- Hitch Hiking



• **VOLUNTEERS**

In this case the bed bug migrates by walking from an infested area.

- From one room to another
- From one apartment to another via pipes, telephone or cable wires.
- Down a hallway after dropping off an item being discarded.

Bed Bug Detection



- Bed bugs are cryptic and nocturnal
- Bed bug inspections vary from quick visual inspections of hot spots to extensive two person searches.
- Passive insect monitors are not always reliable but they should be placed.

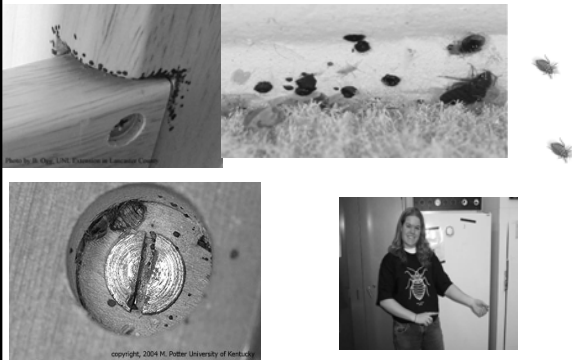


WHAT YOU ARE LOOKING FOR

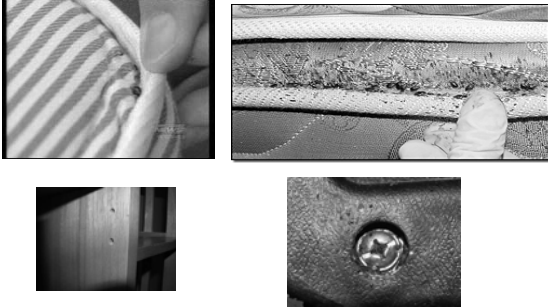
- Bed bugs
- Cast exoskeletal skins
- Blood spots fecal stains
- Excrement left near entrances to hiding spots
- Reddish-brown spots on or near bedding, blood stains from feeding.
(Q-Tip test)
- A sweet or musty odor ?



Evidence of Bed Bugs



Harborage & Aggregation Sites



Harborage Cluster

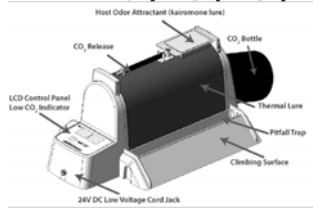


INSPECTION

INSPECT ALL AREAS IN WHICH A BED BUG CAN HIDE OR LAY EGGS IN, OUTLET COVERS ARE JUST ONE OFTEN OVERLOOKED EXAMPLE.



NEW BED BUG MONITORS



NightWatch Trap



Climb Up Trap

Bed Bug Control





Bed Bug Control

- Follow the steps of IPM:
 - Inspection
 - Sanitation
 - Monitoring
 - Cultural & mechanical control
 - Chemical control
- Requires the cooperation of customers and continued vigilance
- Stop thinking of them as **BED** bugs.



Remember that Bed Bugs are one of the most difficult and expensive pests to control in a multiple unit dwelling .

- Requires Cooperation of
- ❖ Management
 - ❖ Pest Management
 - ❖ A high level of cooperation by all residents (perhaps the most difficult task of all)
 - ❖ Bed bugs may soon be the #1 pest in apartments.



**The Bed Bug Handbook*



CHEMICAL CONTROL

WHEN USING ANY PRODUCT BE SURE TO FOLLOW LABEL INSTRUCTIONS :

<p><u>CONTACT</u> OR <u>NON RESIDUALS</u> MATERIALS WHICH KILL ON CONTACT BUT BREAK DOWN QUICKLY</p>	<p><u>NON CHEMICAL</u> HEAT COLD</p>	<p><u>RESIDUALS</u> MATERIALS WHICH LAST FOR A PERIOD OF TIME DEPENDING ON CONDITIONS.</p>
<p><u>AEROSOL</u></p>	<p><u>DUSTS</u></p>	<p><u>LIQUIDS</u></p>

Pesticides may only be applied by occupant or by a NYS Certified Applicator or Technician.

Do not *BOMB* for bed bugs

Do not use total release bombs to control a bed bug infestation, while it may kill a few exposed bed bugs It will send the rest deeper into voids and sheltered areas AND POSSIBLY TO ADJACENT AREAS.



NOT TOO MENTION THAT NO T/R PRODUCTS ARE LABELED FOR IT

NON CHEMICAL CONTROLS



HEAT



COLD

NONE LIKE IT HOT!!



NON CHEMICAL CONTROL *HOT*

HEAT 140° for at least 30 minutes.



Irons can be used for seams etc.



Heat guns tend to be too hot as in FIRE!!!!



Blow dryers may blow too much and spread bed bugs around if not careful.



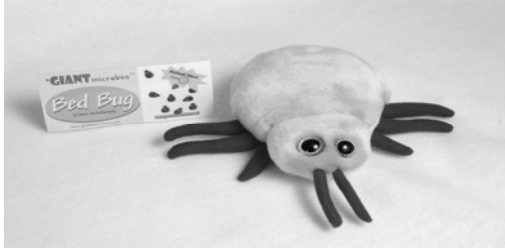
DRY STEAMERS are a good tool but they must stay above 220°.



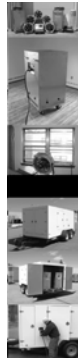
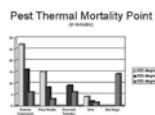
The Bed Bug Chamber of Death



Stuffed Hexapods



THERMAL REMEDIATION



NON CHEMICAL CONTROL COLD

COLD below freezing for a long time or flash freeze, most experts agree cold is not a really a good method.



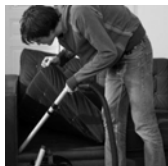
MATTRESSES



MATTRESS ENCASEMENTS



VACUUM



When vacuuming for bed bugs try using a sheer stocking to catch the before the hose if in a clean environment.

Helpful Hints

- Operating radius for bed bugs 6 –8 feet but will go to 100 feet.
- Higher temperature increases activity.
- Graph bed bug activity in hotels, apartment buildings and other multiple dwellings to track activity and find gaps.
- More than one treatment will be needed.
- Always follow the label for any product you are using.

LATEST BED BUG INFO:

- One BB can cause a multitude of welts/bites
- Often times eggs are found around fecal focal pts. a.k.a. *HARBORAGE AREAS*
- **Clutter will undermine any treatment.**
- It is recommended that all sleeping areas be treated regardless of activity.
- Fumigation enters the field of control.



- Number one spot in hotels; Headboard
- Number one spot in homes; Box Spring
- Reaction to bites varies from OMG to none.
- DOGS: Although a good detection tool dogs are not beyond error. The field is a work in progress which needs supervision and accreditation.

 National Entomology
Scent Detection Canine Association



Don't bring unwanted guests home!



PRECAUTIONS FOR HOME VISITS

Don't bring the little buggers home.

BED BUG FACTS

DO NOT JUMP
DO NOT FLY
THEY ARE
PRIMARILY
ACTIVE AT NIGHT
THEY STAY IN
HARBORAGE
LOCATIONS
THEY DO NOT
ROAM ABOUT

HIGH RISK AREAS

FUTTONS
PULL OUT COUCHES
BEDS
CLUTTERED AREAS
HAMPER



CHANGE BEHAVIOR

DO NOT LAY COATS OR
JACKETS IN HIGH RISK
AREAS (clothing bag)
IF IN AN INFESTED
APARTMENT USE A
CHAIR
KEEP BRIECASE CLOSED
OR BAGGED
THINK ABOUT USING
ZIPLOC BAGS

Guidelines for Prevention and Management of Bed Bugs in Shelters and Group Living Facilities New York State IPM Program, Cornell University 2008

Produced for the New York City Department of Homeless Services, in cooperation with the New York City Department of Health and Mental Hygiene and the New York State Integrated Pest Management Program, Cornell University.

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http://www.nysipm.cornell.edu/publications/bb_guidelines

OFFICE PROTOCOLS

Consider the following changes to reduce the odds of bed bug introduction.

- Limit client bags and personnel clutter.
- Create intake areas and a designated restroom.
- Furnish client area with bed bug resistant furniture such as non cloth chairs and couches. Use plastic and seal gaps.
- Do not hang coats or store staff items in closets in intake areas.
- PLACE MONITOR TRAPS AS AN *EARLY WARNING*.
- Tag files of bed bug clients. (Check with legal on this.)
- Reduce paper clutter especially in client areas



SLEEP TIGHT



In closing, it is important to remember that while some insects may be considered pests, without insects life would be impossible.



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