

Managing pests in affordable housing

Allison Taisey, BCE
The Northeastern IPM Center
Cornell University



www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

"One must change one's tactics every 10 years if
one wishes to maintain one's superiority."

~Napoleon Bonaparte

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Today's topics

- 🐜 Introductions & more topics
- 🐜 Review of what we know about IPM
- 🐜 Lessons learned last week
- 🐜 **Discussion**
- 🐜 New resources
- 🐜 How to continue to improve your programs

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

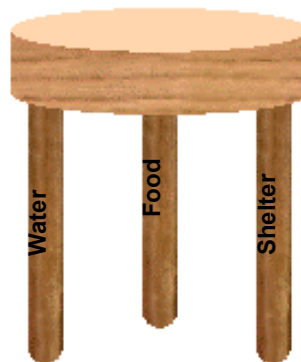
You are a mouse.





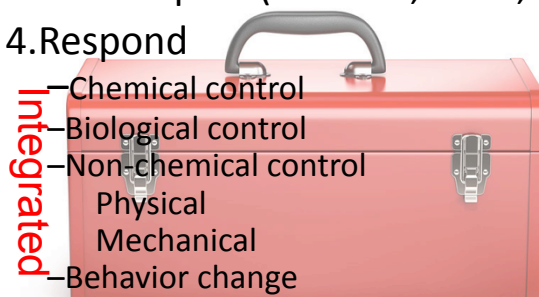
What all pests need

- Food
- Water
- Shelter



Integrated Pest Management Process

1. Inspect and monitor
2. Identify
3. Make a plan (location, scale, expectations)
4. Respond
 - Chemical control
 - Biological control
 - Non-chemical control
 - Physical
 - Mechanical
 - Behavior change
5. Evaluate effectiveness



www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

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

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Pest Prevention

People Involved	Tools	Procedures/ Opportunities
Tenants Home visitors Doctors Friends/Family PMP University expert Property mgr Maintenance Office Staff Code Enforcement Fire Dept. Health Dept. Task Forces	EDUCATION - newsletter - brochure - classes - DVD → stoppests.org - one-on-one - online Keeping items that come/go from home isolated from bedroom/kitchen Inspect furniture bt bringing home Sealing holes in building ("Pest Prevention By Design") Recycle cardboard + bags	Move-in Biannual inspection Re-sign When PMP visits Maint/mgr visits Bulletin Board Resident mtg. After school Temp. change visit service

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Principles

- "Think like the pest"
- Management is a continuous process
- Pest conducive conditions make pest vulnerable areas
 - If you build it they will come
 - Animals follow food
- LOCATION, LOCATION, LOCATION

Lessons learned at the Nestlé-Purina Food Safety Symposium

- 🐜 Understand the real vs. perceived pest pressure on your building
 - Lots of animals go into rodent bait stations and eat bait
 - Device location should be data driven—scratch where it itches

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Lessons learned at the Nestlé-Purina Food Safety Symposium

- 🐜 Case study: In one year a company spent \$21,000 to check 256 traps (12,288 checks).

🐜 1 mouse
 

Game: Powerball (Multi-State) Rule: 5/59+1/39	
Matched/Not Matched	Odds
🔴🔴🔴🔴🔴🔴	1 : 3.26
🔴🔴🔴🔴🔴🔵	1 : 110.81
🔴🔴🔴🔴🔴🔵	1 : 20.78
🔴🔴🔴🔴🔴🔵	1 : 706.43
🔴🔴🔴🔴🔴🔵	1 : 360.14
🔴🔴🔴🔴🔴🔵	1 : 12,244.83
🔴🔴🔴🔴🔴🔵	1 : 19,087.53
🔴🔴🔴🔴🔴🔵	1 : 648,975.94
🔴🔴🔴🔴🔴🔵	1 : 5,153,632.50
🔴🔴🔴🔴🔴🔵	1 : 175,223,504.00

✔ Regular Number Matched ○ Regular Number Not Matched
✔ Bonus Number Matched ○ Bonus Number Not Matched

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Lessons learned at the Nestlé-Purina Food Safety Symposium

- Develop the expertise to manage your own program—own your program
 - Do a data-driven review of current practices
 - Plot the data you are paying for
 - In-house training
 - Give staff tools to speak the language of the vendor
 - Sanitation is 85% of pest control
 - People do right when the checker checks
 - Establish a "Gatekeeper"

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Lessons learned at the Nestlé-Purina Food Safety Symposium

- Word your contract carefully
 - Inspection time stated & enforced
 - Scratch where it itches
 - Reduce treatment time and re-allocate to inspection and communication—move your PMP off the wall

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

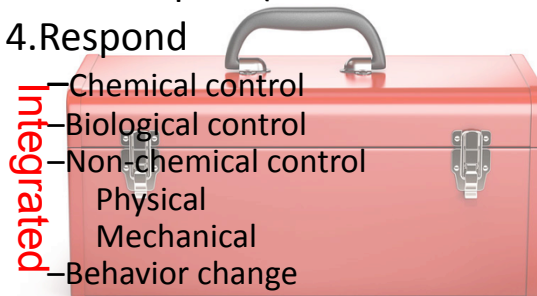
IPM Log: data & documentation

- Applicator licenses
- Proof of insurance & business registration
- Contract/service agreement
- Potential notifications/preparation instructions
- Product labels & SDS sheets
- Educational materials
- Trending reports
- Maps
- Service schedule
- Service log
 - Time
 - Units serviced
 - Detailed reports of any treatment
- Focus units

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Integrated Pest Management Process

1. Inspect and monitor
2. Identify
3. Make a plan (location, scale, expectations)
4. Respond
 - Chemical control
 - Biological control
 - Non-chemical control
 - Physical
 - Mechanical
 - Behavior change
5. Evaluate effectiveness



www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Inspect and monitor

Equipment

Tips

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Nothing is hidden from pests

- 🕷 Think of....
- 🕷 A place at your work that is not inspectable or cleanable.
- 🕷 A way to make this spot more inspectable and cleanable.


www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Inspectable? Cleanable? Inspected? Cleaned?



www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Identify



www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Plan a scaled response ("treatment")

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Take action ("Treatment")

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

Evaluate effectiveness

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

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

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

... 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

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Bed Bug Treatment Options

In-house options (minimum training)

- ☛ Encasement
 - ☛ Monitoring
 - ☛ Quick (15 min) visual inspection
 - ☛ Steam
 - ☛ Clothes Dryer
 - ☛ Vacuum
 - ☛ Heat chamber (FL model)
 - ☛ Diatomaceous Earth
- (APPLICATOR'S LICENSE)

Leave it to the experts

- ☛ Canine inspection
- ☛ Whole-unit heat treatment
- ☛ Pesticide application
 - Spray
 - Dust
 - Fumigation
- ☛ Thorough inspection
- ☛ Active Monitoring
- ☛ Freezing

www.stoppests.org/vtechbedbug

Resources

- PDF of the slides (including clarifying slides to answer common questions)
- Questions and answers (including relevant links)
- StopPests Bed Bug Resource Page

Presentation Recording

Note: This recording has been edited. Webinar-specific parts have been cut out and clarifying slides have been added to answer common questions.

Lowering Costs with an In-House Bed Bug Prevention Webinar recording < 0



STOP Pests in housing
www.StopPests.org

Lowering Costs With An In-House Bed Bug Prevention and Management Plan

0:00 / 1:19:52

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests





http://ow.ly/BJnce

Project led by Chris Geiger, San Francisco Department of the Environment IPM & Green Purchasing Program

Pest Prevention by Design

Authoritative guidelines for designing pests out of structures

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

ICC
INTERNATIONAL
CODE COUNCIL

Funding provided by the Centers for Disease Control and Prevention.

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests



To get involved

www.pestexclusion.org
facebook.com/PestSCOPE
[@pestexclusion](https://twitter.com/pestexclusion)

Pest Prevention by Design

Authoritative guidelines for designing pests out of structures

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

ICC
INTERNATIONAL
CODE COUNCIL

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

18.1.2 Rodent resistant building materials.

Rodent teeth are well adapted to gnawing through all but the hardest materials. Rats have been known to gnaw through lead. Rodent-resistant materials include concrete with a minimum thickness of 2 inches (5.1 cm) if reinforced, or 3.75 inches (9.5 cm) if not reinforced; galvanized sheet metal if 24 gauge or heavier for wall or pipe barriers, 22-gauge or heavier for kick plates or door edging, or 14-gauge if perforated or expanded sheet metal grills; brick if 3.75 inches (9.5 cm) thick with joints filled with mortar; hardware cloth (wire mesh) if woven, 19-gauge, 1/2- x 1/2-inch (1.3- x 1.3-cm) mesh to exclude rats or 24-gauge, 1/4- x 1/4-inch (0.6- x 0.6-cm) mesh to exclude mice; aluminum if 22-gauge for frames and flashing or 18-gauge for kick plates and guards; plaster; or corrugated metal.

Effective on: Mice, Rats, Opossums, Raccoons, and Misc. Vertebrates

Compatibility Issues with Other Design Goals: None identified

References: Hygnstrom et al., 1994

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Exclusion: prevent pest entry and eliminate hiding spots

- 🐜 Screens
- 🐜 Netting
- 🐜 Door sweeps
- 🐜 Hardware cloth
- 🐜 Caulking
- 🐜 Sealant
- 🐜 Chimney cap
- 🐜 Escutcheon plate
- 🐜 Expandable foam
- 🐜 Exterior lighting
- 🐜 Strip curtain
- 🐜 Bird spikes
- 🐜 Drainage
- 🐜 Wire gauze
- 🐜 Sheet metal
- 🐜 Cement mortar
- 🐜 Air curtain
- 🐜 Positive air pressure

www.StopPests.org
stoppests@cornell.edu
[@StopPests](https://twitter.com/StopPests)
facebook.com/StopPests
youtube.com/user/StopPests

Planning exclusion

Pests	Building areas	Exclusion tools
Mouse	Roof	Chimney cover
Indianmeal moth	South wall	Door sweep
Warehouse beetle	Loading dock	Screen
Sparrow	Break room	Air curtain

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests



IPM resources

The screenshot shows the 'STOP Pests' website with a navigation menu on the left and a main content area titled 'Bed Bugs'. The content includes sections for 'HOW DO YOU GET RID OF BED BUGS?', 'Want to see something you can't find?', 'Contact with StopPests!', 'BED BUG HABITS', and 'When they bite'. There are also images of bed bugs and their bites.

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

www.StopPests.org
stoppests@cornell.edu
@StopPests
facebook.com/StopPests
youtube.com/user/StopPests

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

www.StopPests.org
stoppests@cornell.edu
@StopPests
facebook.com/StopPests
youtube.com/user/StopPests



STOP
Pests
in housing
www.StopPests.org

www.stoppests.org/request

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

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

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

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

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

A lack of pests is your reward

🐜 Pest prevention is the gold-standard

🐜 Early detection and rapid response is the minimum requirement

www.StopPests.org stoppests@cornell.edu [@StopPests](https://twitter.com/StopPests) facebook.com/StopPests youtube.com/user/StopPests

In Summary

- Keep the area good for people and bad for pests.
- Get yourself some kneepads and a bright flashlight.

Thank You & Good Luck!