

US EPA ARCHIVE DOCUMENT



# Welcome!

## Bed Bugs in Schools



### Reminders

- ▶ Check your speaker settings if you don't hear music now
- ▶ Participants' mics will remain muted
- ▶ Download the presentation from the Files Pod
- ▶ Use the Chat and Q&A Pods to enter comments/questions
- ▶ Questions will be addressed during the Q&A or later by email







# Bed Bugs in Schools

Center of Expertise for School IPM

# Presenters



**Marcia Anderson, Ph.D.**

- Environmental Protection Specialist, Center of Expertise for School IPM
- PhD - Montclair State University; MS - Kean University
- Author of bed bug educational materials



**Stephen Kells, Ph.D.**

- Associate Professor and Extension Entomologist, Univ. of Minnesota
- Ph.D. - Purdue University; BS & MS - University of Guelph
- Researcher on bed bugs, stored product pests, and mold mites



**Steven Morlino, CEFM**

- Executive Director of Facilities Management, Paterson (NJ) Public Schools
- NJ licensed exterminator
- LEED Accredited Professional with HVAC mechanical systems design degree



# Bed Bugs Go to School

Two schools are sprayed with pesticides due to the sighting of one bed bug. No timely notice was given to parents.

Bedbugs are invading classrooms at alarming rate. It was, like, OMG, there's bedbugs in the school.



School bans backpacks and lunch boxes after bedbugs appear.

Bedbugs are sighted... and officials stated they will confine them to the 3<sup>rd</sup> floor and not close the school despite outside pressure.

# Bed Bug *Fear and Loathing*

- ▶ **Why are bed bugs such a challenge?**

- ▶ They generate emotions and anxiety in parents, students and staff



*Panic & Hysteria...  
Don't let it happen in your  
school!*





# Bed Bugs in Schools



Bed bug reports in New York City schools:  
2009/2010 = 1,000  
2010/2011 = 4,000

# Things to Avoid



- Overreacting
- Closing school
- Sending a student home
- Stigmatizing students
- Allowing staff to apply pesticides *(unless appropriately licensed)*
- Widespread pesticide applications



# Be Proactive

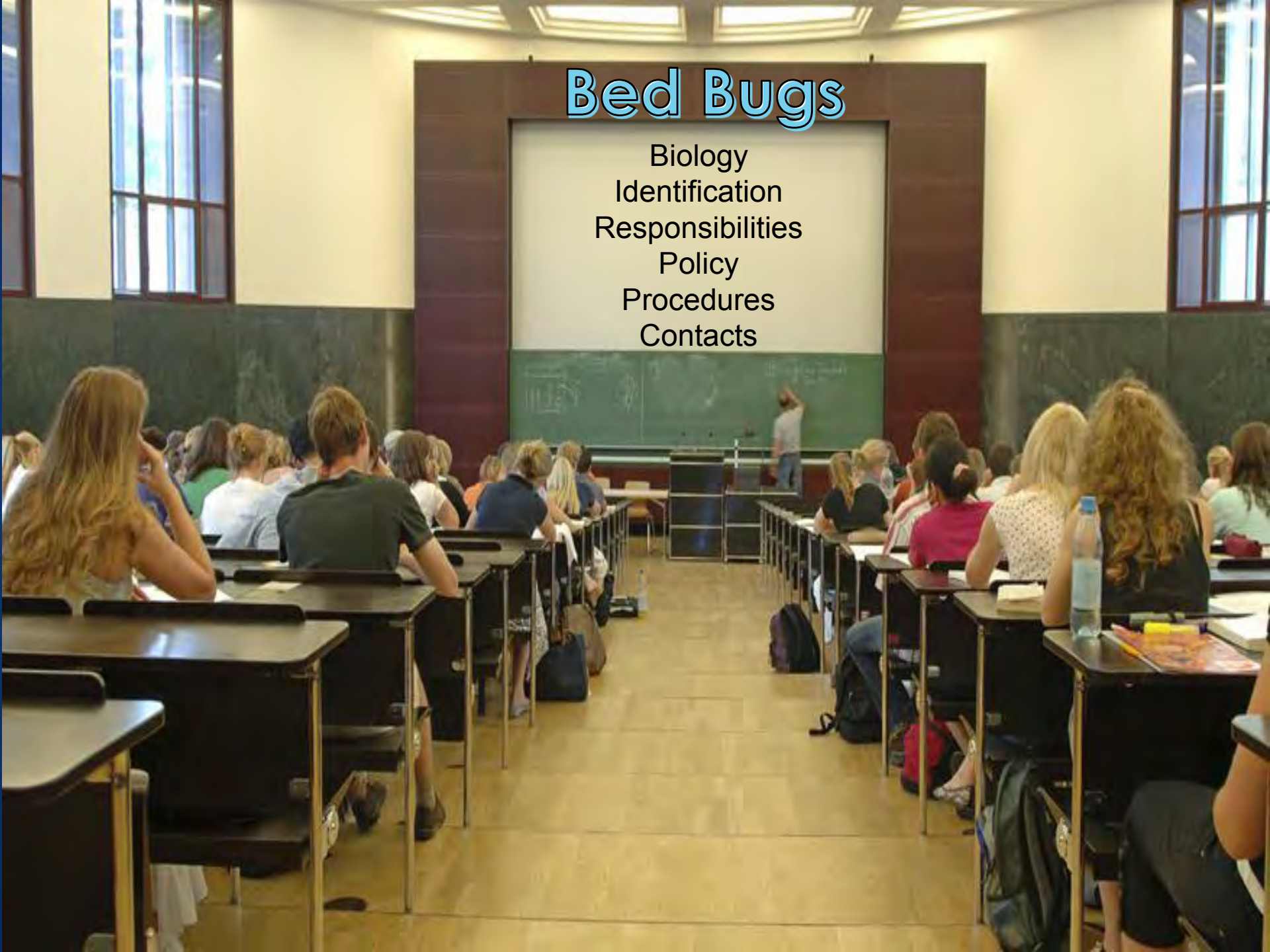
Success is based  
on education

- Have a plan of action
- Remain calm
- Develop a district-level policy
- Develop procedures and staff responsibilities
- Educate all stakeholders



# Bed Bugs

Biology  
Identification  
Responsibilities  
Policy  
Procedures  
Contacts





# Which are Bed Bugs?



1



2



3



4



5



6



7

# Which are Bed Bugs?



1  
tick



2  
tick



3  
bed bug (nymph)



4  
carpet beetle



5  
cockroach



6  
bed bug (adult)



7  
cockroach (nymph)



# Identification: Adults

- ▶ Oval Bodied, < ¼ inch
- ▶ Brown to red
- ▶ Wingless
- ▶ Six legs



# Identification: Eggs & Young

## ► Eggs

- white, 1-2mm
- glued to rough surfaces

## ► Nymphs

- nearly colorless
- size of a poppy seed





# Characteristics

- ▶ Aggregate
- ▶ Usually active at night, within hours of dark
- ▶ Stimulated by increased  $\text{CO}_2$
- ▶ Travel yards to feed



# Signs



- Dark/rusty droppings
- Shed skins
- Blood stains
- Eggs and casings among droppings or in crevices
- Offensively sweet, musty odor
- Live bed bugs



# How do Bed Bugs Feed?



Piercing-sucking mouthparts

# Feeding

*In 10 Minutes!*



Hungry



Feeding



Full



# Myth #1

***You can't see bed bugs with the naked eye***

- ▶ Adult bed bugs are easy to see



# Myth #2

## *Bed bugs are only active at night*

- ▶ Prefer darkness but keeping the light on at night won't deter them from feeding
- ▶ Their activity period can vary

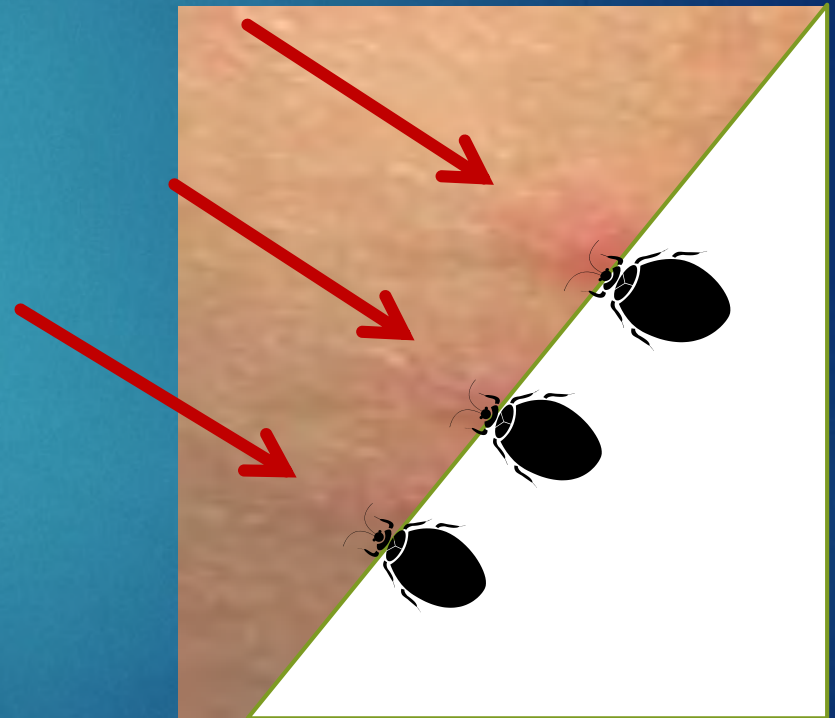




# Myth #3

*Bed bug bites show up in sets of three*

- Don't burrow under skin like ticks
- Cannot be identified by their bites alone



# Myth #4

*Bed bugs can be identified by their bites alone*

- ▶ Cannot be identified by their bites
- ▶ Reactions vary
  - no reaction
  - immediate reaction
  - delayed reaction
  - immediate + delayed reactions
  - hypersensitivity can develop





# Myth #5

**You only get bed bugs if you are dirty**



- ▶ Not a sign of sanitary issues
- ▶ Thrive where humans sit still for 1+ hours
- ▶ Exposure pest

# Other Pests Confused with Bed Bugs

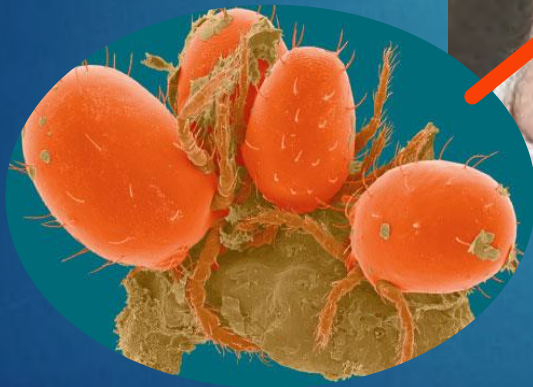


- **Scabies** - mites that burrow into the skin resulting in lesions and sores



# Other Pests Confused with Bed Bugs

- ▶ Fleas
- ▶ Chiggers
- ▶ Bird mites
- ▶ Rodent mites



# Classroom Infestations



- ▶ Are rare
- ▶ Require professional treatment and parent notification
  - ▶ State laws often require parental notification for any pest infestation



# Introduction vs. Infestation

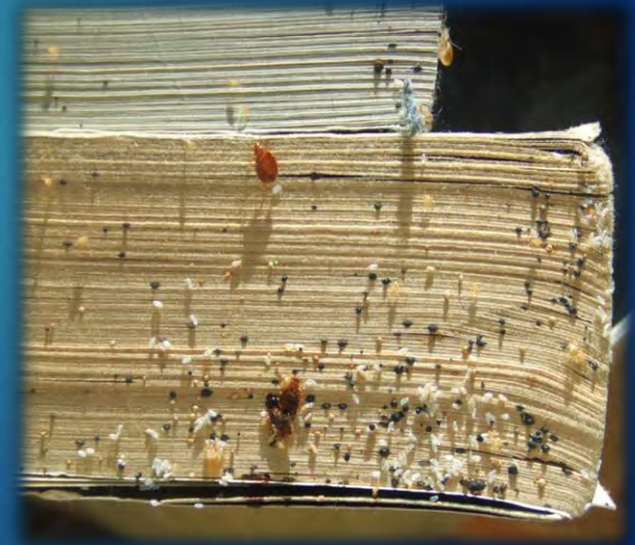
## ► Introduction

- Single bug or a group of bugs that are not breeding
- Single or multiple immature bugs
- Single or multiple males



## ► Infestation

- Reproducing population
- Can be started by a single mated adult female
- Eggs present



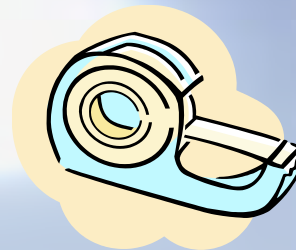
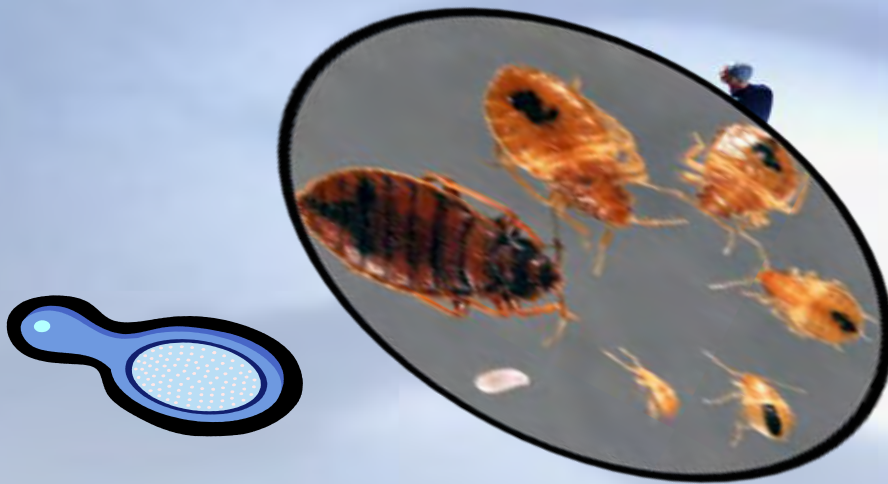
# Looking for Bed Bugs





# Identify the presence of multiple bed bugs

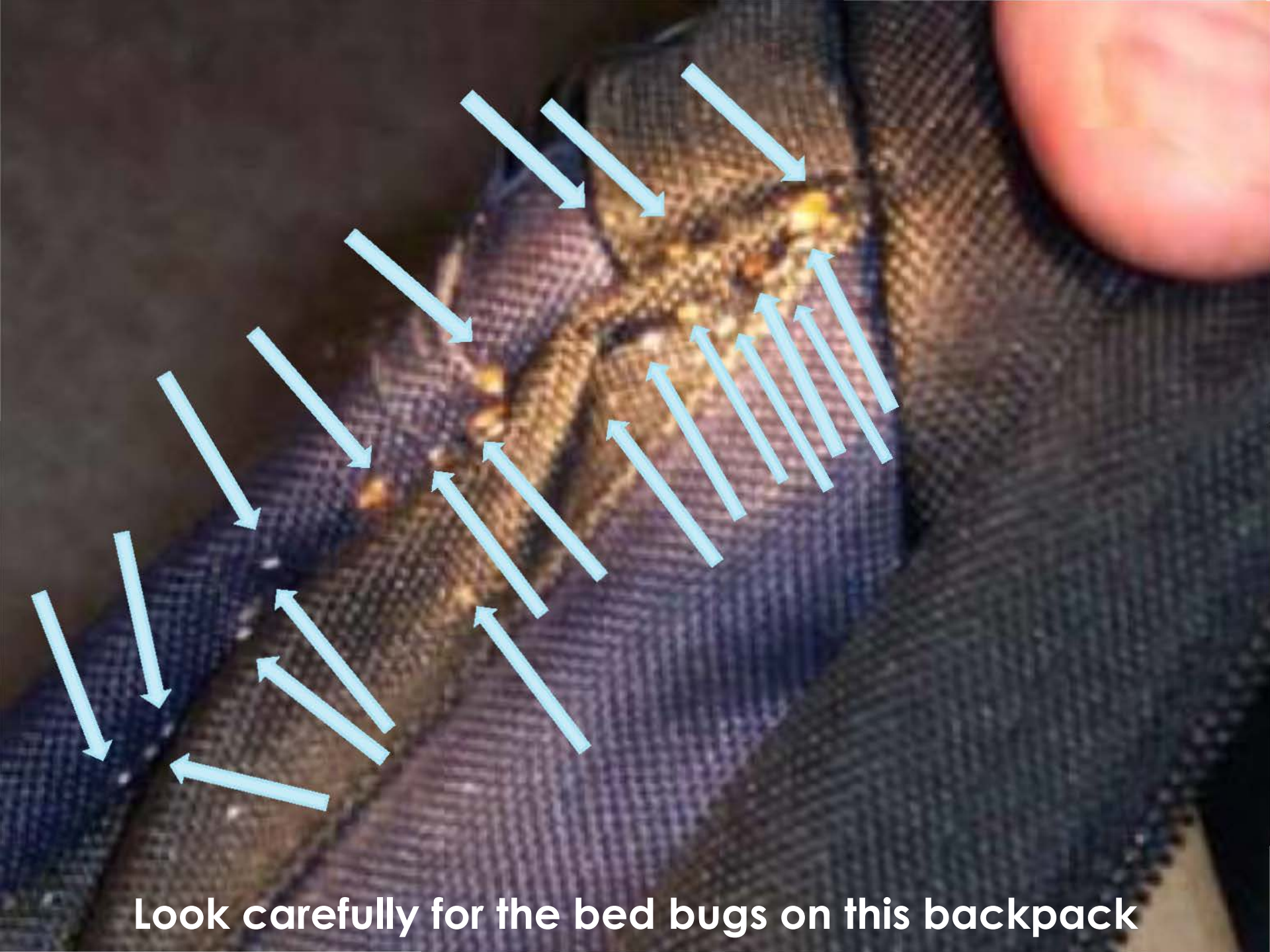
- ▶ Magnifying glass
- ▶ Strong flashlight
- ▶ Plastic zip-bags, lint roller or adhesive tape
- ▶ Mirror





**Look carefully for the bed bugs on this backpack**





**Look carefully for the bed bugs on this backpack**

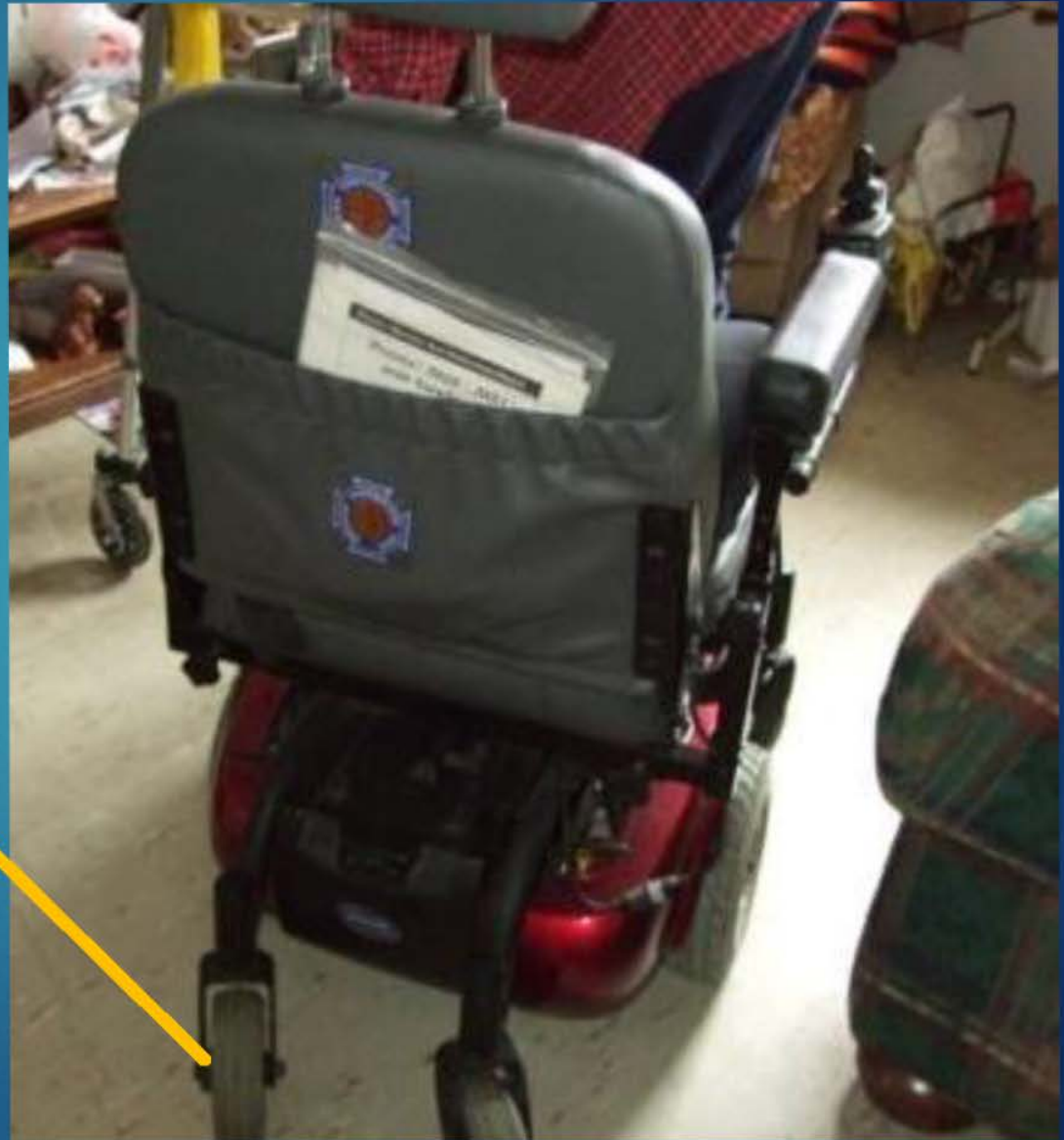
# Hot Spots

- ▶ Closets and lockers
- ▶ Faculty lounge, office areas, or nurses offices with upholstered furniture or cots
- ▶ Classrooms with upholstered furniture
- ▶ Schools with childcare facilities or dormitories





# Unusual Harborage



# Sleep Areas



- Vacuum floors daily
- Clean mattresses / cots weekly
- Send home or launder personal regularly (weekly)



# Nap Blankets & Cot Storage Areas



- Clean and inspect walls and storage bins weekly
- Store all bedding and clothing in individual plastic boxes with lids

# Inspections

- ▶ Focus on the area surrounding a sighting
  - ▶ Include desks, floors, walls storage areas, closets and lockers
- ▶ Enlist a pest management professional
- ▶ Map sightings and confirmed findings





# Eliminate Clutter

- Bed bugs hide well
- Clutter removal aids in eliminating many pests





An ounce of  
prevention....

- Focus on prevention
- Use integrated pest management (IPM)
  - A smart, sensible, and sustainable approach to pest management



# Benefits of IPM

- ▶ Smart - healthier learning environment
- ▶ Sensible - addresses the cause of pest problems
- ▶ Sustainable – focuses on long-term control
- ▶ Savings - may reduce costs over time



# Limit Items Brought to School

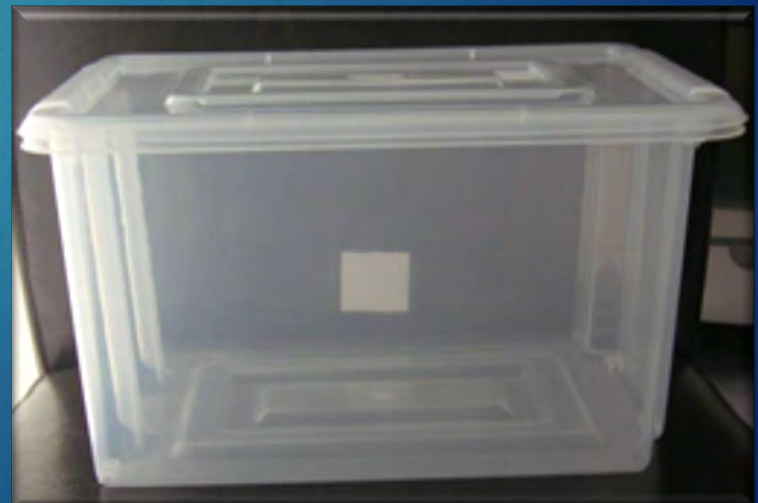
- Designate items to leave at school for the year
- Identify items to leave at home (e.g., books) for the year
- Place books in plastic zip bags
- Ask parents to frequently heat-dry bed linens, jackets, backpacks and clothes





# Preventing Introductions

- ▶ Plastic storage containers
  - ▶ Store coats, backpacks and purses
  - ▶ Examine containers at the end of the day
- ▶ Portable heat chambers
  - ▶ books, electronics, etc.



## Myth #6

*Pesticide applications alone will easily eliminate bed bug infestations*



- ▶ Pesticides alone will not eliminate bed bugs
- ▶ Some bed bugs are resistant to common pesticides
- ▶ Bed bugs should be managed through an IPM strategy



# Who is responsible for reporting bed bug issues in your school?

- Principal
- Teachers
- Maintenance / Custodial staff
- Students
- Everyone
- IPM Coordinator
- Parents



# How to Respond

**What should you do if you think you see a bed bug?** (Select all that apply)

- a) Scream!
- b) Call the facility manager
- c) Inspect the area near where it was found
- d) Close school for the rest of the day
- e) Call a pest control company immediately
- f) Capture it for proper ID
- g) Kill it and forget it, because it is only one
- h) Notify the school nurse





# How to Respond

**What should you do if you think you see a bed bug?** (Select all that apply)



a) Scream!



b) Call the facility manager



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# [www.epa.gov/bedbugs](http://www.epa.gov/bedbugs)



United States Environmental Protection Agency

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## Bed Bugs: Get Them Out and Keep Them Out

[Contact Us](#)

[Share](#)

### Where are the bed bugs?

[Find them, get rid of them: An introduction to bed bugs](#)



- **December 16, 2014 – EPA to Host Webinar on Bed Bugs in Schools**
- **Bed bug tip of the month**  
**Don't panic!**  
There is no need to throw out all of your things. With some effort, most items can be saved.  
[Read more about bed bug control options.](#)
- **More Tips**

### Learn About Bed Bugs



- [Introduction to bed bugs](#)
- [Characteristics of bed bugs](#)
- [How to find bed bugs](#)
- [Bed bug information clearinghouse](#)
- [What landlords need to know](#)

### Prevent Infestations



- [Protecting your home](#)
- [Protecting yourself at school or office](#)
- [Tips for travel](#)
- [Print an information card to carry with you](#)

### Get Rid of Bed Bugs



- [Using integrated pest management](#)
- [Pesticides for bed bug control](#)
- [Steps for "do-it-yourself"](#)
- [Safety issues in controlling bed bugs](#)
- [Find help with bed bug problems](#)

### Questions?

- [Qs and As about bed bugs](#)
- [Ask a question](#)
- [Bed bug myths](#)
- [Regional bed bug contacts](#)

### Popular Topics and Resources

- [Top ten tips to prevent or control bed bugs](#)
- [Public health issues](#)



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# Bed bug prevention and response plans

*FOR SCHOOLS AND DAY CARES*

Dr. Stephen A. Kells, BCE  
Associate Professor





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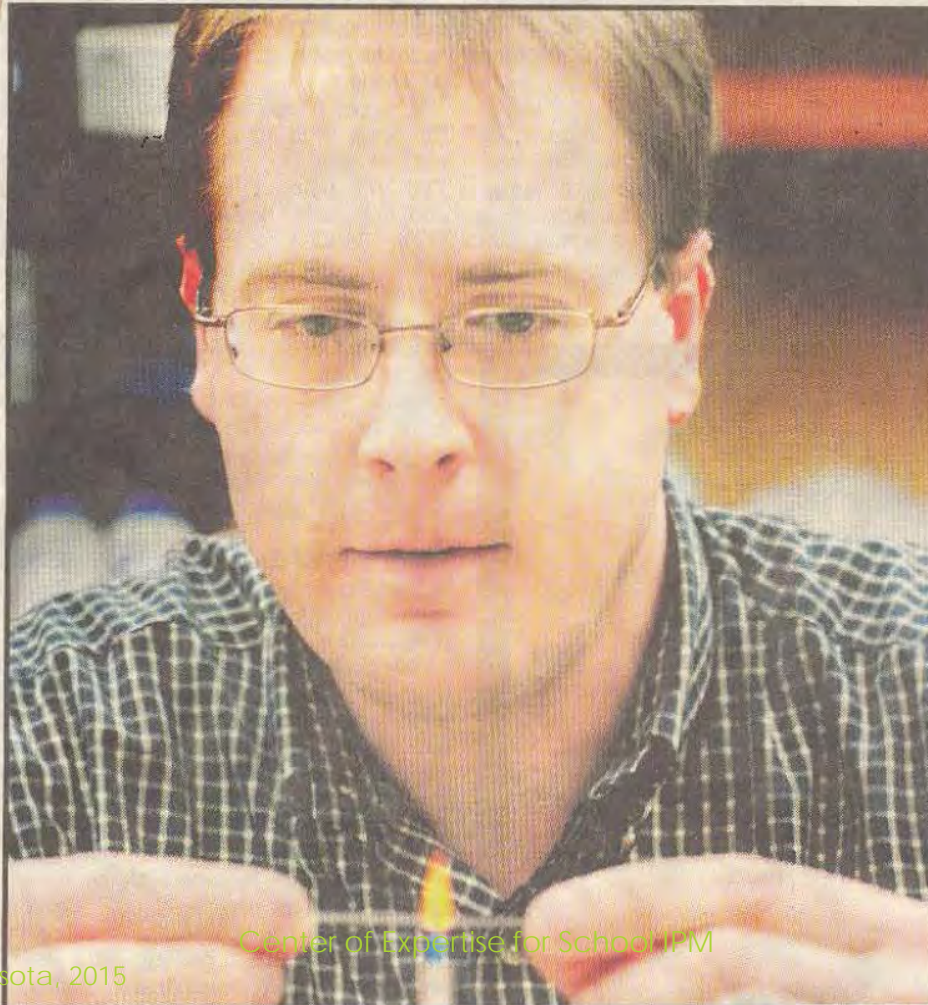
Minneapolis neighbor-  
hood by the city of Min-  
neapolis. A Roseville company  
was sued for mortgage fraud  
charges, most of them now  
abandoned.

At a news conference  
Wednesday in North  
Minneapolis, Mayor  
R. Rybak said they are  
looking for unspecified  
damages as well as to  
take the houses them-  
selves.

in Hennepin County  
estimates no dollar amount  
the city and neighbor-  
hoods. It's unclear how much money  
the company.

He didn't name the lender  
of the mortgages to

# Yuck!



Center of Expertise for School IPM

She's h  
and so  
but sm  
... and

St. Paul girl, 1  
everything rig  
would-be kidn

By Mara H. Gottfried  
mgottfried@pioneerpress

When two strangers  
14-year-old girl Tuesda  
car's side mirror to a  
inside and was dragge  
mother and the St. Paul

Afterward, the girl w  
clothes were ripped,  
Wednesday, describing  
city's Dayton's Bluff ne

"They could have  
killed her," said the wo  
"She's my baby."

Police praised the gir  
quick-wittedness in wh  
as a rare stranger atta

Her ability to reme  
car's license plate num  
suspect.

The girl identified th  
photo line-up, police  
Walsh said, and Ali Si  
arrested Tuesday nigh  
apartment. Officers co  
the second suspect We

"She did everything r  
Cmdr. Shari Gray, who



# My Goals

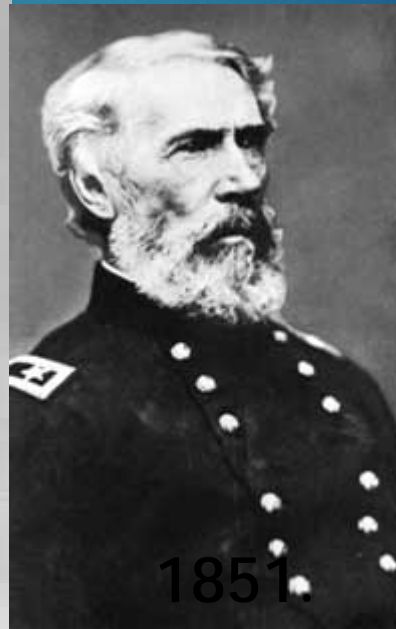
1. TO HELP YOU UNDERSTAND THE BED BUG SITUATION

# My Goals

1. TO HELP YOU UNDERSTAND THE BED BUG SITUATION
2. *PREPARE YOU FOR  
PREVENTION AND RESPONSE  
ACTIVITIES AGAINST BED BUGS*



# History Repeating!



Minnesota Historical Society Photograph Collection.  
U.S. Signal Corps photo (Brady Collection), National Archives  
[www.virtualpilots.fi](http://www.virtualpilots.fi)

# *And then they “went away!”*

- ▶ DDT, chlordane
- ▶ Organophosphates
- ▶ Carbamates



# *And then they "went away!"*

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Center of Expertise



FIGURE 1B.—Hand-spraying residual DDT in Army barracks.

# *And then they "went away!"*

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*And the method  
of treatment!*

FIGURE 1B.—Hand-spraying residual DDT in Army barracks.



They're back, should we be surprised?

*A systemic pest within society*

# They're back, should we be surprised?

In apartments, homes and duplexes

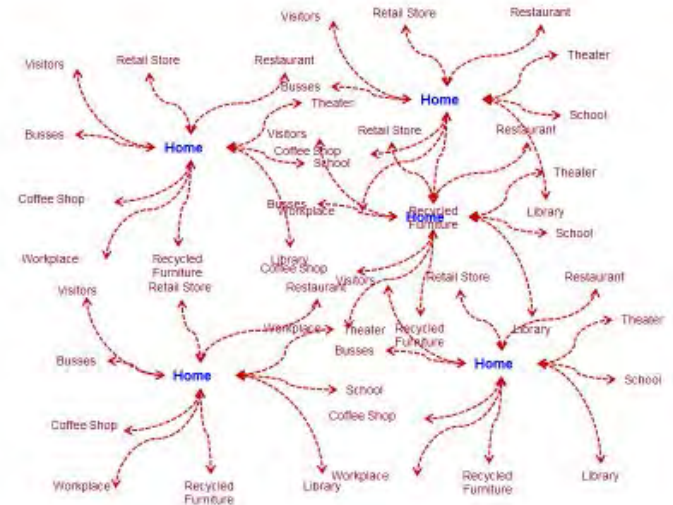


*A systemic pest within society*



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In apartments, homes and duplexes



*A systemic pest within society*

# The “bed bug waves” in North America



# The “bed bug waves” in North America

1999 - 2005

- ▶ Mainly traveler hostels, hotels
- ▶ Cities with airports
- ▶ Lower income areas (hotel beds being discarded?)

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Society's  
General  
Response

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2005 – 2010

- ▶ Continues in hotels, etc
- ▶ Becomes mainstream in private and multifamily residences
- ▶ Secondary places start reporting (schools, retail, etc)



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2010 – present

- ▶ Hotels and private residence declines
- ▶ Multifamily still struggling



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2010 – present

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**Need for  
Acceptance  
and  
Prevention**

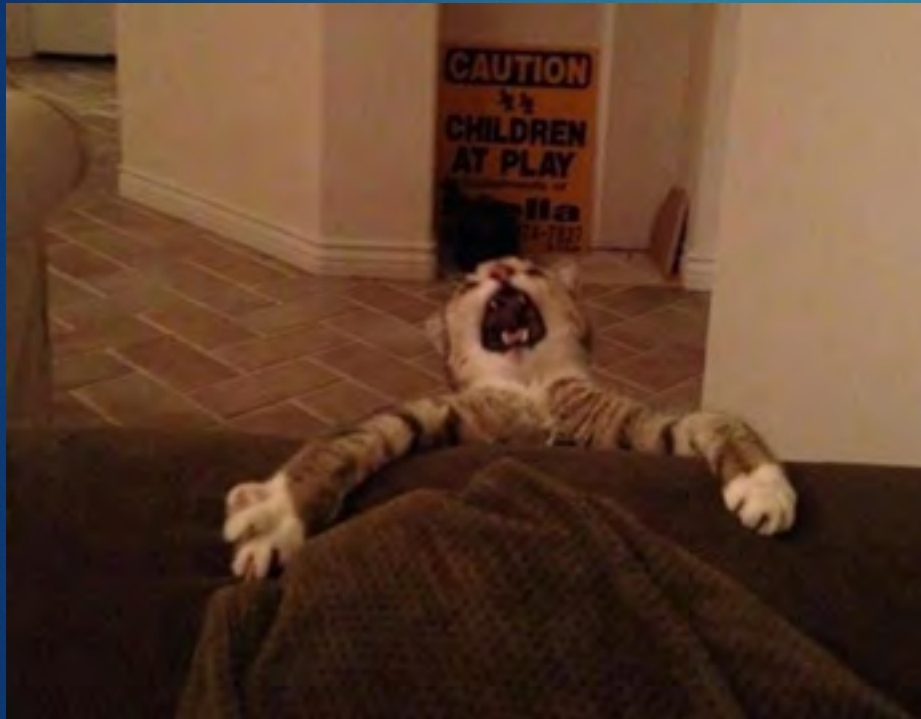
# In every case...

Schools, retail, senior centers, bus terminals, hotels, theaters, casinos, hospitals, hospice, community centers, daycare, office buildings, cruise ships, homes, apartments, airplanes, airports, furniture delivery, home movers, HVAC Techs, plumbers, social service workers, EMS, Fire departments, resorts, bed & breakfast, VA medical transport, churches and other worship places, etc., etc., etc., etc., etc., etc., etc., etc., etc., etc., etc., etc., etc.

***Having a prevention and response plan is the difference between:***



# In every case...



...in schools, airports, train terminals, hotels, theaters, community centers, daycare, homes, apartments, airplanes, moving companies, movers, HVAC Techs, police, EMS, Fire departments, ambulances, medical transport, churches and synagogues, etc., etc., etc., etc., etc., etc., etc.

Having a prevention and response plan is the difference between:

# Results of no plan...

## News Article Topics

*"Failed attempt to fight bed bugs sparks devastating fire"*

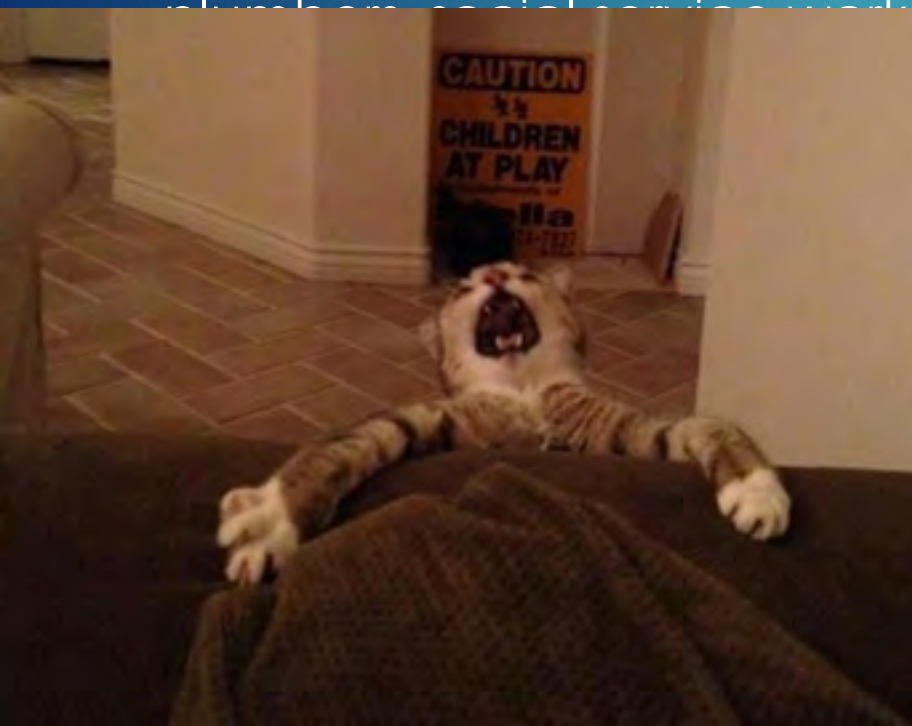
*"Bed bugs result in fire hall renovation"*

*"School closed for cleaning after pesticide application"*

Schools, retail,  
casinos, hospitals,  
office buildings,  
airports, furniture

churches, social service workers, EMS, Fire departments,  
medical transport, churches and  
c., etc., etc., etc., etc., etc., etc.,  
, etc.

Response plan is the difference

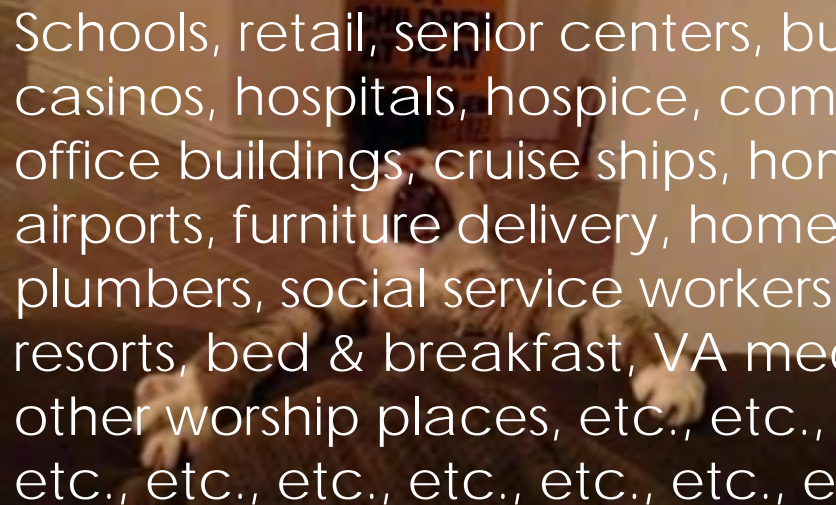


Advertise for School IPM

[www.pinterest.com](http://www.pinterest.com)



# In every case...

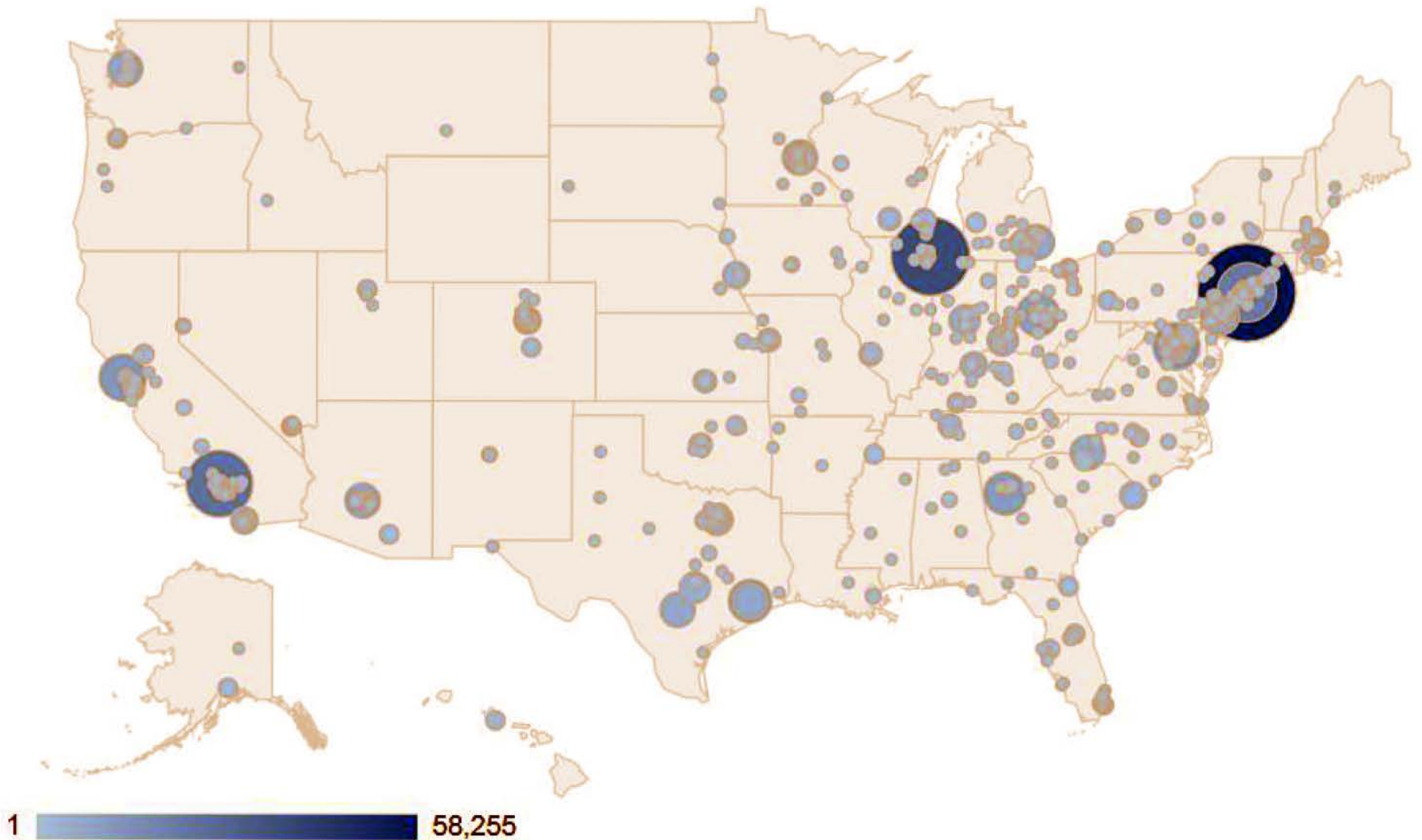


Schools, retail, senior centers, bus  
casinos, hospitals, hospice, comm  
office buildings, cruise ships, hom  
airports, furniture delivery, home  
plumbers, social service workers,  
resorts, bed & breakfast, VA med  
other worship places, etc., etc., e  
etc., etc., etc., etc., etc., etc., et

Having a prevention and response  
between:

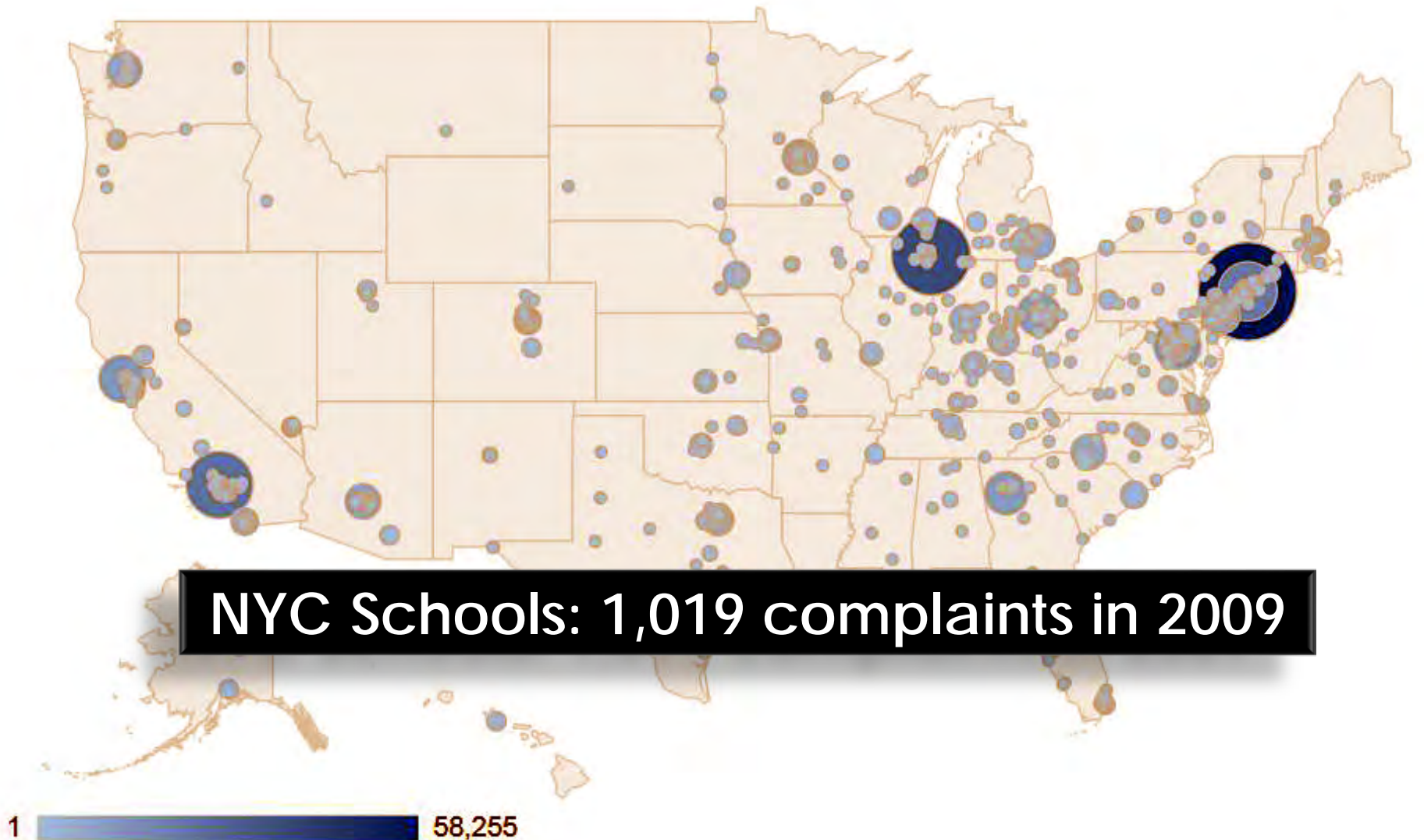


# Getting ahead of bed bugs





# Getting ahead of bed bugs



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*You are here: Home / Prevention and Control Kits / Response Kit for Schools*

### Response Kit for Schools

[Response Kit for Schools \(.pdf\)](#)

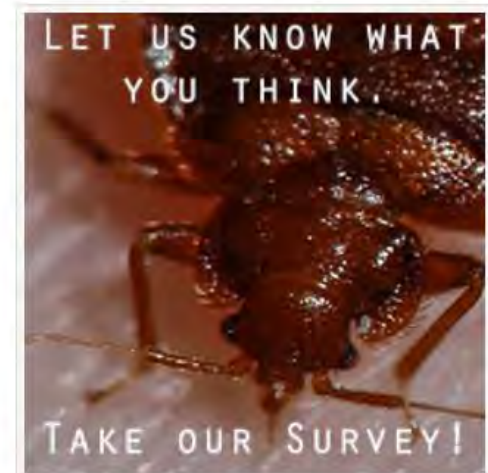
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- [Sample Letter](#): an example of a letter that can be sent to parents in regards to bed bugs available at [www.umn.edu](http://www.umn.edu).
- Educational Materials for Students to take home with them:
  - [Have I Found a Bed Bug?](#)
  - [What NOT to Do When You Have Bed Bugs](#)

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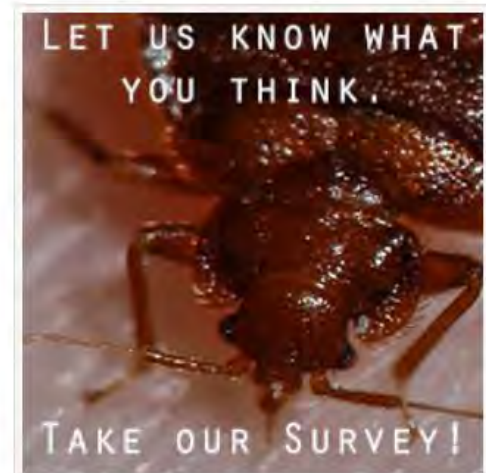
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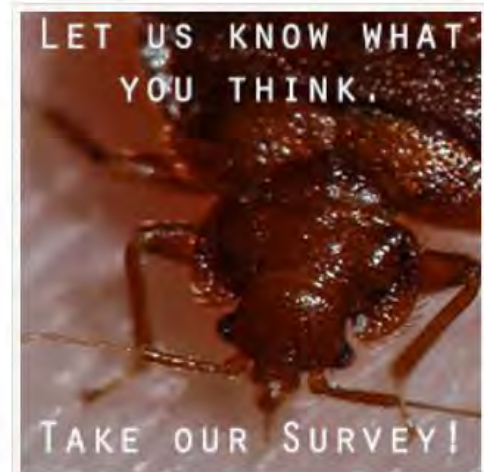
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# With the NYC reports...

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## Let's Beat the Bed Bug!

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### Response Kit for Schools

[Response Kit for Schools \(.pdf\)](#)

**Schools should have the following documents on hand for response to bed bug incidences.**

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[Bedbugs.umn.edu](http://Bedbugs.umn.edu)

47,801 page views of School information

1.4 million visitors



# With the NYC reports...

DON'T PANIC!



IT'S UNDER CONTROL!

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# We developed content

## Because of bed bugs



# We developed content

Because of bed bugs

*But more importantly because of:*

Uncertainty and the unknown

Lack of preparedness

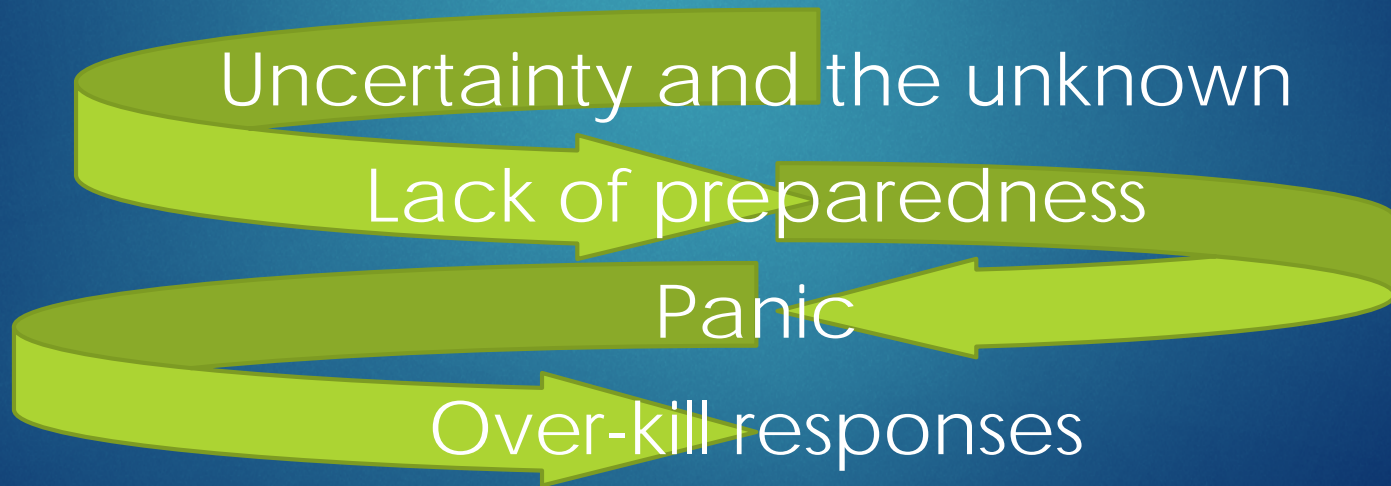
Panic

Over-kill responses

# We developed content

Because of bed bugs

*But more importantly because of:*





# Bottomline: Prepare for the eventuality...

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# The bed bug prevention and response plan

- ▶ Marcia Anderson discussed background related to schools and key first steps
- ▶ Steve Morlino will discuss putting the plan into action



# The bed bug prevention and response plan

- ▶ Marcia Anderson discussed background related to schools and key first steps
- ▶ Steve Morlino will discuss putting the plan into action
- ▶ *Here are some tips for the tools and techniques you can use and some pit falls to avoid...*

# 1. Consider if you are "*at risk*"

- ▶ What are your current experiences with bed bug incursions?
- ▶ If considering a single school, what portion of the community can be considered low-income?
- ▶ If you supervise a number of schools, then which service low-income neighborhoods?



Please note: anyone can get  
bed bugs!



Please note: anyone can get  
bed bugs!



*The difference is:  
attention to  
problems and the  
resources for  
correcting issues!*





# The multi-family housing issue

**Pest  
Control**

**Tenants**



**Property  
Management**

# The multi-family housing issue

**Pest  
Control**

**Tenants**



**Property  
Management**



# The multi-family housing issue

**Pest  
Control**



**Tenants**



**Property  
Management**

# The multi-family housing issue

**Tenants**



**Pest  
Control**

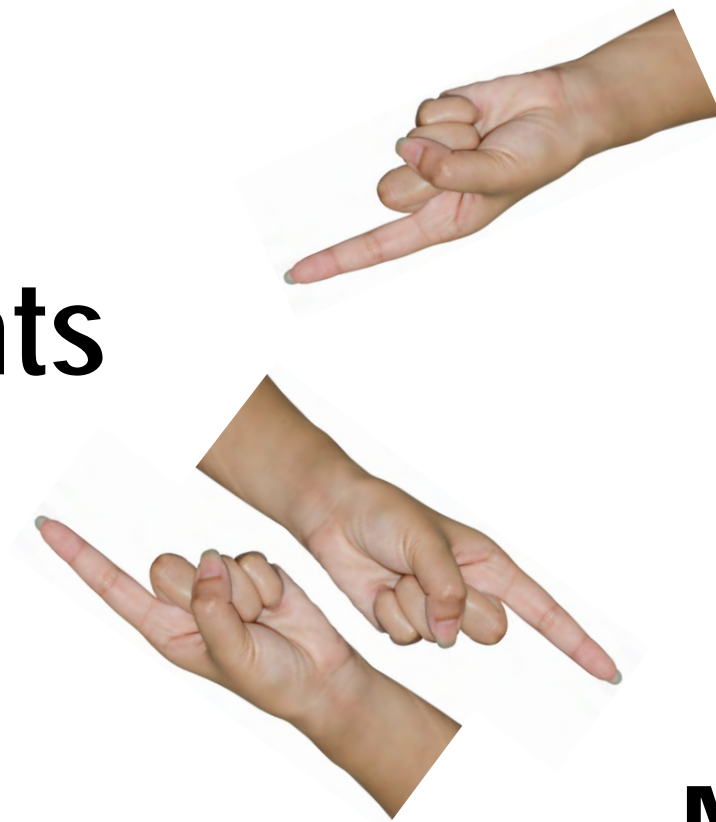


**Property  
Management**



# The multi-family housing issue

**Tenants**



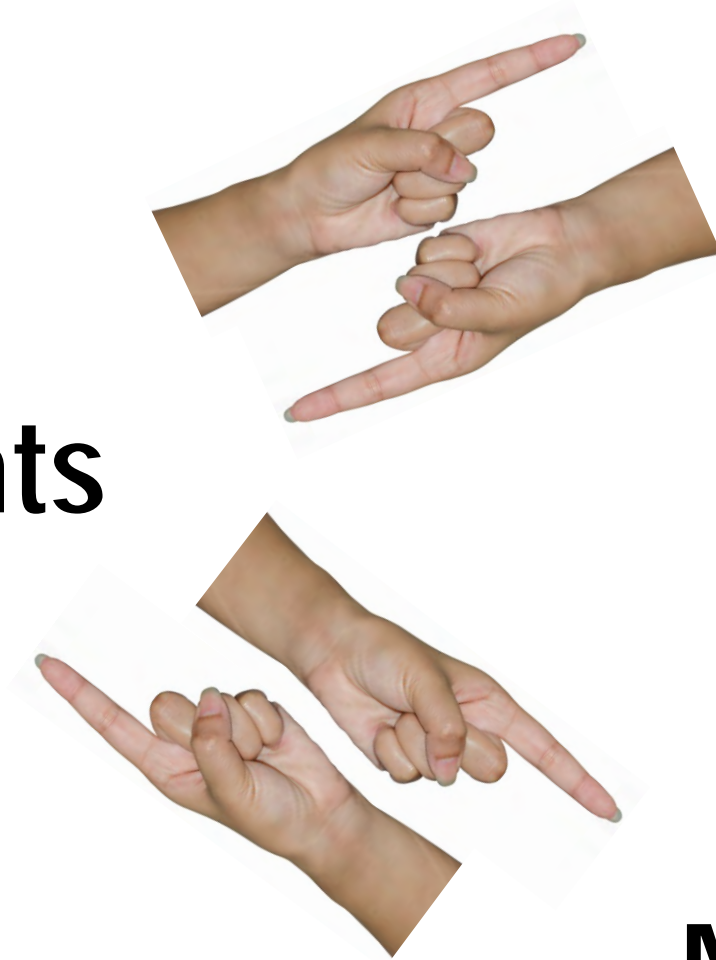
**Pest  
Control**



**Property  
Management**

# The multi-family housing issue

**Tenants**



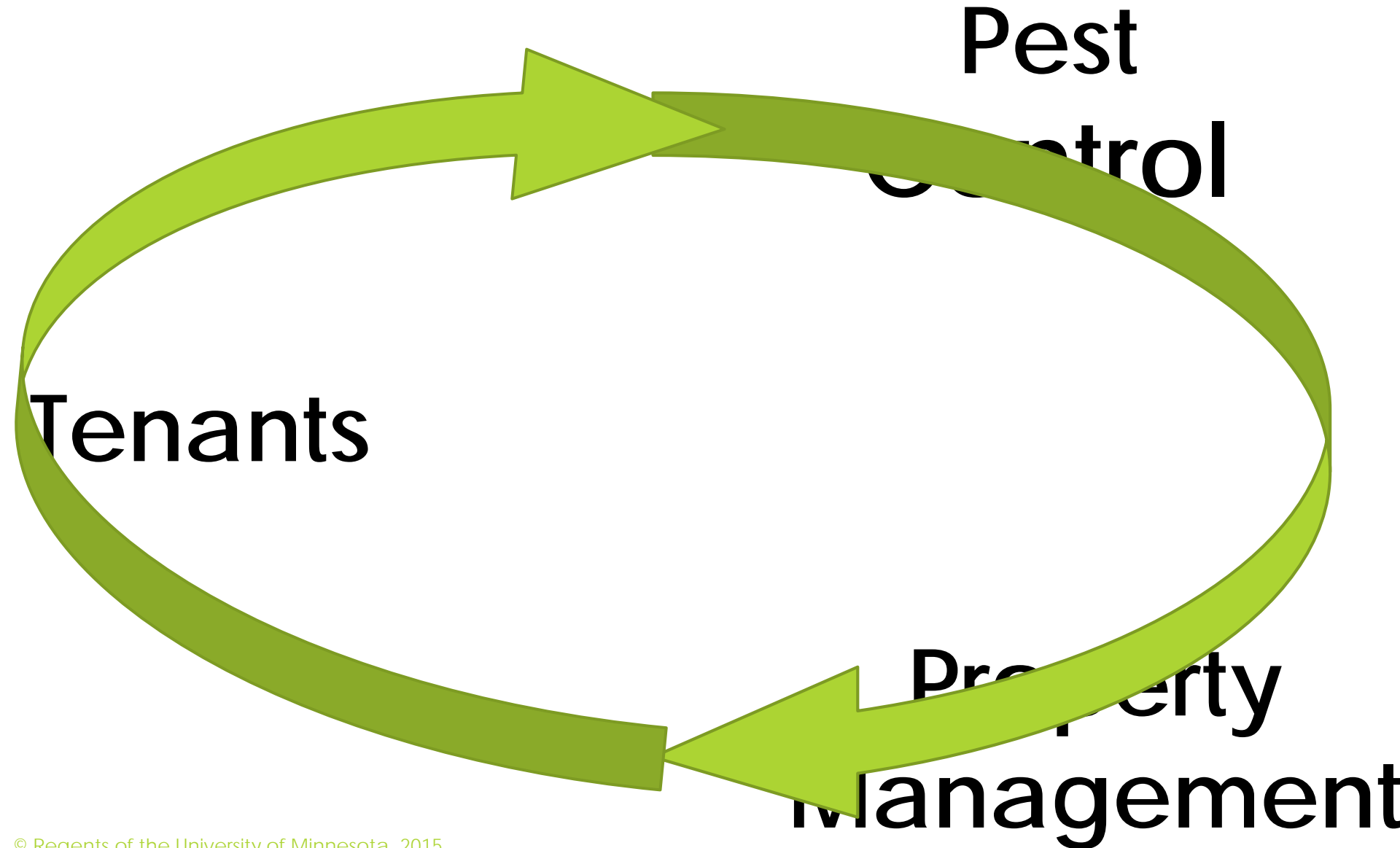
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Control**



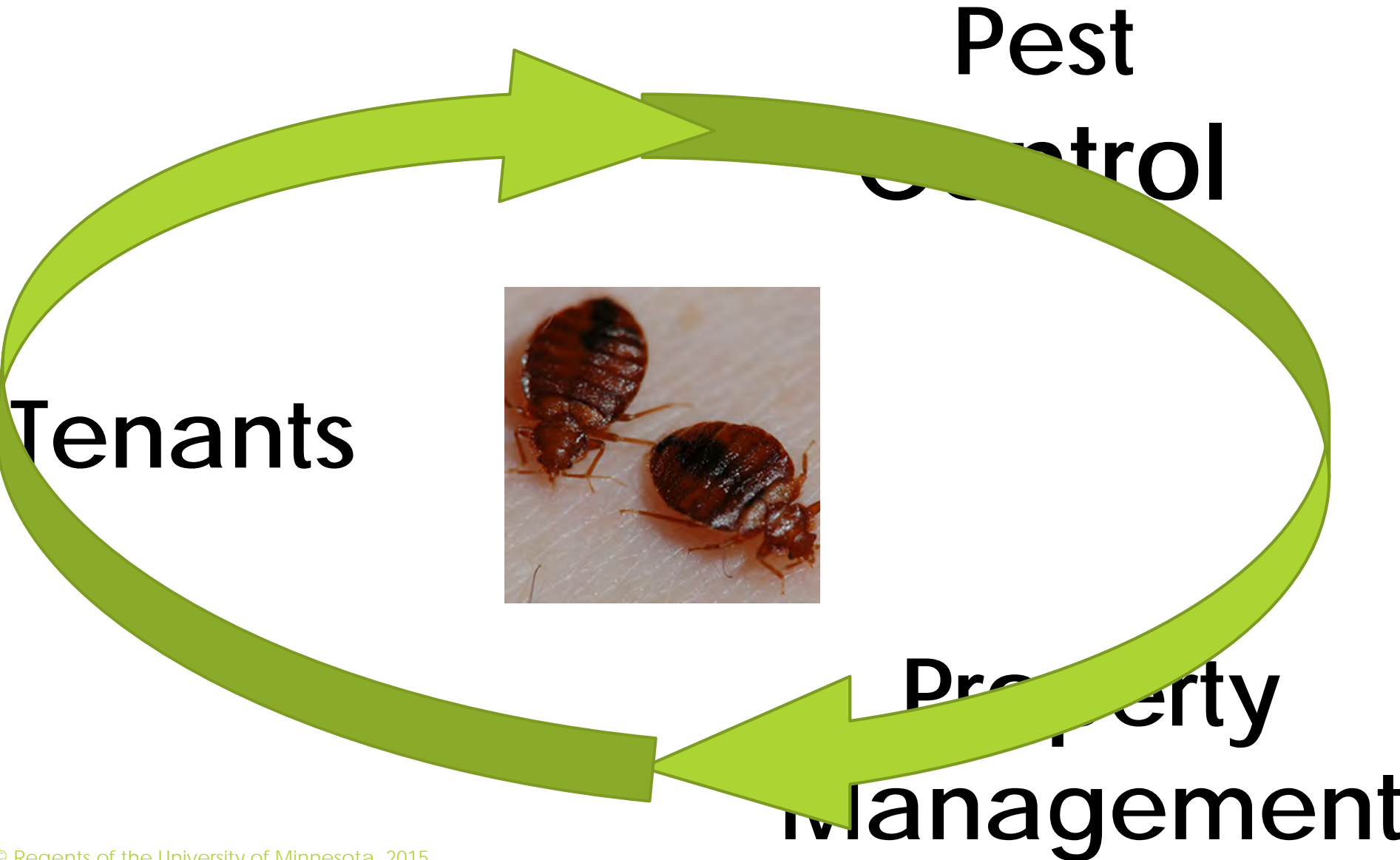
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# The multi-family housing issue

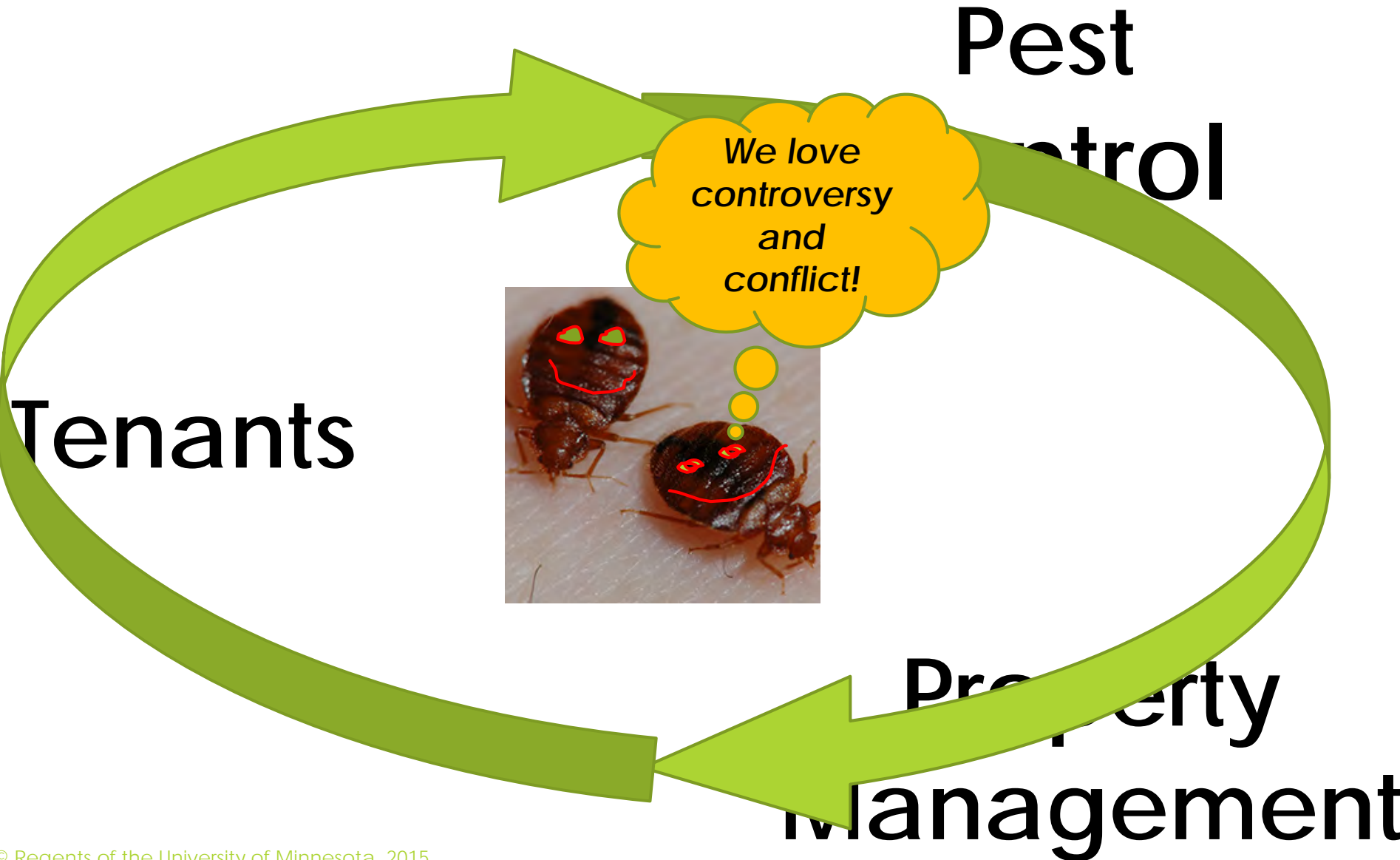


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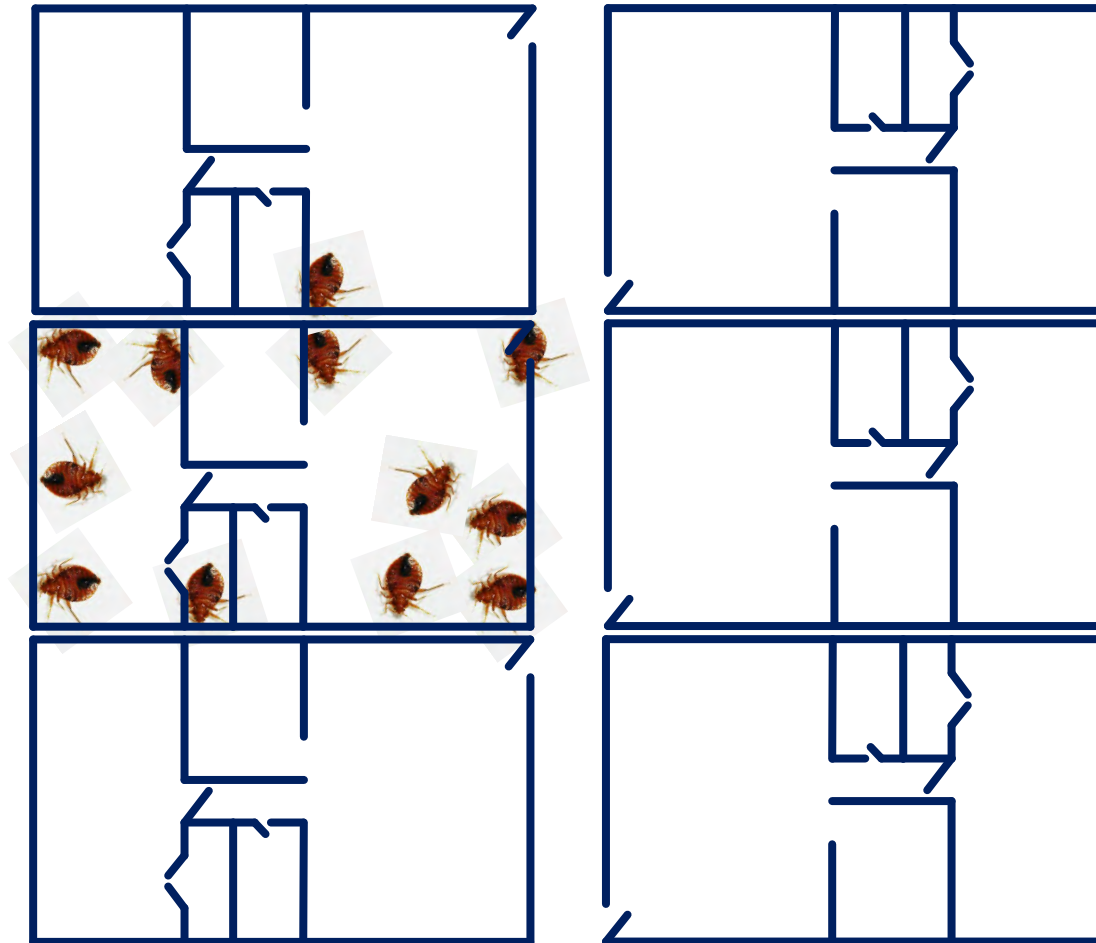




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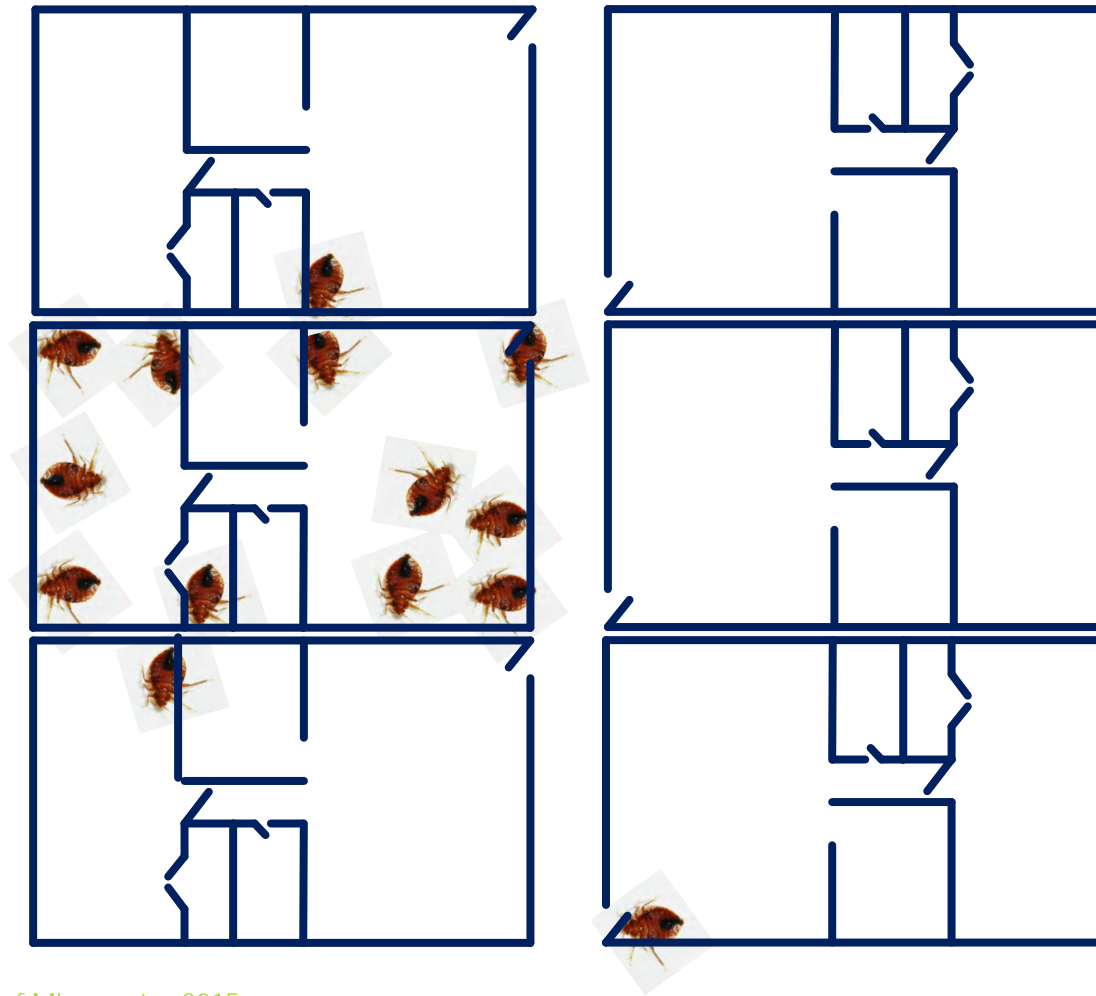


# When just responding to complaints

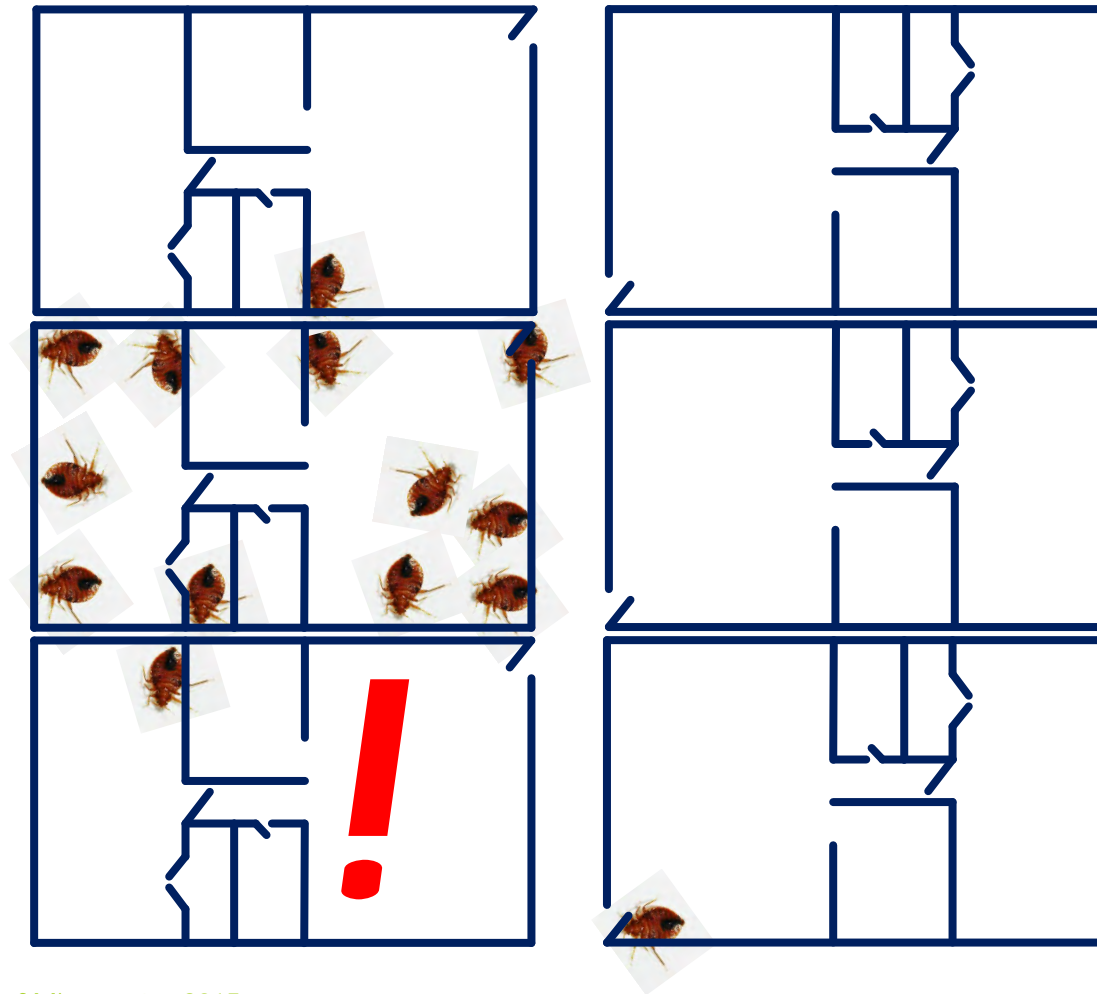




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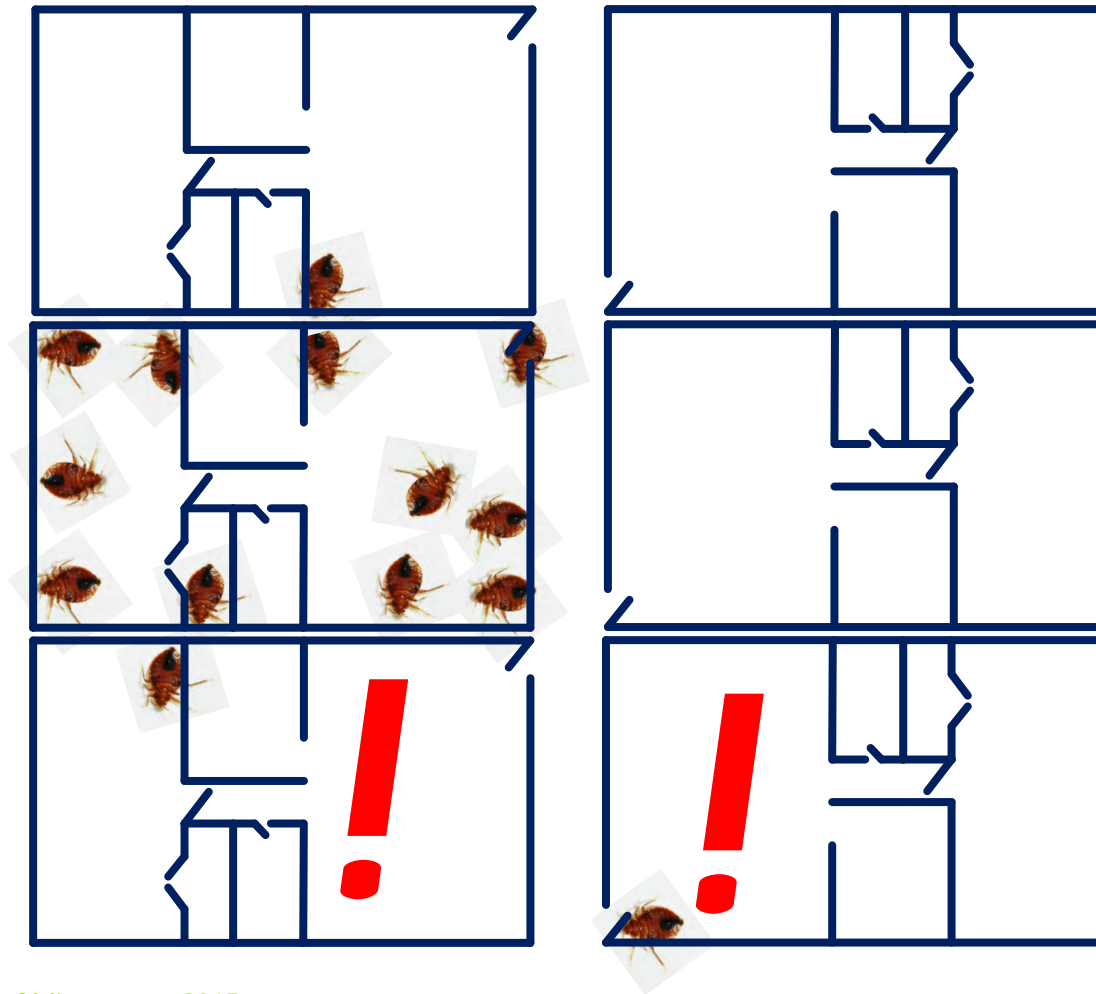


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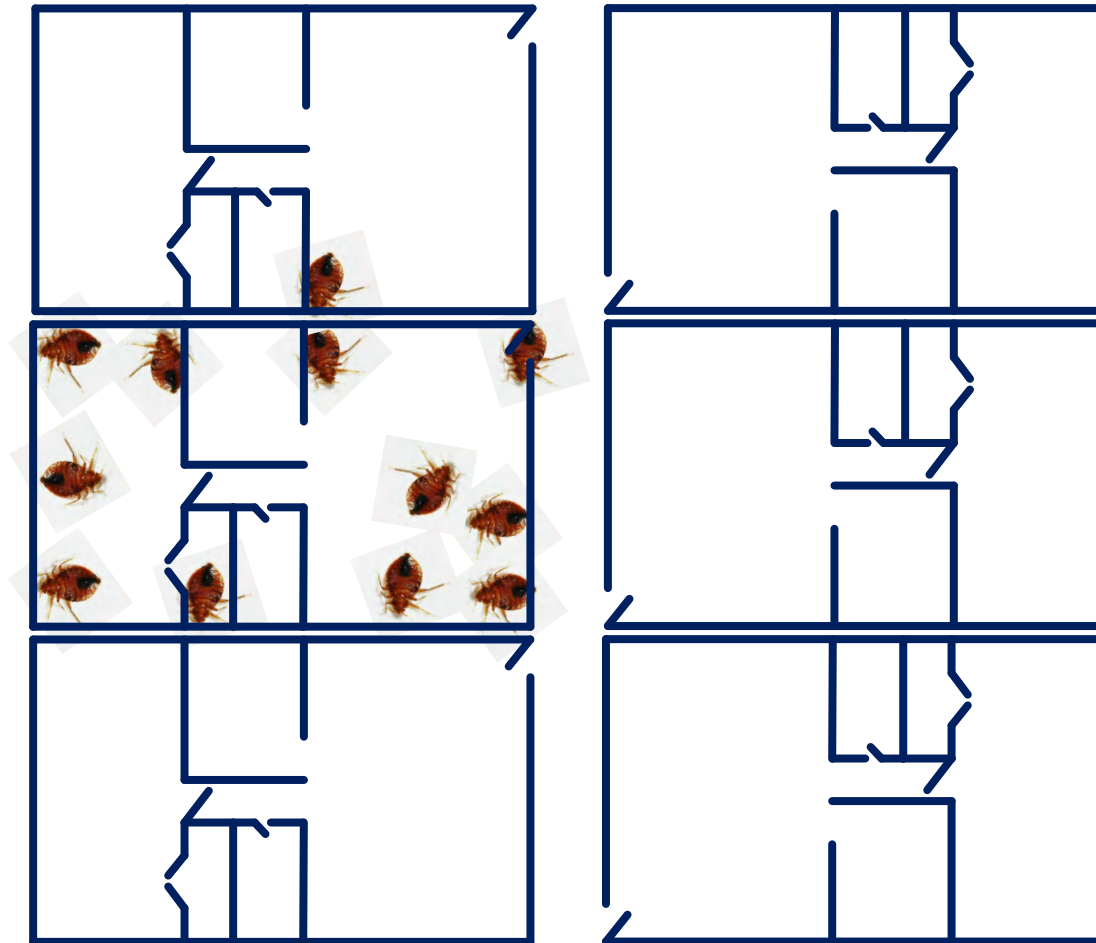


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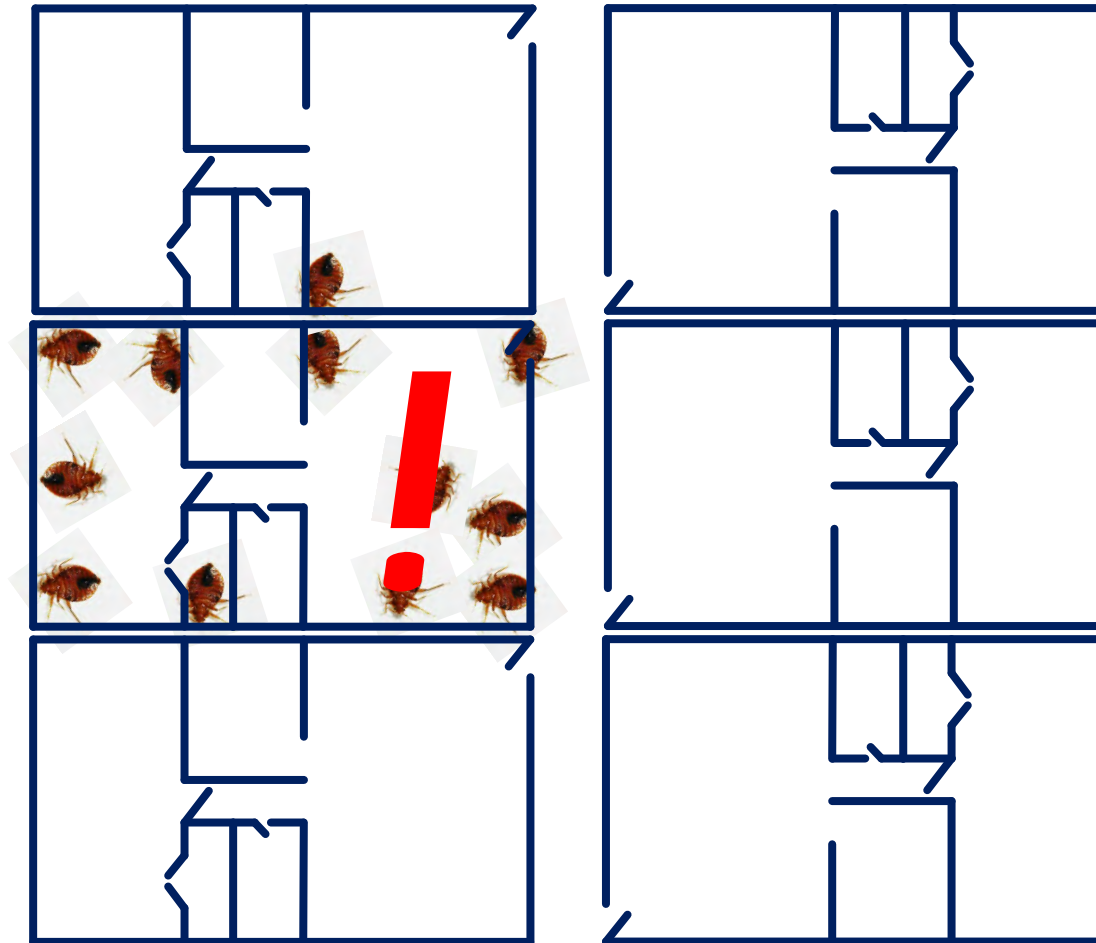




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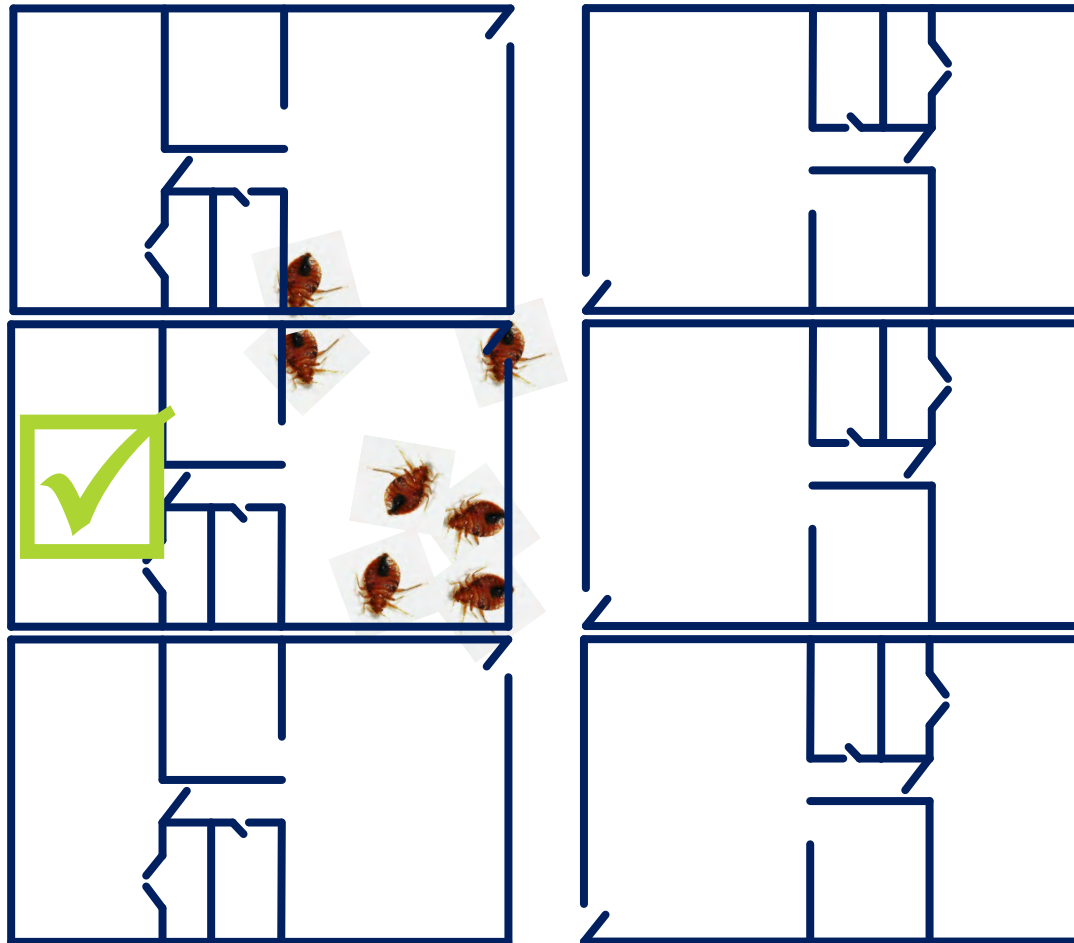


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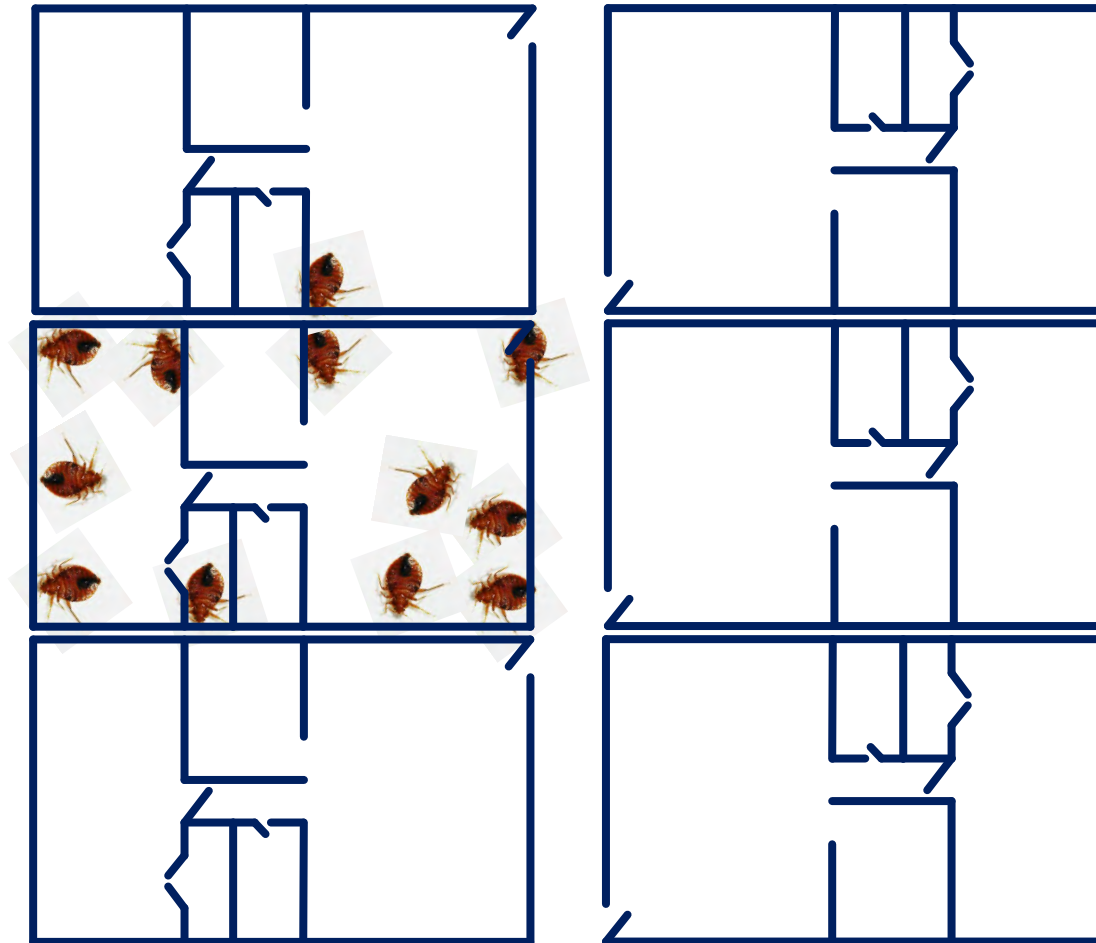




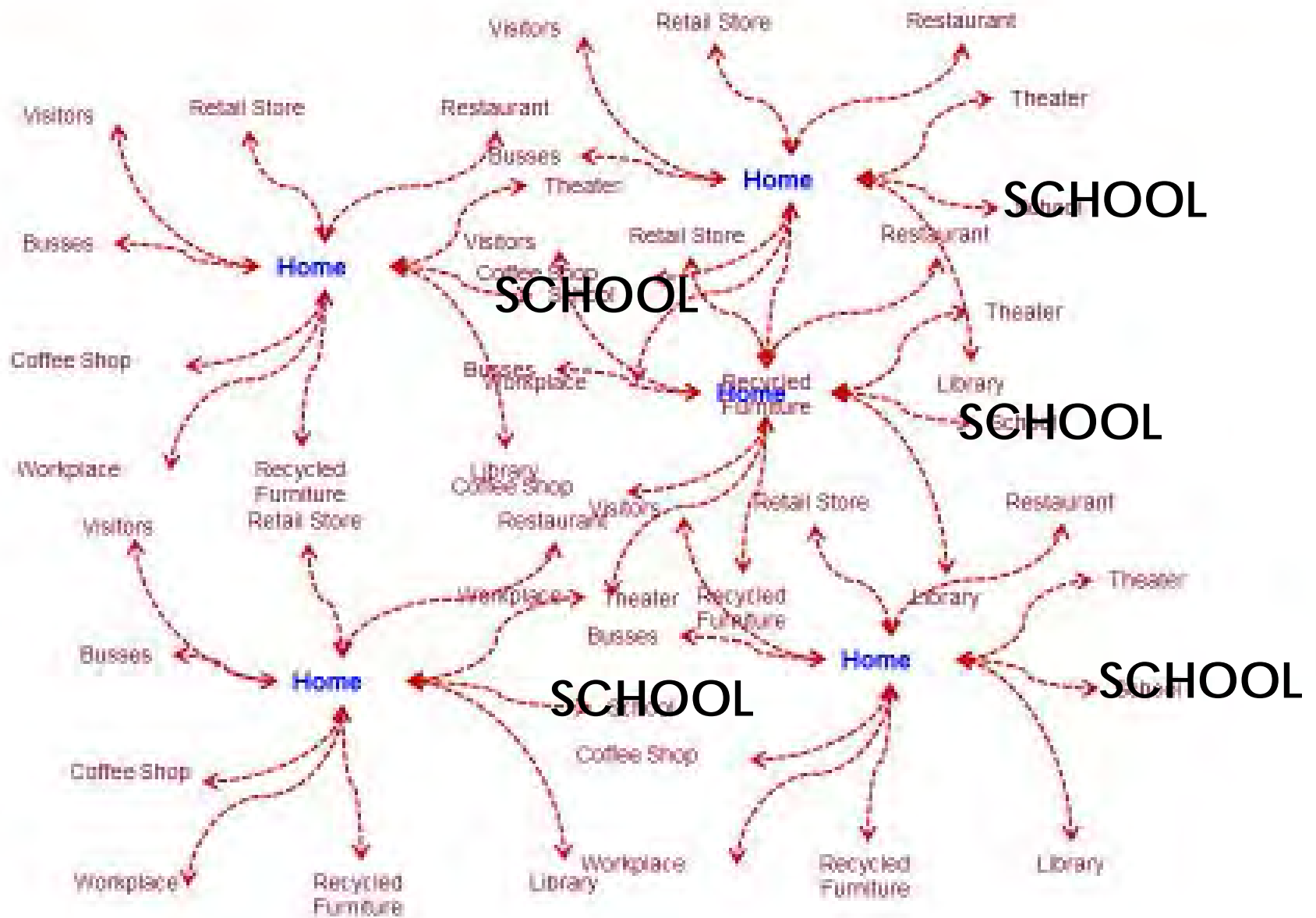
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## 2. Match the response to the risk

- ▶ **High risk of infestation?**
  - ▶ Use more control tactics

*Example: a school supporting homeless kids with a drop-in center for resting AND bed bugs found at desks or associated with coats, etc.*



## 2. Match the response to the risk

- ▶ **High risk of infestation?**

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*Example: a school supporting homeless kids with a drop-in center for resting AND bed bugs found at desks or associated with coats, etc.*

- ▶ **Low risk and periodic introductions?**

- ▶ Consider inspection and cleaning protocol

*Example: a K-5 school with only one or two instances of bed bugs*

# Low risk

- ▶ Bed bug response kit
- ▶ Periodic inspections (K-9)
  - ▶ Records can help determine frequency
- ▶ Monitors?
  - ▶ Big potential for false negatives
- ▶ Targeted vacuuming
  - ▶ Using a crevice tool for cracks and crevices



# High risk

All low risk practices, plus...

- ▶ A commercial dryer for potentially infested articles
- ▶ Regular vacuuming (using a crevice tool for cracks and crevices)
- ▶ Crack and crevice residual insecticide treatment in areas where bed bugs may collect (*but have justification*)
- ▶ Dust insecticide in hidden voids











# Resting spaces

*Where might  
humans  
leave their odor?*





### 3. Prepare nursing staff, social workers and facility personnel

- ▶ Bed bug collection kit  
(and someone who will use it)

# Bed bug collection kit

- ▶ Plastic box with a lid
- ▶ Plastic shipping tape
- ▶ Sandwich bags
- ▶ Notebook
- ▶ Flashlight
- ▶ Exam gloves



### 3. Prepare nursing staff, social workers and facility personnel

- ▶ Bed bug collection kit  
(and someone who will use it)
- ▶ Know how vacuums should be used
- ▶ Keep notes as to where bed bugs were found

# 4. Prepare to engage families and public health

- ▶ Bed bug letter



# The letter:

- ▶ *"We understand that your family's home ..."*
- ▶ *"this issue you face is a great inconvenience..."*
- ▶ *"The risk is very slight, but sometimes..."*
- ▶ *"three steps..."*
  - ▶ away from beds and upholstered furniture
  - ▶ be placed in a clear plastic bin or plastic bag
  - ▶ items in a dryer on medium-high heat for at least 20 minutes
- ▶ *"If you have any difficulties... discretely..."*
- ▶ *"We greatly appreciate your efforts in helping us..."*

## 4. Prepare to engage families and public health

- ▶ Bed bug letter
- ▶ Dealing with kid's belongings
  - ▶ Separating home stuff from school stuff
    - e.g., text books and shoes for home and for school
    - e.g., freezing or heat treating popular library books
- ▶ Helping families obtain help



# 5. Know control options

- ▶ Steam
- ▶ Dry heat
- ▶ Freezing
- ▶ Physical removal
- ▶ Insecticides

**Videos and written materials at  
[bedbugs.umn.edu](http://bedbugs.umn.edu)**

# Steam

- ▶ Time and labor required
- ▶ Potential damage to objects being treated
- ▶ Potential need for retreatment
- ▶ No residual effects





# Laundering

- ▶ Simple and relatively inexpensive method
- ▶ Place items in dryer on medium-high heat for at least 30 minutes
  - ▶ Linens
  - ▶ Clothing
  - ▶ Pillows
  - ▶ Plush toys
  - ▶ Etc.





# Methods of Commercial Heat



Electric  
↔



Gas  
↔



Whole Room Heating

Container or Chamber Heating





# Whole-Room Heat Treatments





# Freezing

- ▶ Requires critical temperature & time
  - ▶ Use a remote thermometer to monitor temperature
- ▶ Place freezable items into freezer:
  - ▶ At or lower than 0°F
  - ▶ For **3 days**
- ▶ **Know what you cannot freeze!**





# Vacuuming

- ▶ Can reduce numbers of bed bugs
- ▶ Utilize crevice tool



# Vacuuming cont.

- ▶ Concentrate on areas bed bugs are likely to hide:
  - ▶ Crevices
  - ▶ Baseboards
  - ▶ Electronic items
  - ▶ Furniture
- ▶ After vacuuming
  - ▶ Be sure to empty vacuum bag/canister into a plastic bag for disposal. Check vacuum itself for bed bugs (wheels, hose, etc.)



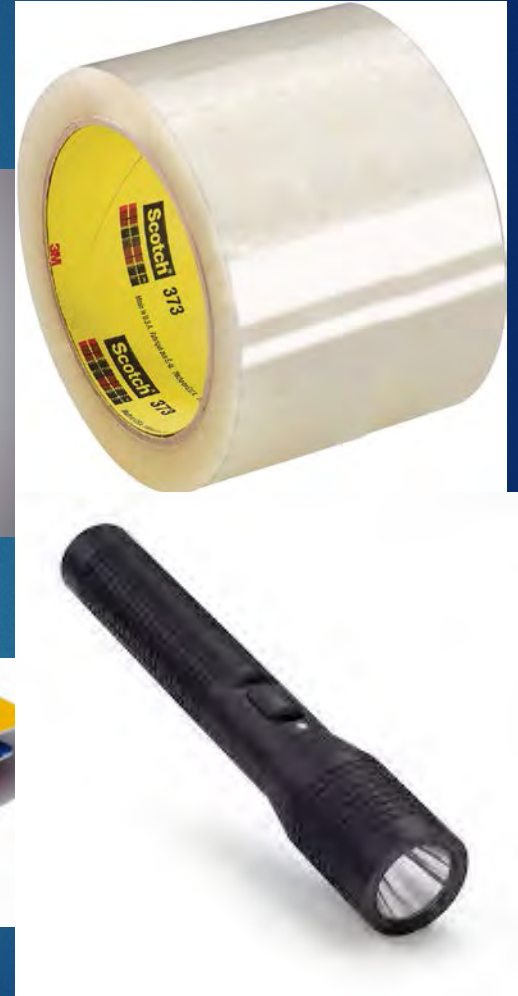
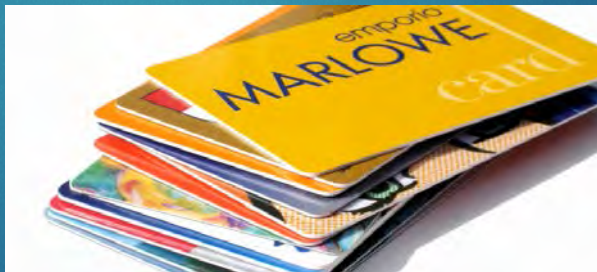
# Killing bed bugs by hand

## ► Capture & Squash

- gloves, washcloth, paper towel or sticky tape

## ► Tools:

- Flashlight
- Credit Card/Thin Plastic Card
- Clear Sticky Tape
- Plastic Bags
- Hot Soapy Water (cleaning = removal)





# Insecticides

- ▶ In HIGH risk situations (and as per label)

**NO** fogging

**NO** over-the-counter insecticides (resistance)

**NO** short-acting insecticides (have limited use)

- ▶ Use a residual crack and crevice
- ▶ Use a dust in hidden voids



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*Where students  
cannot contact  
and  
applied after hours!*

More info and videos at  
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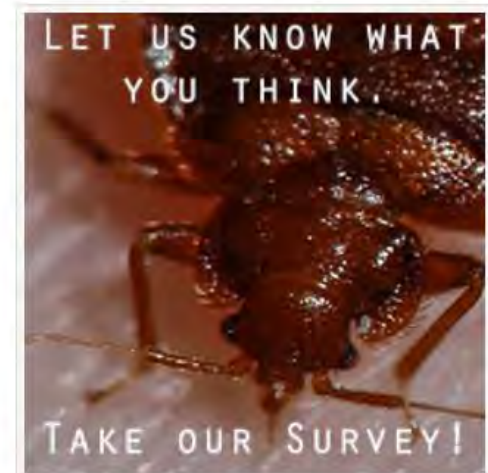
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bedbugs.umn.edu /  
bedbugs@umn.edu



Lets Beat the Bug



Bed Bug Infoline:  
1-855-644-2200  
612-624-2200



@letsbeatthebug

*Thank you!*

*Questions?*



MINNESOTA  
DEPARTMENT OF  
AGRICULTURE



Minnesota Pest  
Management  
Association



UNIVERSITY OF MINNESOTA  
**EXTENSION**

Center of Expertise for School IPM

# Why do you need a Bed Bug plan?

POCKET GUIDE TO

## Understanding and Controlling Bed Bugs



IN PUBLIC SCHOOLS  
CHARTER SCHOOLS  
PRIVATE SCHOOLS



*Climex lectularius*



# What led up to development and need for a plan?



- Lack of Knowledge about Bed bugs and how to handle them in a classroom environment
- Hysteria and the fear of the unknown
- Calls to shut down the school
- Calls to fumigate the entire school



# What led up to development and need for a plan?



- Point to drive home; Bed bugs do not transmit diseases
- Reiterate Bed bugs are not related to cleanliness
- A child from a bed bug infested home should not be shunned from school!
- Your Plan MUST include educating staff



# Basics of the Plan; If you suspect someone is carrying bed bugs into your school:



- The principal, teacher, supervisor and school nurse should be the first to identify a student or staff member transporting bed bugs.
- The utmost discretion and diplomacy should be used in approaching the individual, keeping in mind their right to dignity and legal considerations, it is very important to address the issue with care and sensitivity.

# Basics of the Plan; If you suspect someone is carrying bed bugs into your school:



- ▶ There is no association between cleanliness and bed bug infestations. Anyone can transport bed bugs as they are hitchhikers and can be picked up virtually anywhere.
- ▶ If a live insect is observed, try and capture it for positive identification (what you think is a bed bug may not be) If at all possible, try not to crush the insect during this process (it is much more difficult to identify a crushed insect). (capture insect on tape)

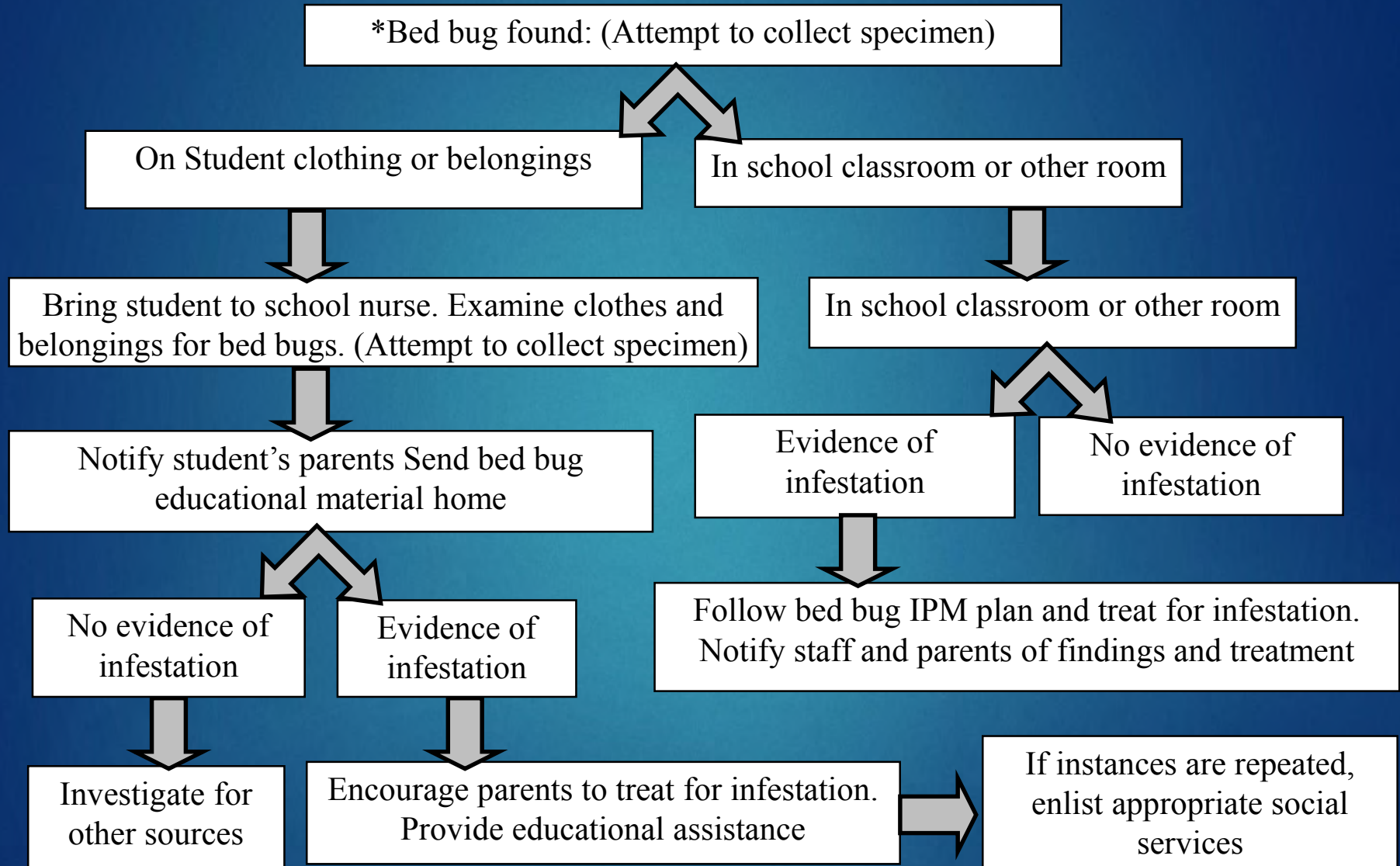


# Basics of the Plan; If you suspect someone is carrying bed bugs into your school:



- The next step is to determine if the suspect insect is in fact a bed bug.
- Identification should generally be left to the school district's Integrated Pest Management (IPM) pest control professional. The IPM coordinator in conjunction with the schools Certified Educational Facilities Manager should quickly arrange for the IPM pest control professional to visit the site and determine if an insect is a bed bug.

# Bed Bug Action Flow Chart



\*Chart adapted from. "Bed bugs: What schools need to know", Michigan BB Working Group, 5/2010.





- Be sure to label the collection bag with the date, name of person collecting the sample, location where it was found
- The IPM vendor will need access to the entire room, personal items, backpack, etc. to determine the extent of the situation if in fact it is a bed bug.
- If more than one insect is discovered, student belongings such as backpacks, coats or personal affects can be isolated in a tight sealing plastic container or bags to help reduce the potential for bed bug dispersal while the problem is being resolved.



- The Certified Educational Facility Manager and his team are responsible for overseeing the IPM pest management plan in most school districts in conjunction with the school principal and the head custodian who is typically the IPM designated person in the school.
- Although it is unlikely for bed bugs to be spread in a school environment, if indicated, bed bug monitoring stations may be placed throughout the space in question to determine and confirm if there is a need for a space treatment.
- Treatment of the area where the bed bug was found will be implemented only after a bed bug monitoring count determines treatment to be necessary.



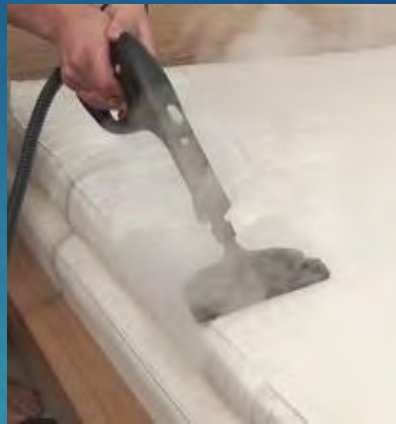


- The principal (in NJ) is delegated responsibility to mobilize all resources necessary in most schools and is responsible to keep communication lines open.
- The Certified Educational Facility Manager should be responsible in the event of a bed bug incident for keeping a running IPM log of all work performed pertaining to communication, directives and treatment of a pest problem, including but not limited to the following:
  - ☐ Notify IPM pest provider technician to make an immediate site visit;
  - ☐ IPM vendor should carefully inspect the desks, floor, walls and storage areas where students belonging are kept;



- ❑ The IPM vendor and facility team should inspect crevices in baseboards, pictures, student work displays, furniture, window and door casings, wallpaper, electrical switch plate covers, telephones, clocks, wall mounted art work, desks, chairs, etc.;
- ❑ Look for live insects, cast skins, bug feces and eggs in the room and contents
- ❑ The IPM pest vendor should install bed bug monitoring stations in the room if no live insects are discovered and inspect the bed bug monitors again within 24-48 hours of placement; this step is sometimes necessary to calm everyone down even if deemed there is no problem.





- After the first inspection is completed:
  - Vacuum the entire room with special attention to cracks and crevices in furniture and equipment, walls and floors, switch plates etc.
  - Vacuum collection bags should be removed and sealed in plastic and then disposed of outside the school to prevent re-infestation or movement within the school, in addition the vacuum should be isolated until determined to be pest free.
  - Launder all washables in hot water and dry on the highest heat setting.
  - The room should be thoroughly cleaned with the general purpose cleaner in use in by the district and all surfaces washed down (**cleaning compounds are a deterrent to insects**) (a method of dislodging and capturing bed bugs).

### Service Complaint Log

DATE	PEST SIGHTED	AREA PEST WAS SIGHTED	PERSON REPORTING PEST	CORRECTIVE ACTION BY BOWCO	BOWCO TECHNICIAN	DATE COMPLETED
1/12	<del>mouse</del> Nurse office mice	Nurse office	Ms. Baker R.N.	Placed pest monitor	Manann Berg	1/19/12
	JAN 30 RM 236 (Roach)	Book Shelves	Class Room Teacher	<del>no action taken</del> no pesticide applied - talked to Mrs Burton about situation and agreed to wait and see further sightings came up	Manann Berg	2/2/12

- The IPM designated person should ensure the IPM log book is kept current and provide a description of work done on a daily basis during the event;
- Ensure your technician has the appropriate IPM license for your state.
- Some IPM vendors may offer free consultative visits to a students home to help parents identify issues, which, will help control the re-introduction of bed bugs in the classroom.
- Log any unusual occurrences and items requiring follow-up or clarification;
- Document any health department or PEOSH visitors or inspections;






- The school nurse should manage the case including re-inspecting belongings, desks, classrooms etc. until the problem is resolved. The facilities team and IPM designated person can assist and also call in the professional IPM vendor when necessary;
- If multiple insects are discovered, students belongings such as backpacks and coats can be isolated in a tight sealing plastic containers or bags to help reduce the potential for bed bug dispersal while the problem is being resolved; and



- If the bed bug was found on a student's clothing or other belongings, their parents or guardians should be notified. There is no need to send the student home.
- The school administration depending on the extent of the pest problem may notify students and parents of the individual classroom of the situation and what to look for.
- It is normally not necessary to notify the entire school about the particular incident, however key personnel and staff should be educated about what to observe and be aware of in this situation. Parents should be directed where to find additional bed bug control information.





## Bed Bug Prevention, Detection and Control

### Day-to-Day Prevention

- Bed bugs are excellent hitchhikers, so be extra careful when traveling or having visitors in your home. Be aware of where you sit and place your belongings.
- Provide a special place for visitors to place their belongings. Then clean it shortly after they leave.
- Change and wash bedding regularly.
- Do Not** bring second-hand furniture into your home unless you have thoroughly inspected and cleaned the items first.

### Traveling Tips

- Inspect mattress & headboard with flashlight.
- When traveling keep bags, luggage, and backpacks off the bed. Inspect and then use a luggage rack.
- Never place clothes, or jackets, on bed or couch. Do not store clothes in dresser.
- If you are concerned about exposure, after travel, seal all items in plastic bags for washing or treatment.
- Unpack clothes directly into washer / dryer.
- Inspect luggage closely with flashlight and magnifying glass for bed bugs upon returning home.


### Bites and Disease

Bed bugs are not known to transmit disease. Bites are often painless and occur at night while you are sleeping. Some people suffer allergic reactions and develop painful swelling.

### Pesticide Safety First! Read the Label.

### How to Hire a Pest Control Operator

- Call several licensed and insured companies, compare services and get estimates in writing.
- Insist on references for bed bug treatment. Check the references.
- Look for companies that:
  - offer an IPM solution
  - offer both chemical and non-chemical treatment options
  - perform a pre-treatment inspection and give a pre-treatment check-list
  - recommend both interceptors and encasement
  - offer two or more service visits and follow-up




### Pesticide Cautions

Before you use pesticides:

- Keep in mind that any pesticide product without an EPA registration number has not been reviewed by EPA, so we haven't determined how effective the product is on bed bugs.
- Never use outdoor pesticides indoors.
- Some pesticides and total release foggers are highly flammable. Improper use may cause a fire.
- Never overuse pesticides. More is not better!
- Read, understand, and follow the label-use directions.

The label is the law.

Be Alert, Be Aware,  
Bed Bugs Could be Anywhere!



For more information on bed bugs and IPM go to:  
[www.epa.gov/bedbugs](http://www.epa.gov/bedbugs)  
Pesticide Poisoning: Call 1-800-222-1222

The important thing is to act fast  
—before they have time to multiply.



## Bed Bug Card

736-F-11-008



Actual Size

### Bed Bug Identification

- ◆ Eggs are tiny, white, and glued to surfaces.
- ◆ Oval shaped, flattened with six legs.
- ◆ Nymphs are light colored, from 1/16".
- ◆ Adults are rusty red, apple seed sized, 1/4-3/8".
- ◆ Do not jump or fly, but are good runners.
- ◆ Tend to congregate together.

### Signs of Bed Bugs

- ◆ Small black droppings, blood stains or shed skins on bottom bed sheet.
- ◆ Red, itchy rashes from bites.

For more information on bed bugs and Integrated Pest Management (IPM) go to:  
[www.epa.gov/bedbugs](http://www.epa.gov/bedbugs)

- Parents of all students in the school where the bed bug was found should be notified and provided with basic information about bed bugs in general including a description, signs and symptoms and strategies to monitor for infestations in their home.
- This should include eliminating clutter, laundering and using specially designed mattress covers and box spring covers that can entrap bed bugs and reduce harborage opportunities.
- The information package should also include sources of assistance especially in multi-housing situations.



**Be sure your plan advises all staff that it is illegal to apply pesticides in a school without a license...leave treatment if necessary to your IPM Professional.**



# Upcoming School IPM Webinars

- Jan. 26 Stop School Pests and iPestManager Tools
- Feb. 23 Pest Prevention by Design in Schools
- Mar. 15 IPM for Turf on School Grounds
- Apr. 19 Vertebrate Turf Pests
- May 17 Ants, The #1 Pest in Schools
- Jun. 7 Termite Mitigation in Schools



# Certificate of Attendance





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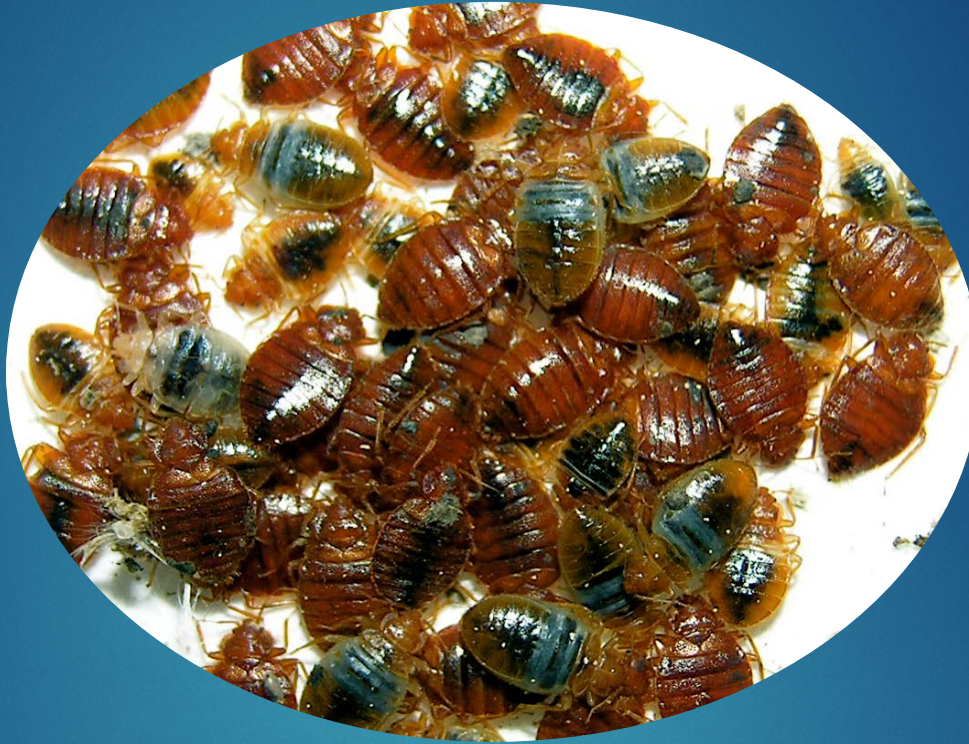
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# Bed Bug Questions?



**Center of Expertise for School IPM**

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