

Welcome

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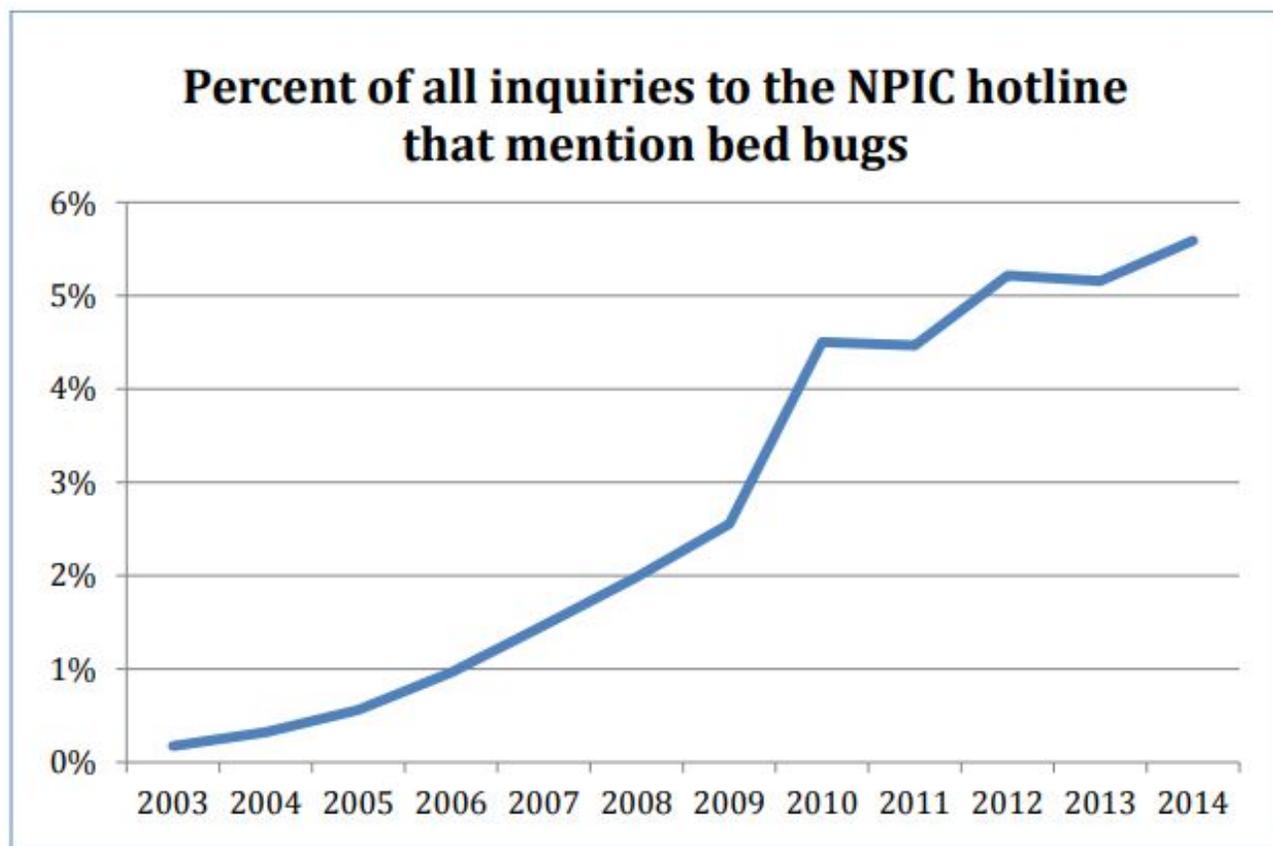
Bed Bugs

Hemiptera: sucking-
piecing mouthparts



Official Common Name: Bed bug
Latin name: *Cimex lectularius* L.

Bed Bugs Are Back!



National Pesticide Information Center: <http://npic.orst.edu>

Image from <http://npic.orst.edu/pest/bedbug/tacklingbbstarterguide.pdf>

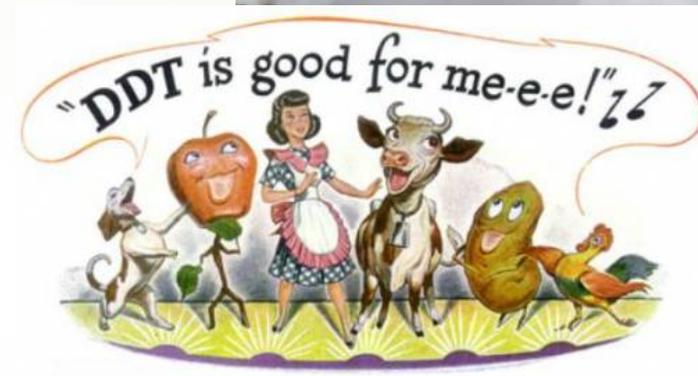
<http://www.sternenvironmental.com/bedbugs/bedbug-invasion.php>

Bed bug population resurgence

Increase in global travel



Changes in pest management; resistance



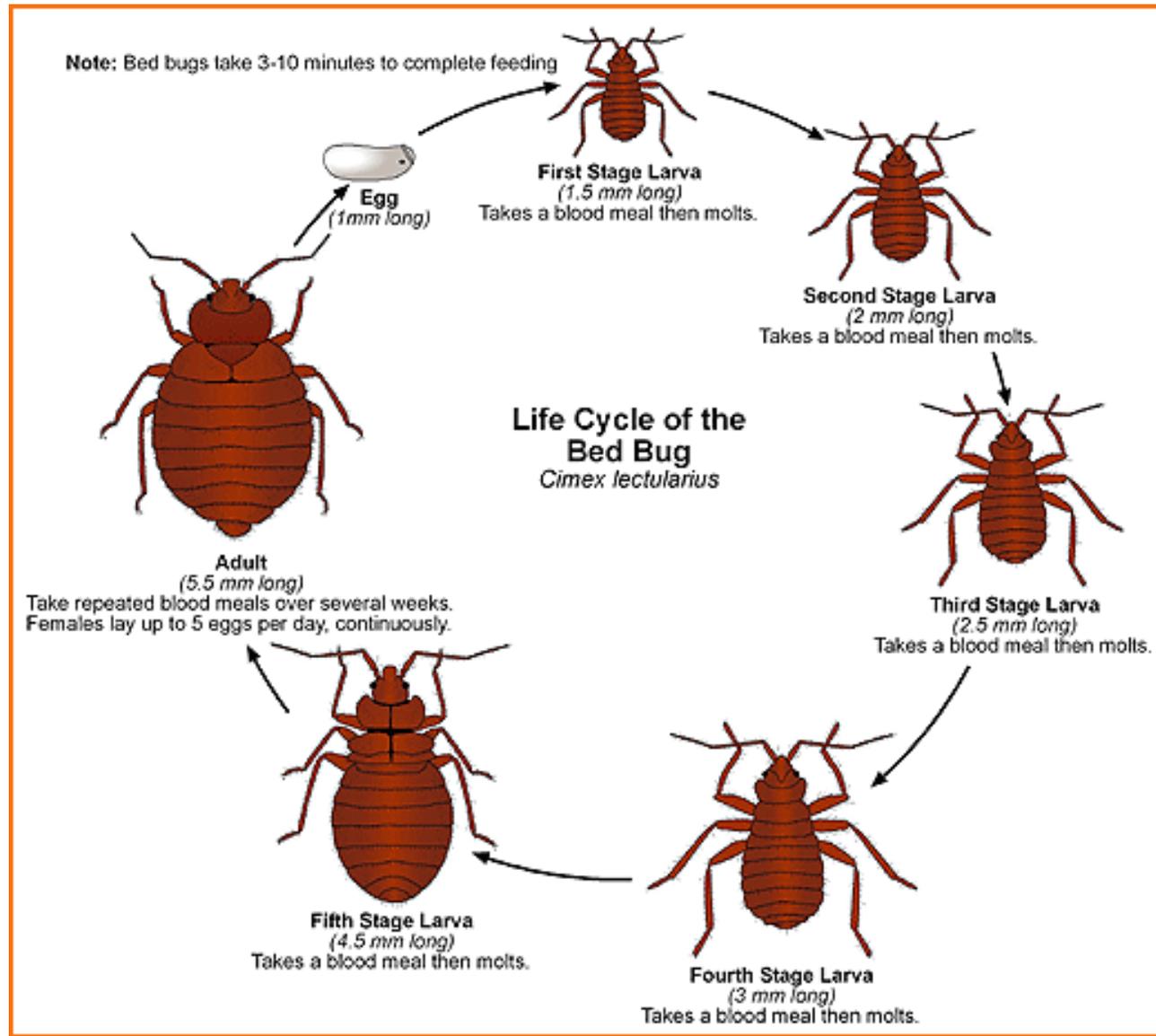
Rental and used furniture; recycling



Shame; lack of recognition



Complete lifecycle



EACH LIFE STAGE NEEDS A BLOODMEAL

Bed Bug Life Stages



Phil Pellitteri, University of Wisconsin
Department of Entomology

Adult laying eggs, eggs
hatching



2nd
instar
nymph



Egg close-up

Photo Credit: James Kalisch, UNL Dept of Entomology



Egg clusters

Temperature Affects Development



70°F Eggs hatch in 10 days

50°F Eggs hatch in 28 days

Egg-egg: @ 80F = 1 month

@ 64F = 4 months

Adults can live 10-18 months

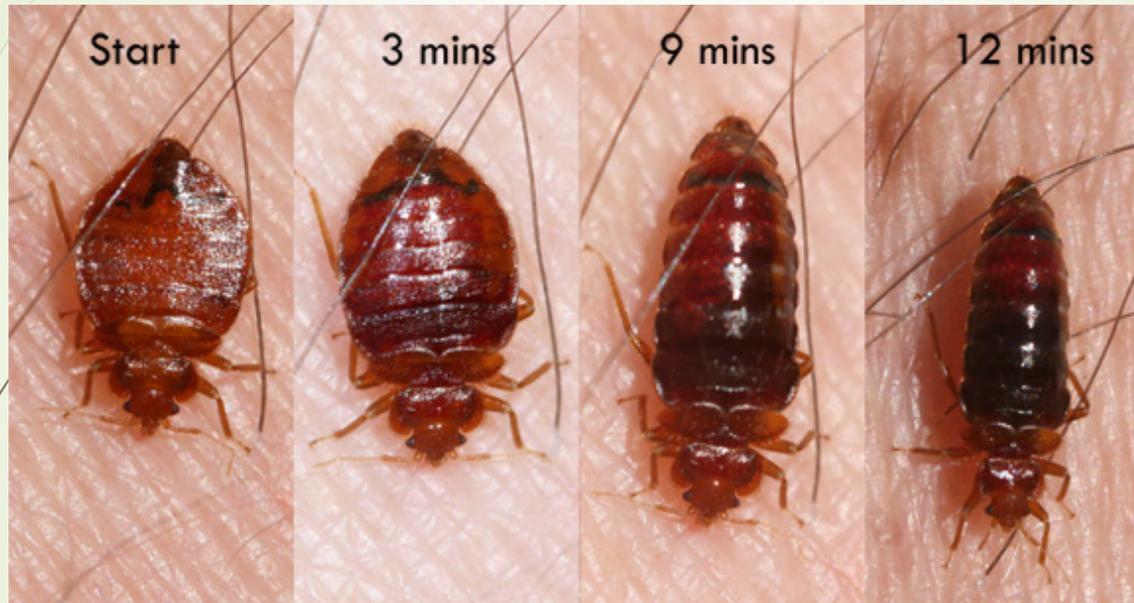
Total eggs/lifetime/female 113-540

Bed bugs in real life



Bed Bugs Bite!

It takes 5-10 minutes to engorge with blood.



They insert two hollow, beak-like feeding tubes into their host.

<https://www.pestworld.org/all-things-bed-bugs/bed-bug-biology/>

Bed Bugs Bite!

The first tube injects the bug's saliva, anesthetics and an anti-coagulant.

The second tube draws blood.



<https://www.pestworld.org/all-things-bed-bugs/bed-bug-biology/>

Bed Bugs Bite!

Post meal they hide for 5-10 days.
Hide, digest, mate and lay eggs.



<https://www.pestworld.org/all-things-bed-bugs/bed-bug-biology/>

Reproduction – and why they spread

- ▶ Traumatic insemination

Transferred sperm



No female reproductive orifice – male creates one – ow!

Traumatic insemination costs

Sperm precedence (he who mates last lasts)

Multiple matings reduce lifespan

May reduce fecundity

Avoidance strategies

- Refusal posture (only works for unfed females)
- Dispersal
- Aggregate with other females

<https://academic.oup.com/ae/article/55/4/244/2474961>

Traumatic insemination commmerative limerick

*The bed bug traumatic'ly inseminates
Much to the dismay of his many mates
Not one for romance
He stabs with his lance
No surprise he's not asked out on many dates*

**

Brooke Borel

<https://www.lastwordonnothing.com/2012/07/27/tgipf-the-bed-bug-and-his-violent-penis/>

Bed Bug Dispersal

CO₂ initiates search but doesn't direct it

Dirty laundry may mimic sleeping human smell, attracting bb to dirty clothes



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Hentley, W. T., B. Webster, S. E. F. Evison, and M. T. Siva-Jothy. 2017. Bed bug aggregation on dirty laundry: a mechanism for passive dispersal. *Scientific Reports*. 7(1): 11668. doi: 10.1038/s41598-017-11850-5

Bed bugs
and health



Do Bed Bugs Cause Diseases?

Bed bugs are naturally infected by at least 27 human pathogens

BUT: have never been proven to biologically transmit one

Are Bed Bugs a Public Health Issue?

CDC and EPA say bed bugs are a public health issue.

VDH does not.

Bed bugs do cause a variety of negative physical health, mental health and economic consequences.

Bed bugs and public health continued:

Effects include:

1) Allergic reactions to their bites

2) Effects ranging from no reaction to small bite marks to, rarely, anaphylaxis (severe, whole-body reaction).

3) Secondary infections of the skin from the bite reaction, such as impetigo, ecthyma, and lymphangitis.

4) Mental health impacts such as anxiety, insomnia, stress and systemic reactions.

Bed Bugs and public health continued

Bed bug infestations may affect your home and clinical health care experience



Photo by Joe Raedle/Getty Images

CLEANLINESS AND SANITATION

- Bed bugs are NOT associated with dirt and mess
- Bed bugs don't discriminate; they happily infest sanitary, unsanitary, wealthy and poor.



Enlarge 

FACTS AND MYTHS

► About bed bug biology:

Myth: We can't see bed bugs with the naked eye

Fact: We can see each life stage clearly

Myth: Bed bugs can fly and hop and jump

Fact: No wings =no flight; no hops, no jumps

Myth: Bed bugs can live for a year without food

Fact: Normally bed bugs can go about 100 days without food. In lab, 400 days. New study 70 days without food.

FACTS AND MYTHS

► About bed bug biology 2:

Myth: Bed bugs only live in hotels

Fact: 89% single family homes
88% apartments/condo's
65% hotels/motels
35% college dorms
9% modes of transport
5% laundromats
4% movie theatres



<https://www.pestworld.org/news-hub/press-releases/2011-bugs-without-borders-survey-new-data-shows-bed-bug-pandemic-is-growing/>

True or False Quiz

► Bed Bug Bites:

Q1) Bed bugs can be diagnosed by their bites.

A1) False, bed bugs cannot be diagnosed by their bites

Q2) All bed bug bites leave welts

A2) False, not all bites leave welts.



True or False Quiz

➡ Bed Bug Bites 2:

Q 1) Bed bug saliva contains an anesthetic

A 1) True, you can't feel them bite you

Q 2) Bed bugs only bite at night

A 2) False, they feed when they are hungry



Two last messages



Disposal – don't spread with beds

Wrap it before you trash it.

Wash it before you donate it.



Treatments: Can you spray them away?

Bug bombs do bomb. Don't bomb.



HEAT BOX



Questions?

