

Bedbugs



"Sleep tight, don't let the bedbugs bite"

Safety & Health Services Division
R. Selvey, Building 120 x-3066
September 17, 2008

Incidence Rise

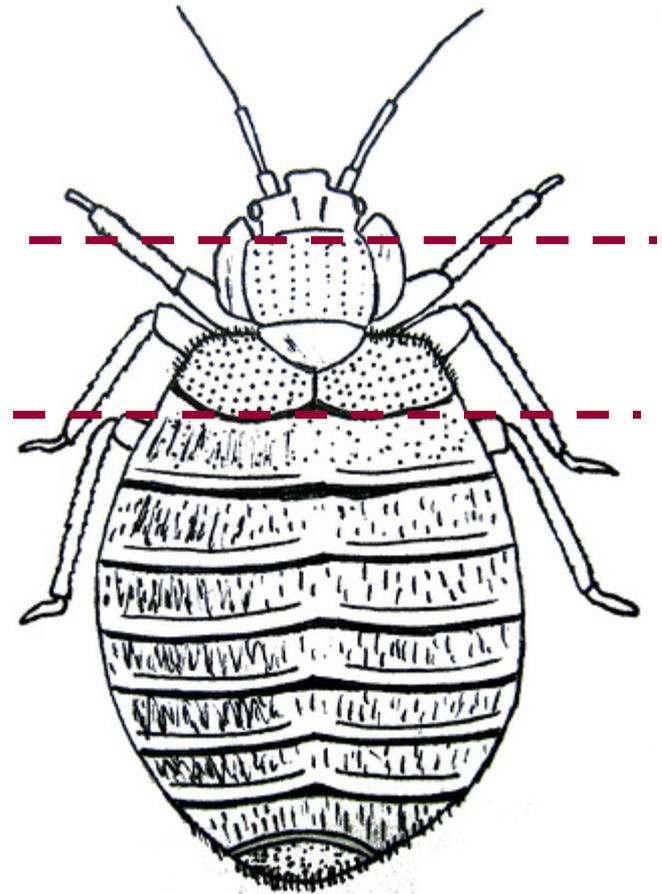
- New York City has seen increased bedbug infestations since 2000. A NYC pest exterminating company now receives 25 calls a week, compared to only a few just five years ago.
- A pest-management company in Charlotte NC claimed that 25% of hotels surveyed (700) between 2002 - 2006 needed bedbug treatment.



The Bug

Cimex lectularius: an insect

- 3 body parts: head, thorax, abdomen
- 6-legs
- egg laying
- multiple life stages



Bedbugs

- Bedbugs are found throughout the world
- They live off the blood of humans.
- Adults grow to 4-5 mm (1/8th - 3/16th of an inch) in length. Can be seen with an un-magnified eye.
- Their color ranges from nearly white (just after molting) or a light tan to a deep brown or burnt orange.



A Bug's life

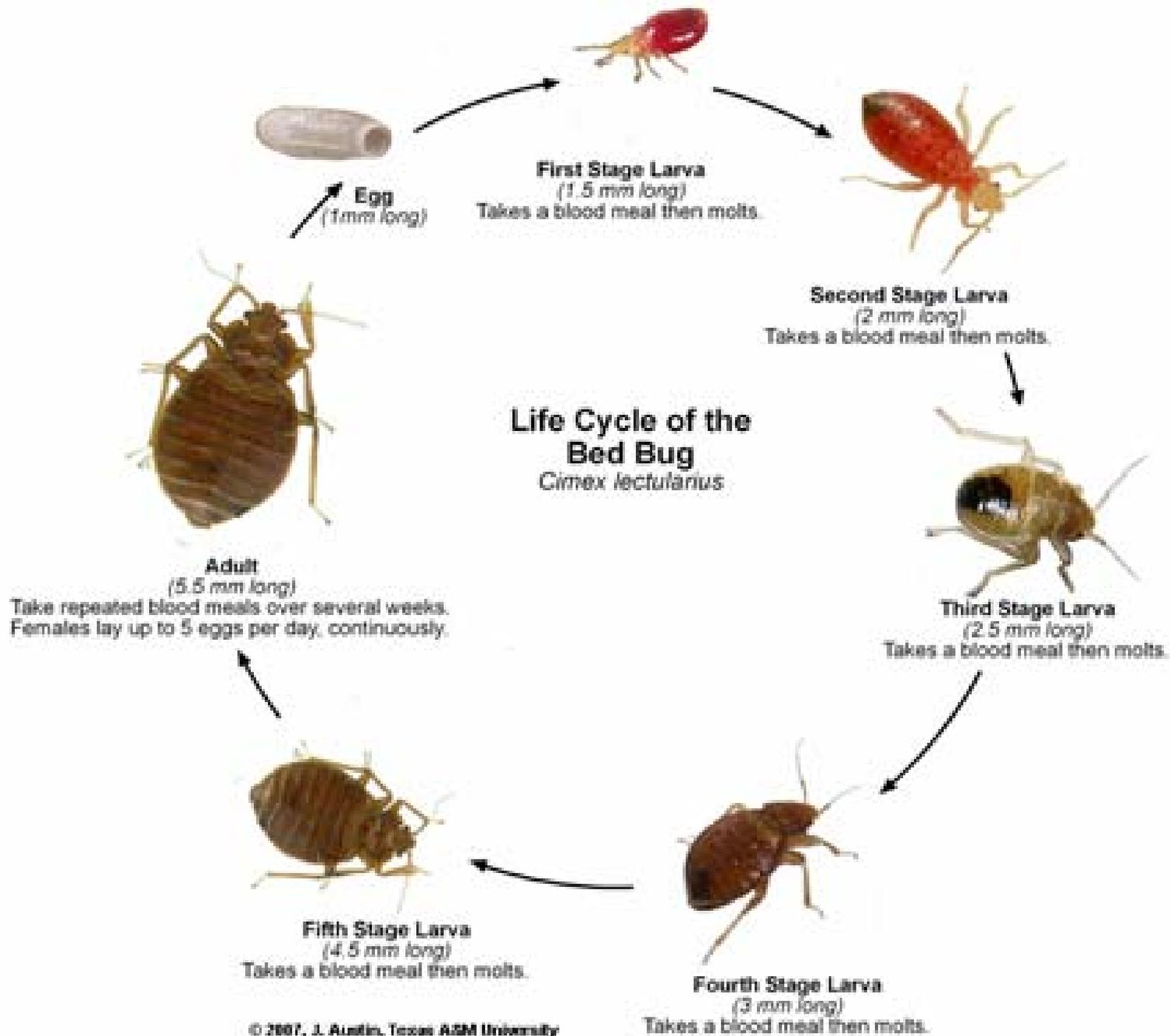
- Bedbugs can live for 12 to 18 months without feeding.
- Typically seek blood every 5 to 10 days.
- It takes about five weeks for a bedbug to pass from hatchling to maturity.



The Bug's life

- Female bedbugs can lay up to 5 eggs/day
- Females lay up to 500 eggs during a lifetime.
- The eggs hatch in one to two weeks. The hatchlings begin feeding immediately.
- Bedbugs pass through five molting stages before they reach maturity (larvae/nymphs).
- They must feed once during each of these stages.



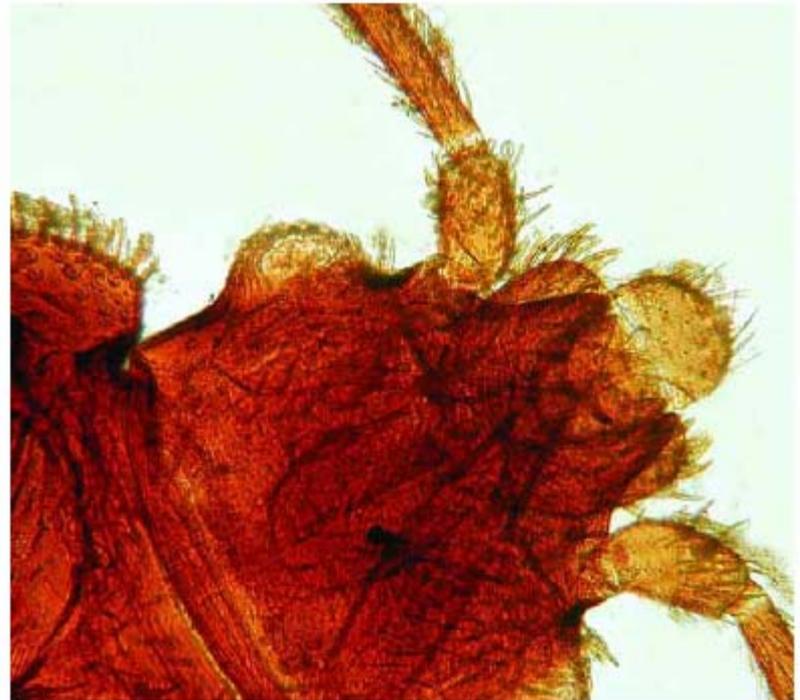


Feeding on Hosts

Feeding

- Bedbugs suck human blood at night through a mouth part suck into the skin.
- Bedbugs are generally active only at dawn, with a peak feeding period about an hour before sunrise.
- A few drops of blood is taken in about 5 minutes.

The bugs can engorge themselves with human blood in 5 minutes and the body then becomes spheroidal and deep red in colour.



*Fig. 1. Adult bed bug *Cimex*, skeleton cleared in sodium hydroxide and mounted. Fine details of chitinous appendages and hair-like projections are well displayed, though there is little impression of the insect as a whole specimen (1,200x).*

Bug-human attraction

- Bedbugs are attracted by **warmth** and the presence of **carbon dioxide**.
- The Bedbug pierces the skin of its host with two hollow tubes.
 - With one tube it injects saliva, containing anticoagulants and anesthetics.
 - With the other tube it withdraws the blood of its host.
- After feeding for about five minutes, the bug returns to its hiding place.



Bites

- In most cases, bites consist of a raised red bump or flat welt (known as papules or wheals.)
- Bites look like mosquito bites, though they tend to last longer.
- Bites are often accompanied by intense itching.
- Bites may not become immediately visible, and can take up to 9 days to appear.

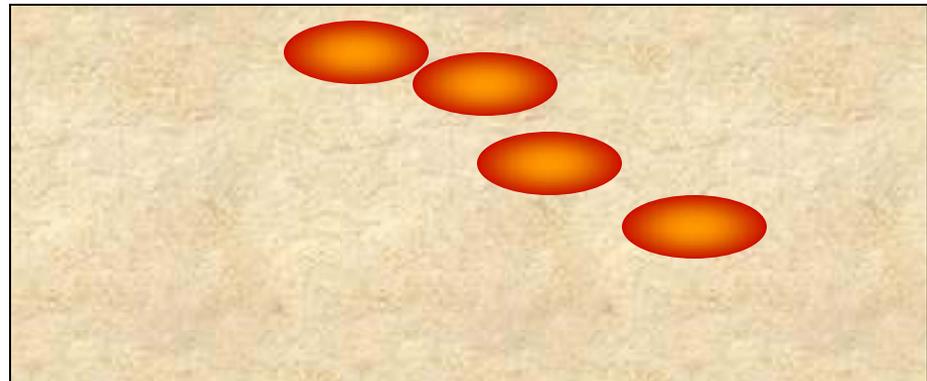


Bite pattern

Bites may be found in a variety of places on the body.

There is tendency for multiple bites to align in a row. Bites are often 3 in a row, giving rise to the colloquialism "*breakfast, lunch and dinner.*" This may be caused by:

- The bedbug being disturbed while eating, and relocating before resuming feeding.
- The bedbug repeatedly searching for a blood vein.



Worst Case Outcome

- Repeated exposures to bites causes people to become sensitized to the saliva.
 - Additional bites then result in a **mild to intense allergic response**.
 - May cause **anaphylactic shock** in a small percentage of people.
- Scratching the bites may lead to **secondary infection**.
- It is also possible that sustained feeding by bedbugs may lead to **anemia**.



Disease Transmission

- There have been no reported cases of bedbugs causing a disease in a host.
- There have been no reported cases of bedbugs transferring a disease from host to host.

infected person (person A) → bed bug → uninfected person (person B).

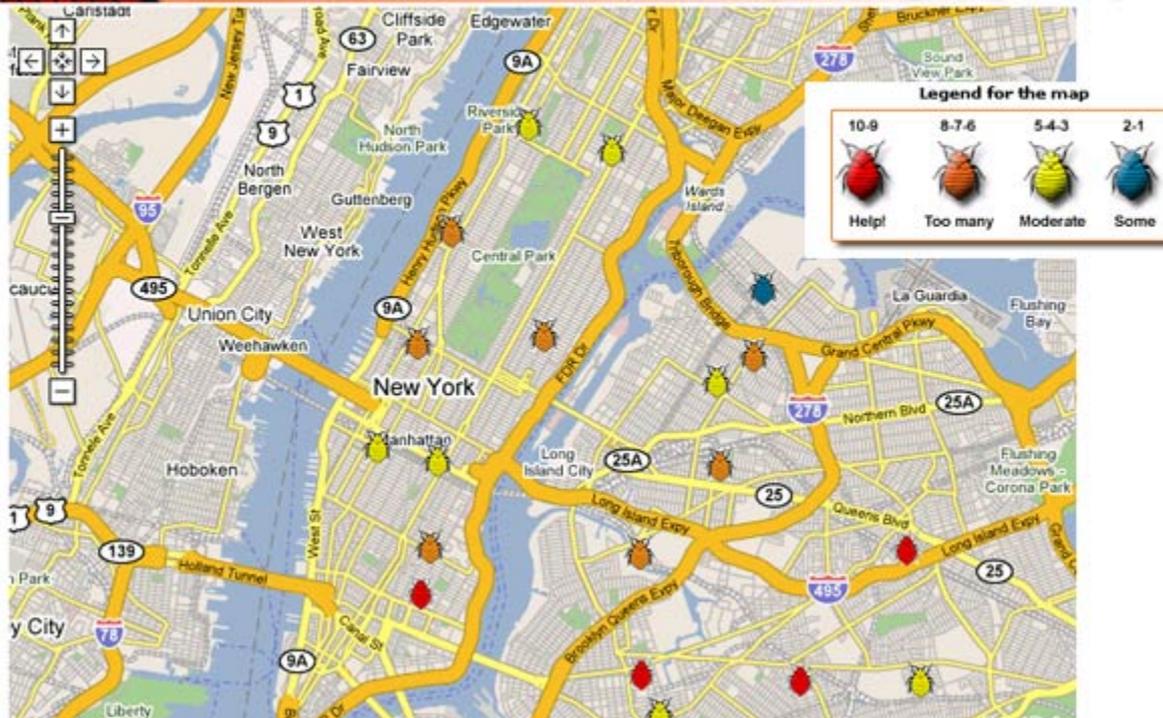


- However, transmission of *Chagas disease* or *Hepatitis B* might be theoretically possible.

Habitat

Bedbug City

Map bedbugs in your city



Where the Bedbugs Thrive

- Bedbugs are most abundant in rooms where people sleep, and they generally hide nearest the bed or other furniture used for sleeping.
- Bedbugs are most active in the middle of the night, but when hungry, they will venture out during the day to seek a host.
- Favored hiding sites include
 - the bed frame,
 - mattress and
 - box spring.

Head board



Mattress

How dwellings can become infested with bedbugs.

- **Except in the case of severe infestations, bedbugs are not usually carried from place to place by people on clothing they are currently wearing.**
 - In a place that is severely infested, bedbugs may crawl onto people's clothing, although this is atypical behavior
- Picked up at hotels and brought home in luggage and clothes left on bedding.
- Picked up on infested used furniture or used clothing.
- Bedbugs may travel between units in multi-unit dwellings.
- Bedbugs can be transmitted via animal including wild birds and pets.

Finding an infestation

Bedbugs are capable of travelling as far as 100 feet to feed, but usually remain close to the host in bedrooms or on sofas where people may sleep.

Examine:

- Bedroom and other sleeping areas.
- Folds and creases in the bed linens,
- Seams and tufts of mattresses,
- Box springs,
- Pleats of curtains.



Bed bugs infesting a couch



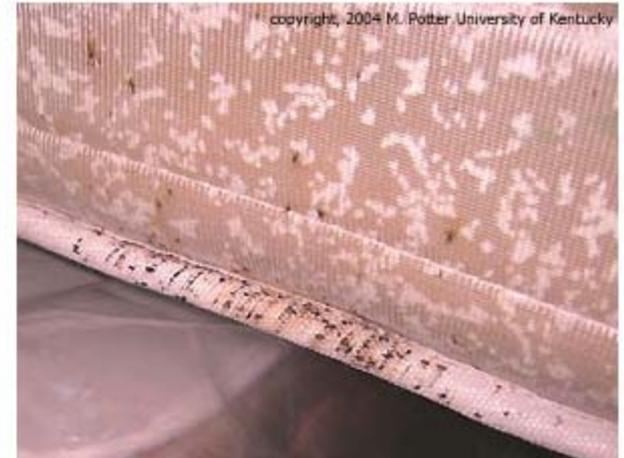
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Bed bugs often reside along baseboards. Photo shows eggs, nymphs, and adults beneath carpet edge.

Finding an infestation

Look for these signs:

- Discrete **bloodstains** on sheets and mattresses
- Insect **excrement** at the entry to hiding places in furniture crevices and walls
- An intense, **sweet odor** caused by bedbugs' oil secretions (coriander-like **odor**) in heavily infested areas.



Bed bugs often congregate along seams of mattresses and box springs. Blackish spots are excrement.

*These sheets smell sweetly different,
I wonder what kind of
Fabric Softener they use*

Prison ain't so bad

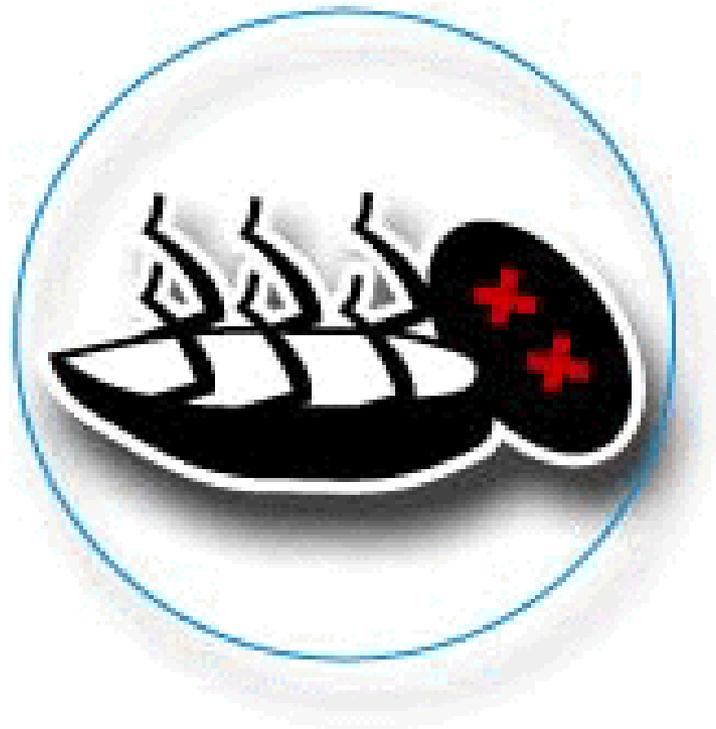


Detection of bedbugs

Keep a Flashlight quickly accessible at the bed

- Turn flashlight on about an hour before dawn (usual the time when bedbugs are most active).
- A flashlight is recommended instead of room lights, as the act of getting out of bed will cause any bedbugs present to scatter before you can catch them.
- Bedbugs are fairly fast in their movements, about equal to the speed of ants. They may be slowed down if engorged.

Control



Treatment Techniques

- Infested and infestation-prone bedding and garments can be **bagged and laundered** (120°F minimum)
- Clothing, toys, shoes, backpacks, etc. can be placed in a clothes dryer at medium to high heat for 10 to 20 minutes.
- Items which cannot be put in a washer or dryer can be wrapped in plastic and placed outdoors in a hot, sunny location for at least a day. (target temperature of at least 120°F.)

Control

Encase both the mattress and box spring in a protective cover like those used for allergy relief.

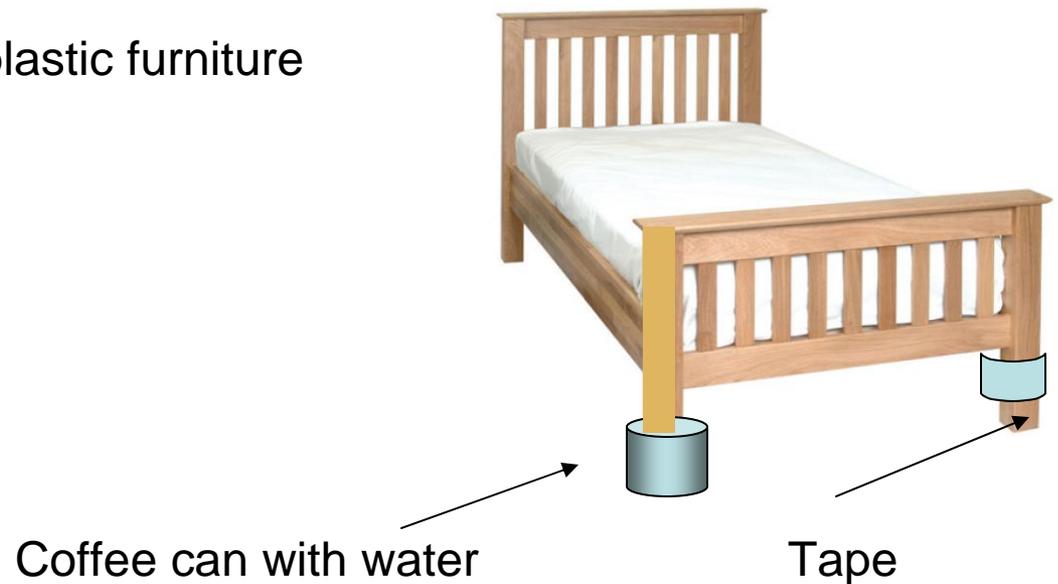
- Once the cover is installed and zipped shut, any bugs inside will eventually die (may take months).
- Encasements also help protect newly purchased beds, and make it easier to spot and destroy any bugs residing on the outer surface.



Control

Barrier strategies:

- Applying double-sided sticky tape around each leg, or
- Keeping each leg on a plastic furniture block in a tray of water.



Pesticide Applications

- Many on the market
- Used to Spray bedding material



don't let the bed bugs bite

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Travel



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Travel Tips



Travel Tips

1. Look for bedbugs, droppings, eggs, or bloodstains in carpet edges, mattress seams, pillow case linings, bedboards, wall trim or other tiny crack-like places bedbugs might hide.
2. Keep a flashlight nearby when sleeping, to immediately observe activity during the night.
3. Do not leave clothing laying on the bed, or other locations of possible infestation. Instead, use hangers or hooks capable of keeping all cloth distant from the floor or bed.
4. Close your suitcase/travel bag, when you're not using it. This way, during the night the bugs may move over top of your luggage with greater difficulty to get inside.
5. Elevate your luggage off the floor to tables or chairs.
6. Show any bedbug you find to the hotel owner.

Returning home

If there was any indication of a problem on the trip:

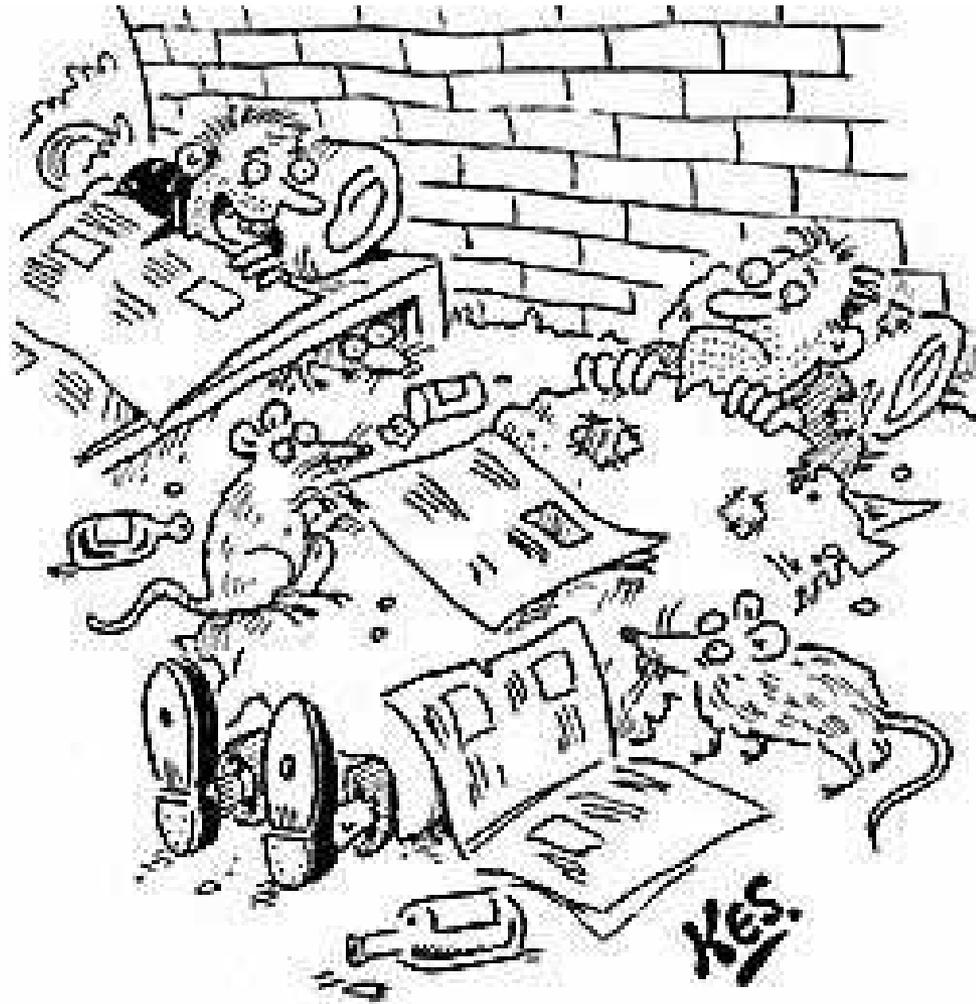


- **Clothing should be laundered** to kill bugs and their eggs before or as soon as these items are brought back into the home.
- **Suitcases should be carefully inspected,**
 - Scrub with a stiff brush, and thoroughly vacuum.
 - Leaving such luggage for several hours in a closed vehicle in full summer sun may render the items bug free.

The End



Questions or comments ?



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