WILL YOU BE A BED BUG’S MIDNIGHT FEAST?

AVOIDING BED DREAD

_Cimex lectularius_

Dawn H. Gouge

University of Arizona
ADULTS ARE ABOUT THE SIZE OF AN APPLE SEED
THE LIFE OF A BED BUG

Feeding

Hiding
Female bed bugs > 500 eggs

Molt 5 times, feed each time.

Slow their metabolism until blood is available.
• From egg to adult: 5 wk to four months
• Can >18 months without blood, but usually do not.
• Adults live about 10 months
• Remain active at <45º F
• During the early 20th century - bed bugs - top three structural pests
• Bed bugs all but disappeared in 1940s and 1950s
• Widespread use of DDT
1 in 15 New Yorkers had problems with bed bugs in 2009

3,590 confirmed cases in 2010-11 school year – New York School District
MARICOPA COUNTY – 300% INCREASE BETWEEN 2008-2010

Cockroaches VS Bed bugs 2006-2010

# COMPLAINTS

YEAR

2006 2007 2008 2009 2010**
World-wide resurgence: Norway, Sweden, Germany, Australia, Japan, Canada, and many other locations you might not expect reporting 100-500% increase in bed bug infestations.

Bed bugs where never actually gone
Why have bed bug infestations re-emerged in the developed world?

- Immigration from third world countries
- Reduction in pesticide use indoors
- Increase in global travel
- Loss of DDT
- Insecticide resistance
- Transient homeless
- Al Qaeda!
Shelters, hotels, public housing, medical facilities, student dorms. Apartments, homes, fire stations, child care.
Work places, schools, facilities, Public transport, Entertainment places, Everywhere people go.

Bed bug go where people go
Something Linger ing in the Lingerie? Bed Bugs Hit Victoria's Secret

Bed bugs force yet another store to shutter its doors, this time it's Abercrombie & Fitch
Bed bug conducive
Emergency shelters
Hotels
Medical facilities
Student dorms
Fire stations
Child care
Work places
Schools
Transport
Entertainment
Shops
Parks

Risk factors:
People sleep
Dense no. people
Transient
Impoverished
Disabled

Bed bug discouraging
EPA and CDC joint statement describes bed bugs as: “a pest of significant public health importance"
Bed bugs are not known to vector pathogens

- Allergen and respiratory effects (similar to cockroaches)
- Sleep disturbance
- Mental health complications
- Bites cause mild to serious skin reactions
- Delusionary parasitosis may be incited
- Pesticide poisoning
- Economic hardship
- Isolation, stress, anxiety, depression.
How to get your very own bed bugs

How NOT to get bed bugs:

• Do not collect used furniture or mattresses/box spring
• If renting furniture, inspect it carefully
• When travelling check all motel/hotel rooms before unpacking or sleeping
• Try to avoid sitting on furniture that you think may be infested
• De-clutter
• Know next door
40 bed bugs are in a 70°F room on May 2. By Nov 2 there are 5,905!
Low functioning adult
Combine inspection with vacuum cleaning

Use a brush, flashlight, canister vacuum with a crevice attachment
Blind resident in disabled public housing
IN A HOME, WHERE DO BED BUGS HIDE?

(CHAUSE THE TOP 3)

a.) box springs
b.) couches / chairs
c.) mattresses
d.) night stand / dresser
e.) baseboards and moldings
f.) head boards and bed frames
g.) walls / ceilings
h.) TV remotes
i.) curtains / drapes
j.) toilets
Even in the loo!
WHERE BED BUGS LIVE

- Beds
- sofas
- bedside tables
- recliners
- picture frames...

= Hot Spot
Bed bug signs
blood spots on sheets
bites
dead or living bugs
fecal spots
cast skins
bed bug smell
Shared resources can harbor and transfer bed bugs

- Wheelchairs
- Vacuums
- Medical equipment
- Games
- Cots
- Clothes
- Luggage
All infestations can be remediated – bed bug reservoir environments need to be addressed
Infested!!!
BED BUGS!!!
What people do
MISIDENTIFY

- Ticks
- Cockroach nymphs
- Other kinds of bug bites
Over use and abuse of OTC pesticides
CITY OF CINCINNATI PRESS RELEASE
1/25/09

"The occupant of the home was treating the second floor bedroom for bed bugs with a 70% alcohol and bug killer solution. She entered the bedroom to move the mattress and while there lit a cigarette.

The fumes in the bedroom ignited and caught the mattress on fire."
MISUSE – MALATHION

- Repeated treatment with Malathion – inconsistent with label use – not labeled for indoor use
- Non-Licensed Business & Applicator
Lab results:
Malathion 581.09 ug
MISUSE – SEVIN DUST

• Grandparents used Sevin Dust to treat bedbugs ... “it worked for someone else”
Clean up procedures?
Products without a pesticide label are illegal!
Gasoline
This is a compilation of real travelers who have visited hotels and made reports about bed bugs.

We are not responsible for false claims.

Search For Latest Bed Bug Reports In All Arizona Cities:

- Anthem
- Bisbee
- Carefree
- Chinle
- Ehrenberg
- Fountain Hills
- Apache Junction
- Buckeye
- Casa Grande
- Chino Valley
- Eloy
- Gila Bend
- Avondale
- Bullhead City
- Cave Creek
- Cottonwood
- Flagstaff
- Gilbert
- Benson
- Camp Verde
- Chandler
- Eagar
- Florence
- Glendale
The Registry is a free, public database of user-submitted bed bug reports from across the US and Canada. Founded in 2006, the site has collected about 20,000 reports covering 12,000 locations.
“BED BUGS EASILY MOST DIFFICULT & MOST EXPENSIVE PESTS IN HOMES”

- Pest management companies may charge from $200-$1,000 per unit for initial service; AZ $500 / room, pesticide treatment.
- Apartment complex of 200-500 units may spend $20,000-$50,000;
- Multi-dwellings face financial hardships, liability costs, lawsuits, and adverse public relations from bed bug infestations.

Bed Bug Legislation Arizona
SB1306 - 2011
Bed bugs can carry ultra-virulent MRSA bacteria

Esther Inglis-Arkell — Apocalypse by fiery nuclear war, apocalypse by ancient Mayan prophecy, apocalypse by Buffy villain - we expected almost anything. But not apocalypse by bed bug.

There has been a rise in bed bug infestations of major cities over the last few years. People have been all abuzz about which major buildings have been...
Vancouver-based researchers discovered several instances of bed bugs infected with Methicillin-resistant Staphylococcus aureus (MRSA) as well as vancomycin-resistant Enterococcus faecium.

No evidence of transmission by the bed bugs.
<table>
<thead>
<tr>
<th>Cause</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td>779,367</td>
</tr>
<tr>
<td>Cancer</td>
<td>568,668</td>
</tr>
<tr>
<td>Motor vehicles</td>
<td>36,284</td>
</tr>
<tr>
<td>Homicide</td>
<td>16,591</td>
</tr>
<tr>
<td>Flu</td>
<td>2,808</td>
</tr>
<tr>
<td>Accidental gun</td>
<td>588</td>
</tr>
<tr>
<td>WNV</td>
<td>32</td>
</tr>
<tr>
<td>Honey bees</td>
<td>~20</td>
</tr>
<tr>
<td>Chlorpyrifos &amp;/or pyrophus*</td>
<td>&gt;10 cases</td>
</tr>
<tr>
<td>Malaria</td>
<td>4</td>
</tr>
<tr>
<td>Bed bugs</td>
<td>0</td>
</tr>
</tbody>
</table>

Number of deaths in US in 2009 = 2,436,682

* Applied for bed bug control
Bed bugs have been known to carry but not vector MANY pathogens - 1963 review paper (previous 55 y)

Wuchereria bancrofti
Mansonella ozzardi
Leishmania donovani
Leishmania tropica
Leishmania braziliensis
Mycobacterium leprae
**Staphylococcus aureus**
Bacillus anthracis
Diplococcus pneumoniae
Pasteurella tularensis
Brucella abortus
B. melitensis
B. suis
Salmonella paratyphi
Pasteurella pestis
Rickettsia rickettsii

Rickettsia prowazekii
Rickettsia typhi
Coxiella burnetii
Borrelia recurrentis
Borrelia duttoni
Spirochaeta merionesi
Leptospira icterohaemorrhagiae
Poliomyelitis virus
Yellow fever virus
Smallpox virus
Lymphocytic choriomeningitis virus
Wuchereria bancrofti
Leishmania tropica
Leishmania donovani
Borrelia recurrentis
Yellow fever virus
*Staphylococcus aureus* has been isolated from cockroaches and ants.
25% to 30% of the human population is colonized with staph (meaning that bacteria are present, but not causing an infection), approximately 1% ARE colonized with MRSA.
Staphylococcus aureus is commonly carried on the skin and in the nose of healthy people.

Sometimes, Staph can cause an infection. Staph bacteria are one of the most common causes of skin infections in the US.

Affects weakened immune systems, so common in hospitals and healthcare facilities.