From red-bugs and bed-bugs, from sand-flies and land-flies,
Mosquitoes, gallinippers and fleas,
From hog-ticks and dog-ticks, from hen-lice and men-lice,
We pray thee, good Lord, give us ease.
(An Old Prayer: circa 1856)
Connecticut bed bug forums
Connecticut Coalition Against Bed Bugs

The Board
Connecticut Coalition Against Bed Bugs

- **Education**: Start a conversation, eliminate stigma, public outreach (schools), proactive behavior
- **Research**
- **Training**: Empowering action
- **Policies**: (from buildings up to state level)
- **Information**: list serve, web site, publications etc.
The Return of the Bed Bug, A Pandemic.

Dr. Gale E. Ridge
Connecticut Agricultural Experiment Station
New Haven, CT
Bed bugs and human culture

The word “bug” means wraith or ghost and stems from visits at night by bed bugs.
Some international names:

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>Wandlaus (wall louse)</td>
</tr>
<tr>
<td>Slavic</td>
<td>Pluskwa (flat louse)</td>
</tr>
<tr>
<td>Czech</td>
<td>Stenice (wall)</td>
</tr>
<tr>
<td>Africa</td>
<td>Tihuani</td>
</tr>
<tr>
<td>India</td>
<td>Uddamas (biter)</td>
</tr>
<tr>
<td>Hindu</td>
<td>Mak hun</td>
</tr>
<tr>
<td>Greek</td>
<td>Coris (to bite)</td>
</tr>
<tr>
<td>Latin</td>
<td>Cimex</td>
</tr>
<tr>
<td>French</td>
<td>Punaise (stink)</td>
</tr>
<tr>
<td>Russian</td>
<td>Klop</td>
</tr>
<tr>
<td>Arabic</td>
<td>Buk</td>
</tr>
<tr>
<td>Chinese</td>
<td>Piq-seq (wall louse)</td>
</tr>
<tr>
<td>Japanese</td>
<td>Tokourami (bed louse)</td>
</tr>
<tr>
<td>Spanish</td>
<td>Chinche de Cama</td>
</tr>
</tbody>
</table>
approx. 20,000 to 10,000 years ago was the last ice age
Man moves out of caves, builds homes, and bed bugs follow

The Fertile Crescent in the middle east
Two species of human bed bugs

Common bed bug *Cimex lectularius*
cold hardy

Tropical bed bug *Cimex hemipterus*
not cold hardy
Vestigial wings; they run and cannot jump, hop or fly

**Broadly oval:** Adult males are a little narrower than females

**Color:** Brown to reddish brown

**Size:** Small melon seed or apple seed

**Feeding:** Piercing sucking mouthparts, bed bugs do not “bite”
Family portraits

7 stages of development

Adult and nymph

Adult female

Adult male

Reproduction

Newly hatched nymphs and egg cases
Life Cycle

Under good conditions:
At 83-90°F and 75-80% relative humidity
4-5 weeks (egg to egg)
(this can vary depending on temperatures)

• Feed only on blood, usually mammal or bird
• The 5 nymph stages need a blood meal to molt up the next stage
• Adults need blood meals for reproduction

Mate by “Traumatic Insemination”, a peculiar form of mating
Development

Bed bugs develop by gradual metamorphosis

Three stages of development are:

- Egg
- Nymph
- Adult
Eggs

- are sticky and attach to various hiding places
- laid in loose groups or clusters
- female may lay up to 200 eggs
Nymphs

Immature bed bugs are called nymphs, they look like the adults but smaller

- Nymphs develop through 5 stages (molts) called instars
- At least 1 blood meal is required to develop up to the next instar (stage)
- Unfed nymphs can live up to 3 months
Adults

Unfed adults can live on average for several months.

Take a blood meal in 3-8 min. often just before dawn when host is in the deepest stage of sleep.

Human bed bugs prefer humans, but can “host switch” and feed on birds, rabbits, guinea pigs, hamsters, chinchillas, ferrets, rodents, and other mammals if they have to.
Bed bug sign......

In severe infestations there is a distinct “musty, sweetish” odor.

In hiding places or sheets, bed bugs usually deposit undigested parts of blood meal as tarry or “rusty” residue or creamy white plasma droplets.

Eggs and droppings...
Medical importance

Bed bugs can be infected by >20 human diseases

NEVER been proven to transmit human disease

Repeated bites can cause a progressive sensitivity to bed bug saliva, and in severe cases anemia and skin leathering
Behavior

Often feed in “rows” at the edge of clothing and bedding

Male

First instar larva
Survival skills

Nocturnal; hiding during daytime, except in apartments with closed curtains

Habit of clustering to reduce water loss, but are not social insects

Aggregate in locations away from bed in cracks and crevices

Usually commute 20 feet, but can go up to 100 feet

Starved individuals and females fleeing from mating activities do not like to aggregate

Have > 14 alarm and assembling pheromones
Some sources for bed bugs

- Universities, colleges, and schools
- Halfway homes
- Correctional facilities
- Hospitals
- Homeless shelters
- Churches
- Airports
- Taxis
- Discarded furniture and mattresses
- Hotel, motels, inns etc.................
First encounter...what is it?

Unexplained appearance of “bite sites” (red spots or welts) and initial questions

Medical conditions?
- Dry skin
- Menopause
- Autoimmune diseases
- Thyroid
- Anemia
- Diabetes
- Rheumatoid arthritis
- Aging
- Doctor mistakes

Arthropods?
- Bed Bugs
- Bird Mites
- Scabies
- Fur mites

Drugs?
- Prescription
- Over the counter
- Illegal
- Self medication

Allergies?
- Plants inc. hairs
- Pollens, seeds
- Foods
- Mold
- Cleaners etc.

Environmental
- Man made fibers & fabrics
- Dust
- New mattress
- Humidity
  - static electricity

Psychological?
- Ekbom syndrome
- Delusory parasitosis
- Stress
- Depression
- Paranoia
- Internet
- Following trauma
Arthropods found or “bites” reported

Inspect sleeping area for signs of arthropod activity

Live arthropods present

No
- Do not treat premises
- Resample
- Examine other possibilities?

Yes
Get professional identification

Bed bugs Confirmed

Homeowner

Tenant

Landlord or property manager, hotel, etc.

1. PCO

2. Health Dept.

Attorney
HELP!!!

WWW.CT.GOV/CAES

TEL: (203) 974-8600

Connecticut Coalition Against Bed Bugs

Mike Vasil and delegate studying live bed bugs