Bed Bugs

Peter L. Warren
University of Arizona
Pima County Cooperative Extension

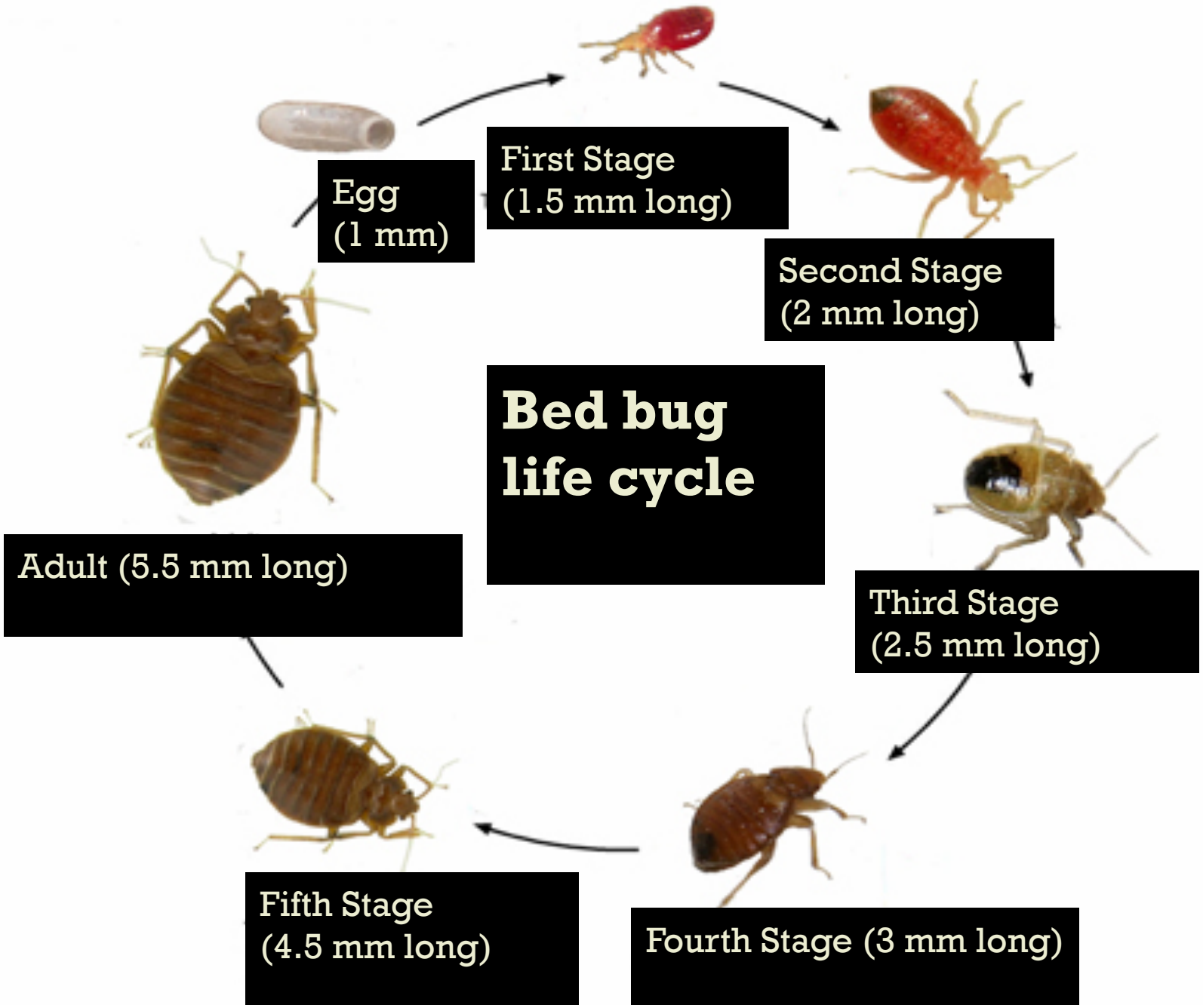
<u>Anyone</u>
can accidently acquire bed bugs

What are bed bugs?

- Blood feeding insects
- Seek warm blooded hosts
- Order Hemiptera- true bugs
- Adults are the size of an apple seed

- Adult bed bugs ¼ **inch** in length
- Meals 3-5 days
- Engorge in less than **15 minutes**
- Three times their original size
- A bed bug's saliva includes an anesthetic and an anti-coagulant
- Mainly feed at night but not always

- Females lay over 500 eggs
- Molt five times
- Blood meal is required each molt
- Bed bugs can slow their life process until a blood meal


Bed bug life cycle
Egg (1 mm)
First Stage (1.5 mm long)
Second Stage (2 mm long)
Third Stage (2.5 mm long)
Fourth Stage (3 mm long)
Fifth Stage (4.5 mm long)
Adult (5.5 mm long)

- Egg to adult: 5 weeks to four months
- Can live up to 18 months or longer without blood meal
- Adults live about 10 months

- In 70°F temperature conditions, if 40 bed bugs are in a room on May 2, by November 2 the population would reach 5,905 bugs!

- Attracted by warmth and CO2

- Single or clusters of bites

- Bites can be found anywhere, especially exposed skin.

- Bites usually found in line
- Not everyone shows reaction

- Nocturnal, gather in groups

- Hide in daytime in cracks, crevices, etc.

- Travel 5-20 ft. (each way) nightly to feed

- Can remain fully active at <45° **F**

BED BUGS ARE NOT KNOWN TO TRANSMIT DISEASE ORGANISMS

Signs of Infestation:

Frass spots (poop)

- Mattress seams and on the tag
- Wood frame of box springs
- Behind head board
- Baseboards/carpeting
- Ceiling/wall junctions
- Behind pictures
- Electrical outlets
- Curtain seams

Where Else Could They Be?

- Television and other remote controls, in the battery compartment
- Telephones, cell and cordless phones
- Lamps and alarm clock
- Computers and other electronics
- Cardboard boxes in closets and under the bed
- Children's toys and stuffed animals
- Jewelry boxes
- Brick walls and "popcorn" or other textured ceilings
- Books, magazines, newspapers and files
- Inside hollow doors
- Ceiling light fixtures, smoke detectors
- Heating units, air conditioners and ducts
- Wheelchairs

Even in the loo!

Prevention is Key

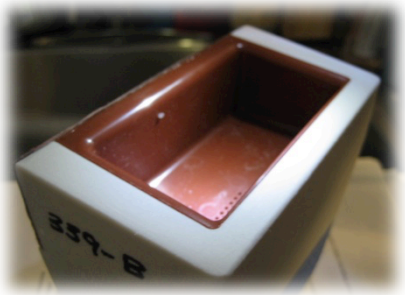
- Inspections (hotels, visitors, your home)
- Sanitation (clean, vacuum, laundry)
- Hygiene
- Monitoring
- Encasing

Anti-Allergy and Bed Bug Mattress Encasement
BugOff
By
PROTECT-A-BED
PREVENT & STOP
BED BUGS

Active Monitors: CO2, Heat, Lures

NightWatch

Verifi



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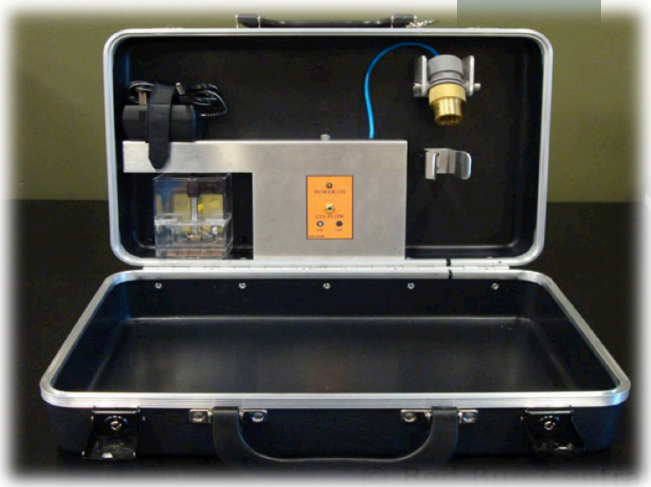

BuggyBed

2 Bed Bug First Response

Bed Bug Beacon

Passive Monitors/Traps

Climb Up Interceptors

Bed Moat

BB Alert

CVT BB Trap

BB Detection System

Bed bug costs	
Average cost of pest control services	$400-5000 varies on location, severity of infestation, area affected and treatment selected
Mattress encasements	$100-250 per bed
Laundering all clothes	$50-100 per person
Interceptor traps or monitoring device	$25-75 per room
Vacuum and/or dry-steam cleaner	Vacuum $200-450 + dry-steam cleaner $300-550
Your sanity and peace of mind	$priceless$

Fumigation, heat treatments, pesticides, bed bug warranty.

Chemical Treatment

- Multiple applications
- Crack and crevice
- Pyrethroids most commonly used
- Resistance to pyrethroid products is <u>very high</u>
- Not all populations are resistant to the same products

- Rotating chemicals helps prevent resistance

Products

- EPA registered over 300 products for bed bugs
  - Most are available to consumers
  - Pyrethrins and pyrethroids
  - Dessicants – diatomaceous earth and boric acid
  - Biochemicals – cold pressed neem oil
- Pyrroles – Chlorfenapyr - Phantom PI
- Neonicotinoids
  - Temprid (β -cyfluthrin & imidacloprid)
  - Transport (bifenthrin & acetamiprid)
  - Tandam (λ-cyhalothrin & thiomethoxam)
- Insect Growth Regulators

2014 -Arizona

Field collected bed bugs samples from have tested resistant to synthetic pyrethroids

Primary methods used in combination with chemical methods

- Heat/Cold
- Vacuuming

Heat kills bed bugs best of all!

- Items can be placed in a hot dryer dry for 40 minutes after items are dry
- Washing only, **does not** kill bed bugs

Steam Cleaning

- Steam temperature (at the bed bug) must be 130° F or greater
- The steam head must be large
- Steam power will kill bed bugs and their eggs
- Steaming is slow and labor intensive

Whole Home Heat

- Propane or electric
- Temperature ~140°F
- Time 4 hours

Cryonite Treatment

- Will not eliminate infestation if used alone
- Bed bugs exposed to CO_2 (-42° C)
- "Snow" is pressurized through a nozzle that forms vapors
- Snow freezes the cells of the bugs
- Must completely freeze bug

Vacuuming

- Vacuuming makes inspections easier
- Harborage areas are have live bed bugs, dead bed bugs, molted skins, hatched egg shells, and feces
- Vacuuming will show you if an infestation has returned

Desiccant Dusts

- Desiccant dusts are ultimately more effective than sprays
- Resistant strains died in ~36 hours
- Diatomaceous Earth
  - insecticide grade 2-3 days
- Silica dust
  - 2-3 days
- Lasts unchanged in wall voids for years in low humidity

Disposal

- Wrap and mark items for disposal
- Organize solid waste pick-up

Questions?

Peter L. Warren
plwarren@cals.arizona.edu

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