

Managing pests in affordable housing

Allison Taisey, BCE
The Northeastern IPM Center
Cornell University




✉ stoppests@cornell.edu

🐦 [@StopPests](https://twitter.com/StopPests)

📘 facebook.com/StopPests

You are a cockroach.

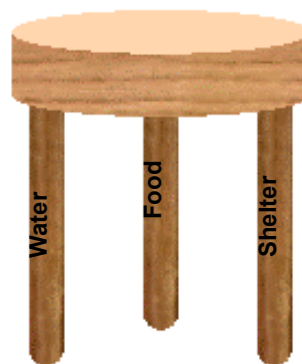


 University of Nebraska
Department of Entomology



What all pests need

- Food
- Water
- Shelter



4



Every infestation starts with an introduction



6

Pest management must include managing introductions



7

Find pests that get in before an infestation grows

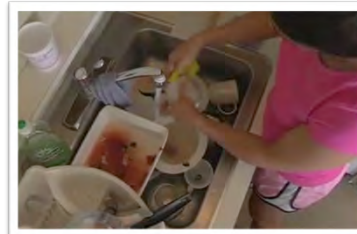


8

Take action

Use more than one control method

Methods must be economical and pose the least possible risk to people, property, and the environment



9

Integrated Pest Management (IPM)

1. Inspect and monitor
2. Identify
3. Determine the scale of response
4. Respond
 - Non-chemical control
 - Changing people's behavior
 - Chemical control
 - Biological control
5. Evaluate effectiveness

10

IPM is not...

- Using only bait
- Applying more than one kind of pesticide
- A certain set of pesticides
- Using spices and herbs
- A service that can be contracted out

11

IPM is a team approach

12

Preventing cockroaches

People

- ...

Tools

- ...

Procedures

- ...

13

Finding cockroach infestations

People

- ...

Tools

- ...

Procedures

- ...

14

Taking control of cockroach infestations

People

- ...

Tools

- ...

Procedures

- ...

15

Monitoring success

People

- ...

Tools

- ...

Procedures

- ...

16

Integrated Pest Management (IPM)

1. Inspect and monitor
2. Identify
3. Determine the scale of response
4. Respond
 - Non-chemical control
 - Changing people's behavior
 - Chemical control
 - Biological control
5. Evaluate effectiveness

19

What is a bed bug?

- A blood-sucking insect
- Flat
- Range in size from a sesame seed to a apple seed
- Light brown to mahogany red depending when they last fed



Adult bed bug feeding on a human

20

Bed bugs are health hazards

Bed bugs do not transmit disease, but they are a pest of significant public health importance

- Cause secondary infections after people scratch their bed bug bites
- Result in stress, loss of work, loss of productivity, loss of sleep, and financial burden
- Are unwelcome in our homes and workplaces

21

Bed bug life cycle

**Fed****Unfed**

22

Bed bug behavior

- Most active at night
- Hide in cracks and crevices, often in groups
- Cannot fly, jump, or burrow into skin... they crawl
- Hitchhike on coats, bags, furniture, wheelchairs...



Bed bug crawling into a screw hole to hide

23

What bed bugs eat and drink

Blood



24

Can be confused with...

- Ticks
- Cockroach nymphs
- Other kinds of bug bites
- Allergic reactions to chemicals



Tick



Mosquito Bites



Cockroach Nymph



Bat Bug



Spider Beetle

25

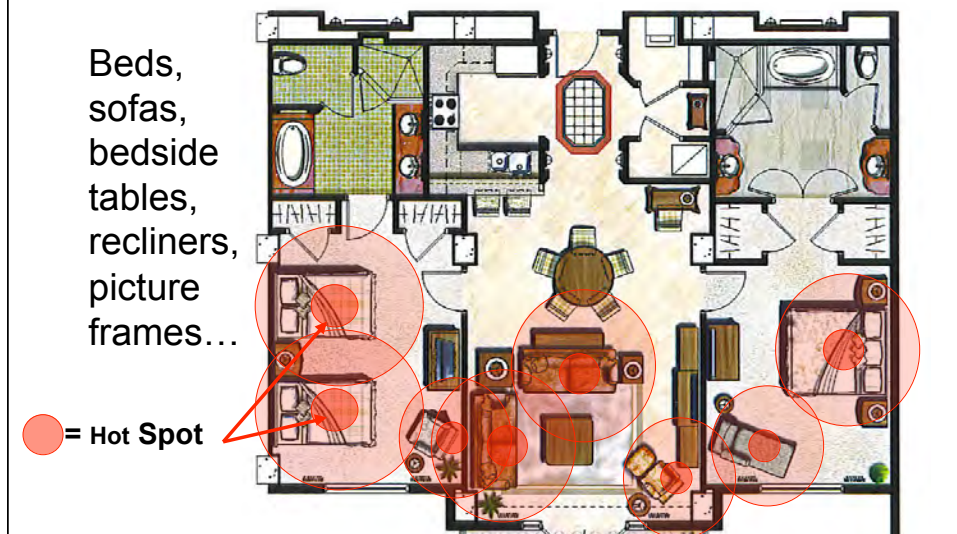
Signs of bed bugs

- Dead bed bugs
- Live bed bugs
- Bites
- Fecal spots
- Shed skins



26

Where bed bugs live



Areas at-risk for introduction and infestation

- Introduction is likely where people
 - frequently travel
 - set down personal belongings
 - sit or lay down for long periods of time
- Infestation is likely where bed bugs can
 - Crawl (upholstered furniture or bedding)
 - Feed on a person for 5 minutes without being detected
 - Hide in cracks or folds

Areas prone to introduction vs. infestation

Area	Introduction?	Infestation?

29

From the conference session

... H=high M=medium L=low

Area Housing Community	Intro?	Infest?	
Community Rm	• •	•	3
Laundry Rm	• • •	•	4
Waiting / Reception	• •	•	3
Units	• • •	• • • •	6
School Bus	• • •	•	4
Food Bank	• •	•	3
Used furniture	• • •	•	4

30

Questions?

31

Integrated Pest Management (IPM)

1. Inspect and monitor
2. Identify
3. Determine the scale of response
4. Respond
 - Non-chemical control
 - Changing people's behavior
 - Chemical control
 - Biological control
5. Evaluate effectiveness

32

Interview

- Find out where people sleep
- Find out where people put the things that come in/out of the unit
- Note financial, physical, or cognitive limitations that could influence treatment
- Use a flashlight and look around sleeping areas and areas where introduction is likely

33

Inspection

- ✿ Always use a flashlight
- ✿ If bed bugs are found, inspect all adjacent units
- ✿ Two types
 - ✿ Visual
 - ✿ Scent detecting canine

34

Monitoring

- Trap and kill bed bugs
- Determine how bad the infestation is
- Two types
 - Passive
 - Active



Passive, moat-style interceptor

35

Integrated Pest Management (IPM)

1. Inspect and monitor
2. Identify
3. Determine the scale of response
4. Respond
 - Non-chemical control
 - Changing people's behavior
 - Chemical control
 - Biological control
5. Evaluate effectiveness

36

Include the resident in the plan

- Encourage patience and cooperation
- Ask residents to NOT: fog/bomb, use their own pesticides, throw away items, change too much until a professional arrives to inspect and treat
- Give them control options: vacuum with a pantyhose, clothes dryer for 30 minutes on high heat, encasement and interceptors, isolate belongings in plastic totes/bags
- Give them an idea of the treatment timeline

37

Treatment options

- | | |
|--------------|-----------------------------|
| • Pesticides | • Freezing |
| • Spray | • Liquid CO ₂ |
| • Dust | • Chest freezer |
| • Fumigation | • Vacuuming |
| • Heat | • Isolation |
| • Dryer | • Encasements |
| • Steam | • Clear bags |
| • Container | • Closed plastic containers |
| • Whole unit | • Interception devices |

38



Pest Prevention by Design

Authoritative guidelines for designing pests out of structures

 **SF Environment**
Our homes. Our city. Our planet.
A Department of the City and County of San Francisco

 **ICC**
INTERNATIONAL
CODE COUNCIL

39

Questions?

In-house options (minimum training)	Leave it to the experts
☛ Encasement	☛ Canine inspection
☛ Monitoring	☛ Whole-unit heat treatment
☛ Quick (15 min) visual inspection	☛ Pesticide application
☛ Steam	☛ Thorough inspection
☛ Clothes Dryer	☛ Active Monitoring
☛ Vacuum	
☛ Heat chamber (FL model)	
☛ Diatomaceous Earth (APPLICATOR'S LICENSE)	
☛ Resident training/support	

40

IPM resources



Websites

- The Northeastern IPM Center’s IPM in Multifamily Housing website and blog: www.stoppests.org
- The National Pesticide Information Center: <http://npic.orst.edu/>
- NH Bed Bug Action Committee: www.nhbedbugs.org
- CT Coalition Against Bed Bugs: www.ct.gov/caes/cwp/view.asp?a=2826&q=437580&caesNav

Resource

- Pest Prevention by Design Guidelines

41



HUD's IPM guidances

- PIH 2011-22: Promotion of Integrated Pest Management (IPM)
- Notice H 2011-20/PIH 2012-17: Guidelines on Bed Bug Control

42



STOP
Pests
in housing
www.StopPests.org

 stoppests@cornell.edu  @StopPests  facebook.com/StopPests

www.stoppests.org/request

43

Prevent introduction and spread: residents

- Keep coats, backpacks, purses, and bags off beds, recliners, and sofas at home and while out
- Inspect used furniture carefully before bringing it home—avoid it if possible
- Look for signs when sleeping away from home

Advice for staff, health aides, and contractors

• In units:

- Avoid sitting or placing items on potentially infested surfaces
- Wear a protective layer when moving infested items

• In the main office/community areas:

- Replace fabric-covered furniture that has many crevices with plastic or metal items
- Have residents set their belongings in plastic totes during meetings

48