



Bed Bugs: From Obscurity to Emerging Public Health Issue

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Michigan Department of Community Health

Outline

- Introduction
- Biology
- Impact on Human Health
- Bed Bugs in Michigan
- Inspection, Treatment, and Prevention
- Laws and Regulations

Introduction

“Good night, sleep tight, and
don’t let the bed bugs bite”

Brief History of Bed Bugs

- 100 years ago, bed bugs were a common pest.

"DDT is good for me-e-e!" z z



BED-BUG POISON

(CORROSIVE SUBLIMATE)

ANTIDOTE—THE WHITE AND YOLK OF RAW EGGS, FOLLOWED BY
AN EMETIC OF MUSTARD AND WATER. THEN FLOUR
AND WATER, OR MILK.

Tristram Pharmacy

SOUTH SIDE
SQUARE

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PROP.

BRENHAM
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Henry George's

BED-BUG



KILLER

*Spray or Shake into the Cracks
and Crevices or Wherever
the Bugs May Infest.*

Manufactured by



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WASHINGTON

Brief History of Bed Bugs

- 100 years ago, bed bugs were a common pest.
- In the 1940's and 50's, widespread use of DDT nearly eradicated bed bugs in the U.S.

Brief History of Bed Bugs

- 100 years ago, bed bugs were a common pest.
- In the 1940's and 50's, widespread use of DDT nearly eradicated bed bugs in the U.S.
- Recently, we have begun to see a resurgence in bed bugs. Reasons for this may include:
 - Increased international travel
 - Changes in pesticide use
 - Pesticide resistance



HOTEL HOTSHEET

Check it out before you c



By Kitty Bean Yancey

« [Hilton could be in for long, hot summer](#) | [Main](#) | [W debuts "Fun Ball" machine](#) »

\$20M bedbug lawsuit filed



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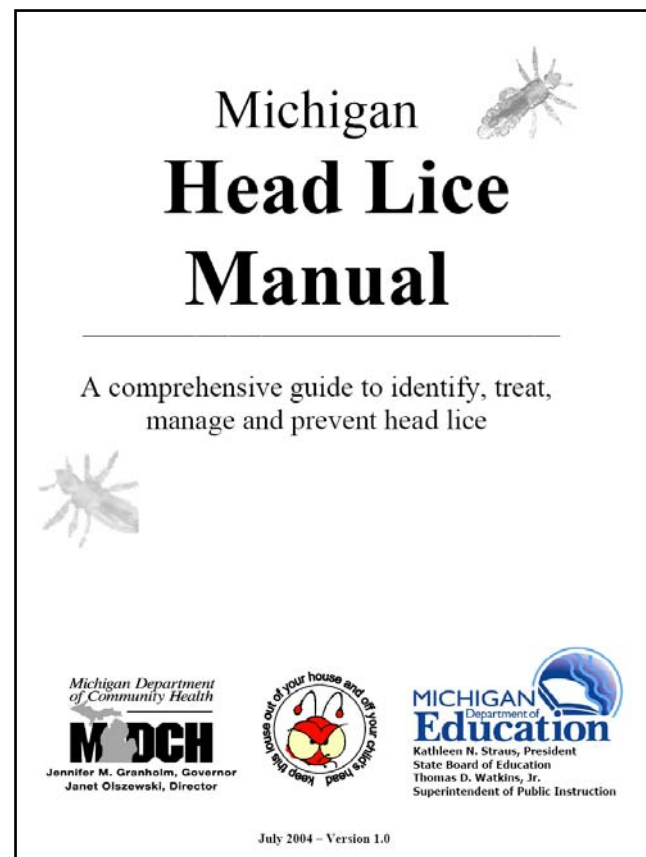
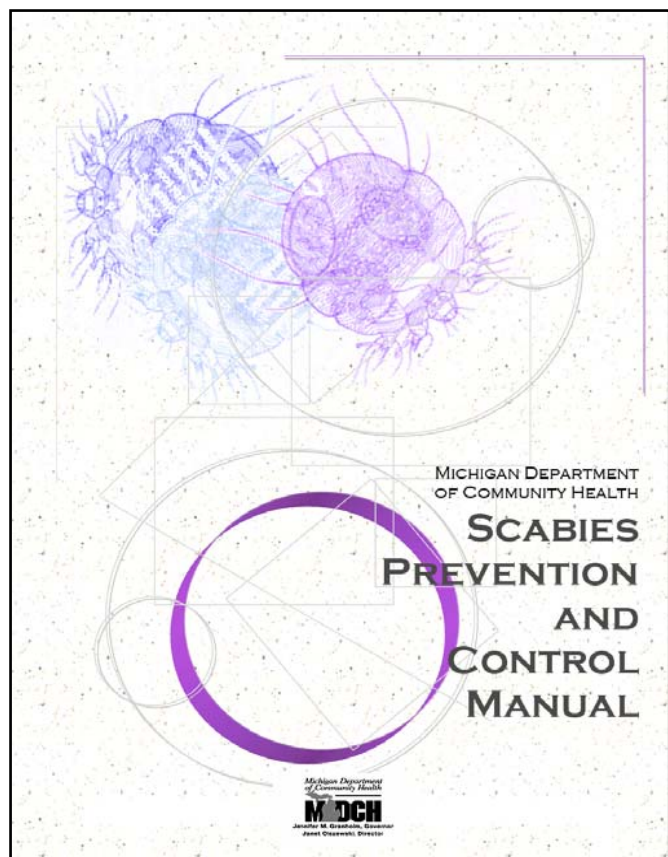
E-mail me

Filed under the category "creepy news" comes the story of a Chicago woman who has filed suit against a Catskills resort for more than 500 bedbug bites she alleges she got while staying at the hotel. Leslie Fox and her husband had stayed at the [Nevele Grand Resort and Country Club](#) in Ellenville, N.Y. for three nights when she woke with bites all over her body, [The Associated Press](#) reports. Fox says she

Bed Bug Working Group

- Get ahead of the problem!
- Build partnerships between agencies with different areas of expertise
- Promote site-specific Integrated Pest Management approaches to effectively manage infestations
- Clarify the existing laws relating to bed bugs, and promote new legislation if necessary.
- **Develop a comprehensive manual for the prevention and control of bed bugs**

Examples of past MDCH WG efforts...



Available Information

- Informational pamphlets, fact-sheets, and contact information for certified pest management companies can be found at:

www.michigan.gov/emergingdiseases

Virus

Emerging Disease

Prevention

Diagnosis

Illnesses


Surveillance

Watch For



Don't Let the Bed Bugs Bite!

Contact: Erik Foster 517-335-8165
Agency: Community Health

Bed Bug Resources



Once just a distant memory or a reference in a popular bedtime phrase, Bed Bugs are real, and are making a comeback in the United States. The Michigan Department of Community Health has gathered experts from across the state government, local municipalities and industry groups to develop resources and materials for Michigan. The resources below will be updated periodically as more materials are developed and become available.

	MDCH Factsheet
	Questions and Answers About Bed Bugs

Biology

“Know thine enemy”

Primary Target



Threat Report

Name: *Cimex lectularius*

Common Alias: Bed Bug

Threat: Attempting to acquire blood-meals from Michigan citizens.

Biologic invasion of dwellings.

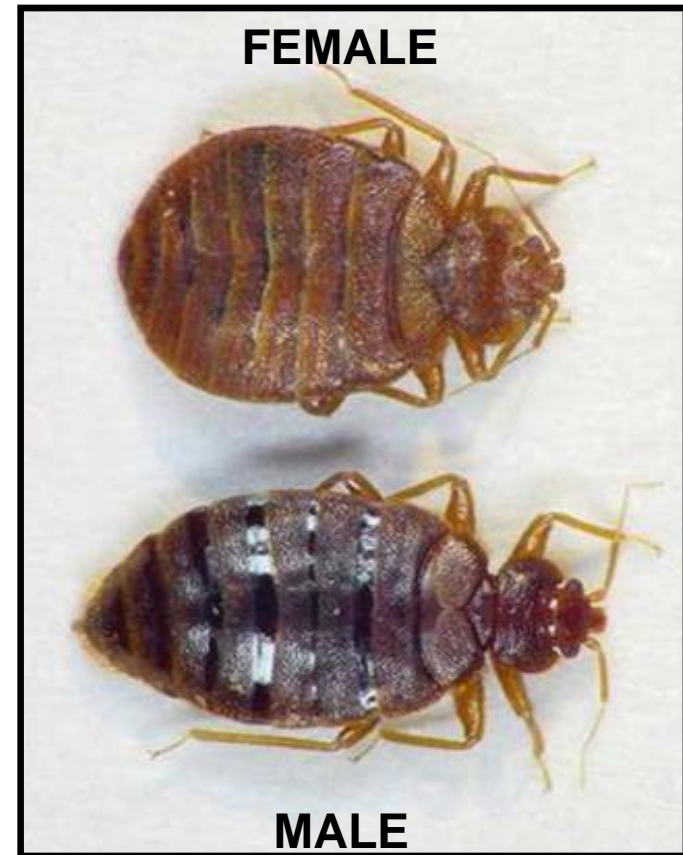
Last Known Location:

Expanding operations into SE Michigan

(see intelligence brief to follow)

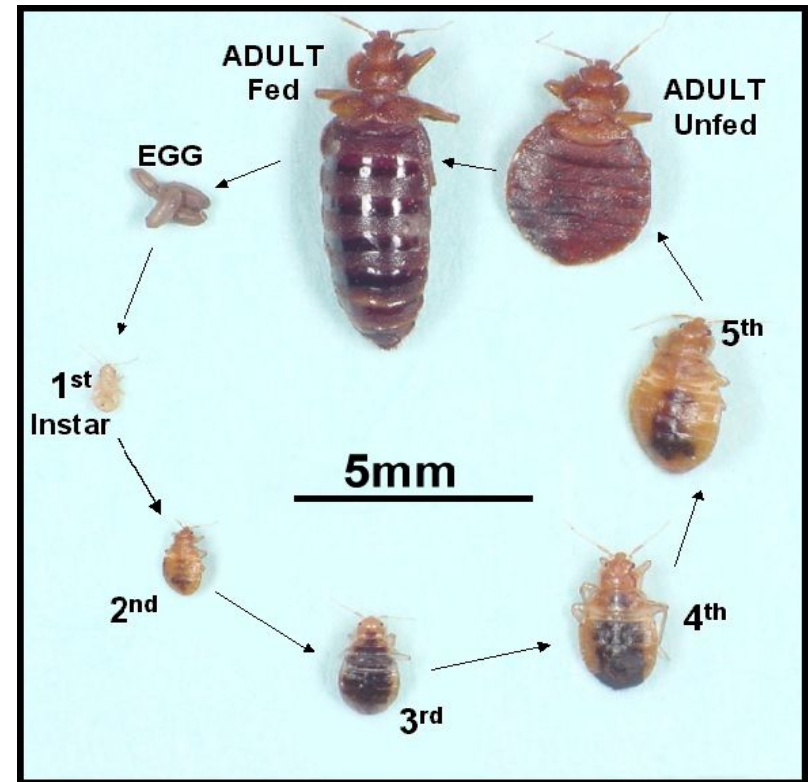
Biology of the Bed Bug

- Small - 3/16 inch long, oval, flat, reddish - brown insects
- Obligate human ectoparasite
- Nocturnally active, and feed almost painlessly
- Normally found within 5-20 feet of host
- Give off a distinctive “musty, sweetish” odor



Biology of the Bed Bug

- Undergo metamorphosis through 5 nymphal stages requiring a blood meal at each stage (feed within 3-15 minutes)
- Life cycle takes 4-5 weeks (egg-to-egg) in 'good' conditions [75-80% RH; 83-90o F]
- Female may lay 200-500 eggs in her lifetime
- Easily hide in cracks, crevices in bed frames, mattresses, personal electronics, and baseboards, etc.
- Harbor in clusters, but NOT 'social'



Other Complications!

- Adults can survive >1 yr. without feeding (Nymphs +3-4 mo.)
- Can remain fully active at <45° F
- “Prefer” humans but feed on other hosts, too!

Becoming resistant to many commonly used pesticides



Pest Management Firms/Suppliers Also Capitalize!

BED BUGS ARE BACK!

And So Are Your Profits.

Create a new revenue stream with the most effective bed bug trap and monitor available.



- Uses multiple, natural attractants
- Traps all instars and adult bed bugs
- Great for monitoring, detection or as part of an IPM eradication program



NightWatch™ caught over 1,000 bed bugs in one night and almost 10,000 bed bugs in the same field trial!*

* Independent tests of prototype NightWatch traps by an inspected state agricultural experiment station in an extremely infested, multi-unit dwelling that had received chemical and steam treatments.



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licensed for commercial & resident**

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45 West 34th Street New York, NY 10001

Impact on Human Health

“Sleep is overrated”

Human Health Concerns?

- Not known to transmit disease although have been found to “carry” several human pathogens (including HIV and hepatitis B) temporarily
- Hypersensitivity to bites, secondary infection, and psychological distress are common symptoms of infestation
- Concern that individuals will use chemical treatments not-labeled for bed bugs, or apply toxins to themselves or others



Courtesy of www.holidayinnbedbugs.com



Social Stigma

- Perceived association with poverty and uncleanness
- Fear of being stigmatized can prevent victims from admitting that they have a problem

BUT, REMEMBER:

- Nobody “invites” bed bug infestation
- Anyone is susceptible
- Bed bug infestations have been documented in most major urban areas in the U.S. (including the Detroit Metro Area and other Midwestern cities)
- Some victims have taken to the Internet with forums and blogs following the spread of infestations and response by officials;
CITIZENS WANT ACTION!

[HOME](#) [ABOUT](#) [BED BUG BITES](#) [BED BUG PHOTOS](#) [ENCASEMENTS](#) [ESP](#)

bedbugger.com



Current Article

Bed bugs in Detroit and Troy, Michigan

By [nobugsonme](#) on Mar 31, 2008 in [bed bug history](#) [bed bug treatment](#) [bed bugs](#) [bed bugs](#) [heat](#) [how to get rid of bed bugs](#) [mark sheperdigian](#) [michigan](#) [travel](#) [troy](#)

[Neal Rubin](#) writes in a Detroit News Op-Ed column today

At Rose Pest Solutions in Troy [Michigan], where Sheperdigian reigns as vice president for technology, the number of bedbug jobs has risen from one to about 160 last year, with continued rapid growth in 2008.

The Bedbug Blog



[Known Infestations](#)

[Handling Infestations](#)

[Bedbug Events](#)

[Bedbugs in the News](#)

[Bedbug Photos](#)

WEDNESDAY, MARCH 18, 2009

EPA Public Meeting on Bedbugs

This notice showed up in the comments below and I thought it would be worth posting for those who were interested in attending.

YAHOO!
Groups
Join Now!

[Click to join bedbugger](#)

ABOUT ME

I am [Caitlin Regan](#).

[FORUMS](#)

Chicago vs. Bed Bugs

[Posts](#) [Email](#) [Comments](#)

Advocating policy to control the spread of bed bugs in the City of Chicago

Type + Enter to Search

A Bed Bug Wish List (For Now)

\ By [Jessica](#), on March 23rd, 2009; \ [Jessica](#) posted this in [Bed Bugs](#), [City of Chicago](#), [Codes and Practices](#), [Existing Strategic Plans](#), [New York vs. Bed Bugs](#), [Policy](#), [Renee Corea](#) on March 23rd, 2009; [One comment so far](#) —

Our friend Renee Corea at [New York vs. Bed Bugs](#) posted [this list](#) today. It's wish list, of sorts, for New York City's new Bed Bug Advisory Board. Renee got my wheels turning, as usual, so I decided to post a wish list of my own—a list of the things I'd love to see in our city *right now*.

Here's what would be included on my wish list, if I were allowed to give one to the city officials who are working to stop the spread of bed bugs here in Chicago:

- Work with a sense of urgency, but work responsibly as well. Get the job done right from the very beginning. Form a committee or board or task force—comprised of health department officials, building inspectors, expert entomologists and pest management professionals, community stakeholders, public housing officials, and city/state legislators—whose sole purpose is to

Flickr photostream



[Join Our Discussion Forums!](#)



Bed Bugs in Michigan

“There’s no place like home”

Goal: *Assess the magnitude and scope of the bed bug problem in Michigan, and collect input from local health departments.*

- Online survey, emailed to local health department CD and EH personnel.
- 10 questions: 9 multiple-choice, 1 open-ended
- 2/26-3/18/2009
- 205 responses included in the analysis
- 42 out of 45 local health departments/districts responded to the survey



Department of
Community Health



Michigan.gov

An Official State of Michigan Web Site



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1. In the past year, how often have you been contacted regarding bed bug infestations?

- ☐ I have not been contacted regarding bed bug infestations
- ☐ Less than once a month
- ☐ 1 to 3 times per month
- ☐ 1 to 4 times per week
- ☐ Daily

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Survey Results

1.) “In the past year, how often have you been contacted regarding bed bug infestations?”

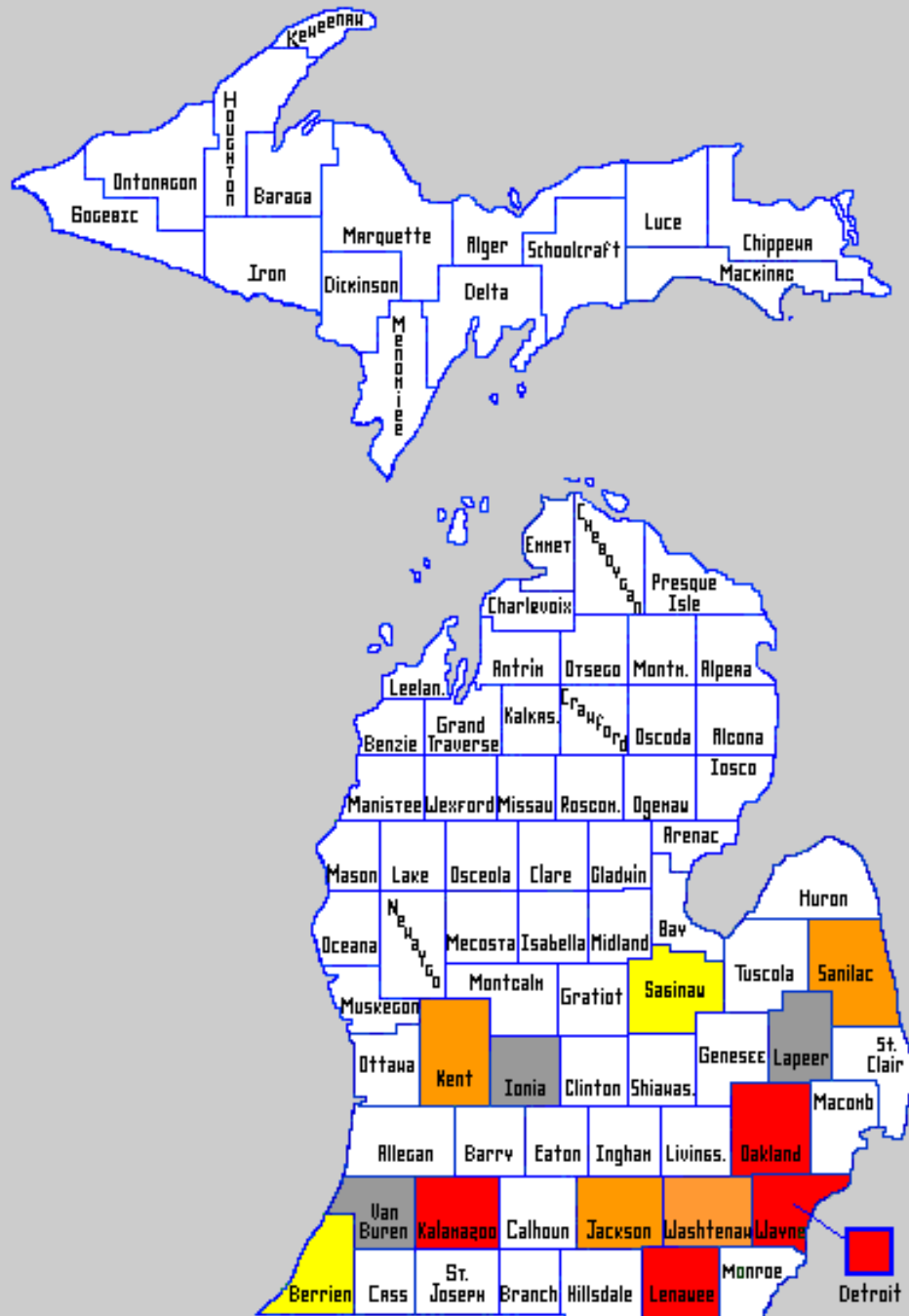
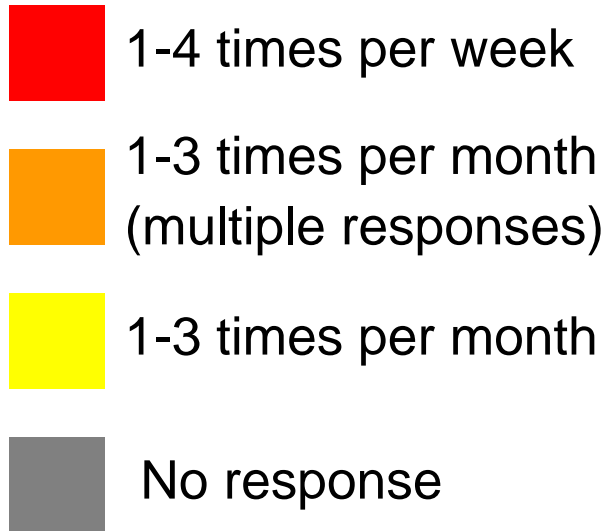
58%	I have not been contacted
32%	Less than once a month
7%	1-3 times per month
3%	1-4 times per week

2.) “In the past year, do you perceive that the level of bed bug infestation or activity in your area has:”

73%	Stayed the same
20%	Increased
1%	Decreased

Counties Reporting Bed Bug Activity

Key



Infested Locations

3.) “In the past year, have you been contacted about bed bug infestations occurring in:”

- 47 Hotels/motels
- 46 Single family dwellings
- 44 Multi-dwelling units (apartments, condos)
- 15 Homeless shelters
- 7 Nursing homes
- 4 Hospitals
- 2 Dormitories
- 1 Prisons
- 0 Schools

Concerns

4.) “If you have received calls regarding bed bugs, which of the following specific concerns have been involved:”

- 58 Concerns about health effects from bed bug bites.
- 52 Prevention of bed bug infestation
- 47 Problems with treatment effectiveness
- 44 Tenant-landlord issues
- 25 Home remedies or alternative treatments
- 16 Concerns about pesticide exposure / safety

Response and Resources

5.) “Does your department investigate and respond to bed bug complaints?”

31% Yes (includes 30/42 LHD's)

30% No, and I'm not sure where to refer the complaint

17% No, but I know where to refer the complaint

6.) “Do you feel that you have adequate informational resources to address inquiries about bed bugs?”

45% No

25% Yes

23% Not Sure

The Problems

Responses to open-ended question:

“I am in a rural county with few motels. I have not received any complaints regarding bed bugs.”

“Public housing has been by far the largest source of complaints that I have dealt with and getting adequate responses to the problem from the managers/owners.”

“I think the big question is who should regulate the Hotel/Motel industry. Tourists traveling through Michigan are shocked to hear there is no regulatory authority over general sanitation (bed bug control) in Michigan Hotels/Motels.”

Treatment, Prevention and Control

“Live and Let Die”

How Do We Get Bed Bugs?

- Brought into the home on:
 - Luggage
 - Furniture
 - Clothing
 - Used/second hand/rental goods
- In multiple dwelling unit arrangements, they may migrate from infested units above, below, or beside



Checking For Bed Bugs

- Usually found near beds
 - Mattresses
 - Bed frames/headboards
 - Nightstands
- Upholstered furniture
 - Couches
 - Chairs
- Baseboards
- Wall/ceiling junctures



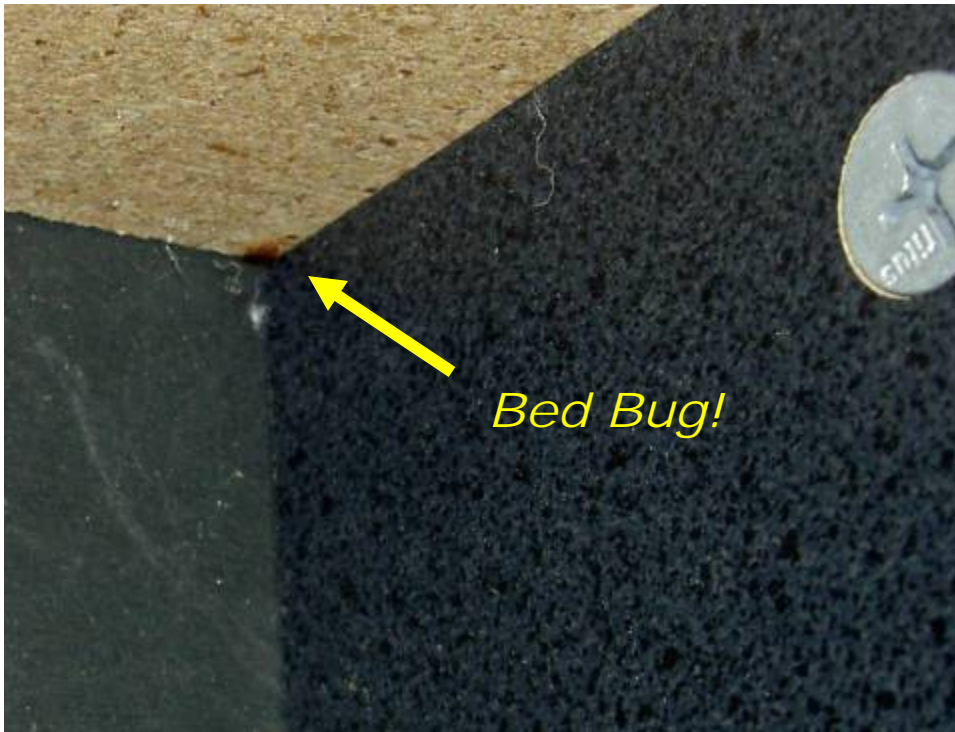
How do you find them?

- Small, difficult to find
- Cracks, crevices, wall plates, baseboards, mattress seams, head-boards
- Prefer wood and fiber to plastic and metal



Inspecting For Bed Bugs

- In their natural environment

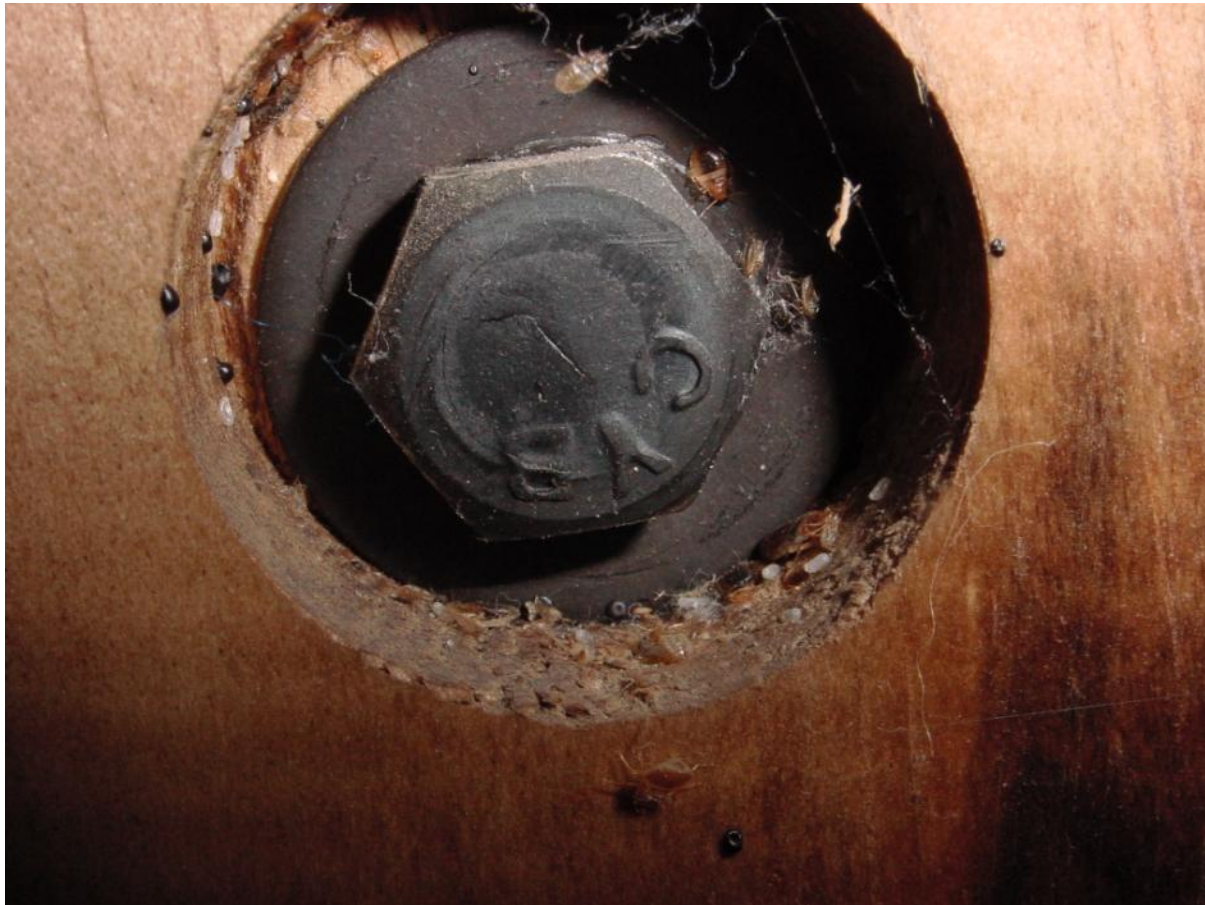


Inspecting For Bed Bugs

- Screw holes, recessed bolts, knotholes, and oh, so much more.



Inspecting For Bed Bugs



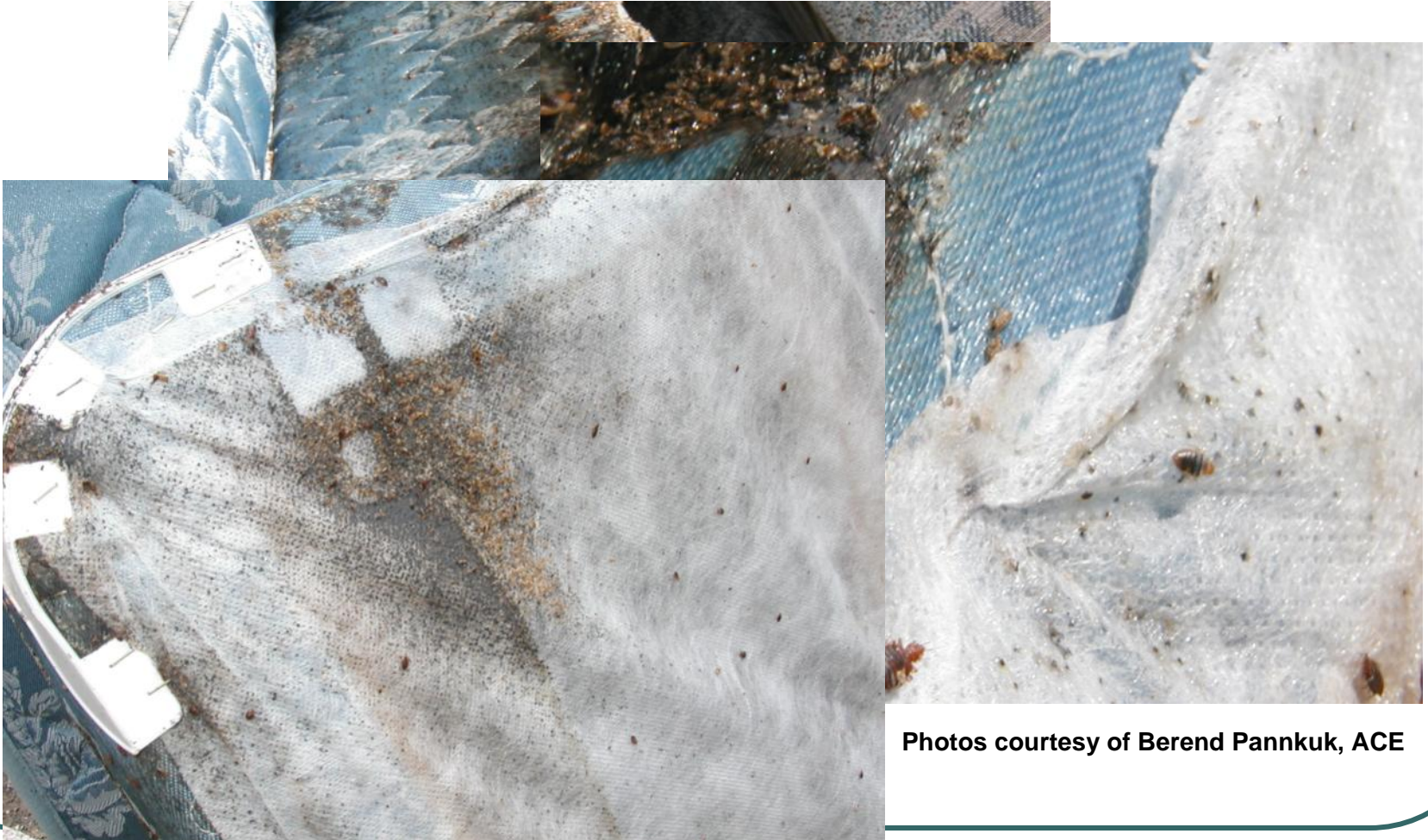
Inspecting For Bed Bugs



Inspecting For Bed Bugs



How Bad Can It Get?



Photos courtesy of Berend Pannkuk, ACE

How Bad Can It Get?



Treating For Bed Bugs



Treatment Technologies

- Bug-sniffing Dogs?!
- Insecticides
 - Pyrethroids
 - Insect growth regulators (IGR)(hydropene)
- Steam (cracks/furniture) or Dry Heat (can treat entire unit)
- Cold Treatment (liquid CO₂)
- Mattress encasements



Laws and Regulations

“I fought the law,
and the law won”

Laws and Regulations

- Pesticide regulation – Michigan Department of Agriculture
- Public Health Code – State and local health departments
- Michigan Housing Law
- Local ordinances

Laws and Regulations – Interesting Note

- The Michigan Mattress Law
- 1917 PA 54, entitled “An act to provide for the branding and labeling of mattresses and comforts, and to provide against the use of insanitary, unhealthy, old or second hand material in the manufacture of mattresses and comforts, and to provide against the sale of mattresses or comforts containing such insanitary, unhealthy, old or second-hand materials,” (MCL 429.301 to 429.311)
- Repealed in 2000 as “outdated”

I Pose a Question...

- How many outlets are there in the state that sell “second-hand” furniture not only from homes, but from hotels?
- Are these items inspected and treated prior to redistribution?
- Will the current economic climate exacerbate the spread of bed bugs through these means without legislation regulating such resale?

We'll See?!



THE THING I
LOVE MOST
ABOUT MICHIGAN??
THE PEOPLE.

Welcome Bedbugs!



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Questions?