

Managing pests in affordable housing

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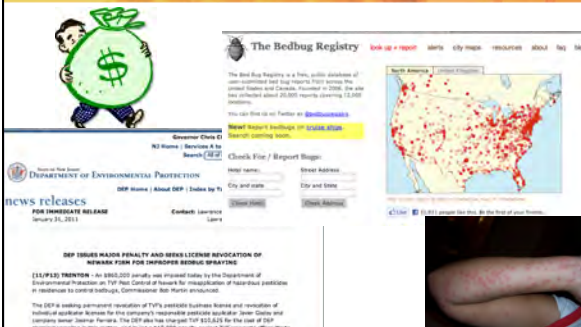
What position do you have on the IPM team?

Please tell us your
Name
Job or Role

If you want, tell us
A pest management question you have or
A pest management topic you hope we will
cover today



Cannot ignore the issue



The Bedbug Registry is a free, public database of pest infestations that has grown to 700 across the United States and Canada. Monthly it adds 20,000 new infestations. The site has collected about 20,000 monthly reports, 12,000 infestations.

DEP ISSUES MAJOR PENALTY AND REVOKES LICENSE INVOCATION OF
RENTAL FINE FOR INDOOR BEDBUG SPRAYING

(1/17/13) TRENTON — An \$80,000 penalty was imposed today by the Department of Environmental Protection on Top Rise Center of houses for misapplication of hazardous pesticides in residence to control bedbugs. Commissioner Dan Renshaw announced.

The DEP's bedding and mattress encasement of TPU's pesticide business license and revocation of individual application license for the company's responsible agent the developer, John Siano and company owner, Joseph Penna II. The DEP also has fined TPU \$10,000 for the cost of DEP's remedial spraying in the houses, and fined a \$10,000 penalty against TPU contractor, John Penna II for an applicable housing violation.

Should not ignore the issue



SCIENTIFIC AMERICAN

Genetics Explain How Bedbugs Infest a Building—or a Country

New genetic profiles of bedbugs help to explain how they have spread, and how infestations that bedbug experts fear.

By Helmut Menzel | September 7, 2011 | 7

FOR THE WELL-CONNECTED FASHIONISTA

City Room

Cockroaches May Help Explain Asthma Outbreaks

Scientists, Kalamazoo researchers of dead and dying toward means the cockroaches are significantly justified.

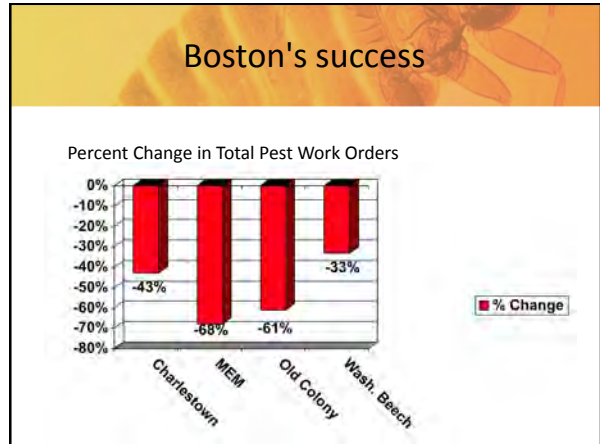
At least that is one possible spin on a new study by Columbia University's Mailman School of Public Health that finds that higher exposure to cockroaches does not necessarily help some New York City children have asthma, while others, who grow up just blocks away, do not.

The researchers collected dust—containing cockroach, mouse and cat dander—from the inner half of the



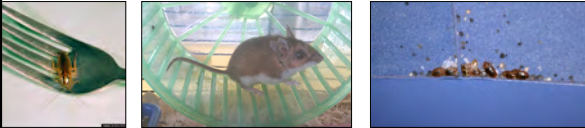

Making homes healthy

- IPM is part of a nationwide Healthy Homes movement to reduce housing-based health hazards
- A healthy home is:
 - Dry
 - Clean
 - Ventilated
 - Safe
 - Contaminant-free
 - Maintained
 - **Pest-free**

Priority pests

- Cockroaches cause asthma in infants, trigger asthma attacks, and contaminate food
- Rodents such as mice and rats carry diseases, bite, destroy property, may cause fires, and may trigger asthma attacks
- Bed Bugs and their bites are a nuisance and are expensive to eliminate



You are a cockroach.



University of Nebraska
Department of Entomology



What all pests need

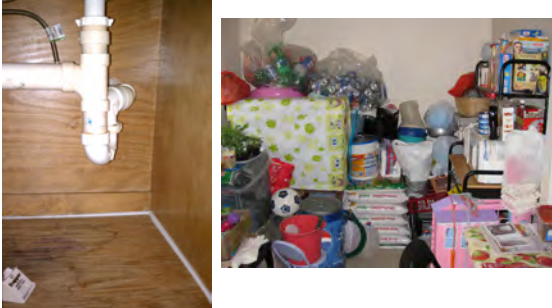
- Food
- Water
- Shelter

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Every infestation starts with an introduction

Pest management in multifamily housing must include managing introductions

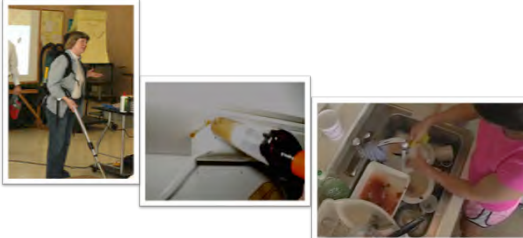


Find pests that get in before an infestation grows



Get rid of pests using more than one control method

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



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

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


IPM is a team approach

Job	Responsibility
1. Preventing pests	
2. Finding introductions	
3. Taking control	
4. Monitoring success	

Questions?

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

Why they're back

- ✦ Change in pesticide availability
- ✦ Change in pesticide use patterns
- ✦ More travel/ mobility of people
- ✦ More infested locations
- ✦ Pesticide resistance
- ✦ Lack of preparedness of society in general


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

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Bed bug life cycle



Fed



Unfed

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


What bed bugs eat and drink

Blood




Can be confused with...

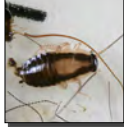
- Ticks
- Cockroach nymphs
- Other kinds of bug bites
- Allergic reactions to chemicals




Tick




Mosquito Bites



Cockroach Nymph



Bat Bug



Spider Beetle

Signs of bed bugs

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



Bites

- Bed bugs cannot be confirmed by bites alone—bites do not show up on everyone
- Live bed bugs must be found



Fecal spots

- ◆ Fecal spots are bed bug droppings
- ◆ Different from frass—frass is gritty, fecal spots are smooth.
- ◆ A current bed bug infestation cannot be confirmed by fecal spots alone
- ◆ Live bed bugs must be found



A bad infestation

Where bed bugs live

Beds, sofas, bedside tables, recliners, picture frames...



How does an infestation begin?



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

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

What are you doing to prevent introductions?



Encourage a community response

- Educate everyone
- Destroy discarded items
- PHA should take the financial burden off of residents by providing
 - mattress encasements
 - monitors
 - large bags for furniture removal

Prepare before you have to

- Once bed bugs are present, you don't want to disturb the area
- Ideally, residents routinely
 - inspect with a flashlight
 - launder bedding
 - vacuum
 - maintain their unit according to housekeeping standards

IPM in action: bed bugs

- Someone reports bed bugs and the response (IPM) plan is initiated
 - Inspect
 - Identify
 - Plan treatment scaled to level of infestation
 - Take action
 - Evaluate effectiveness

IPM in action: bed bugs

1. Inspect and 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

Inspection

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

Monitoring

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



Passive, moat-style interceptor

IPM in action: bed bugs

2. Empower the resident
 - Encourage patience and cooperation
 - Ask them 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

IPM in action: bed bugs

3. Rally the troops
 - Pest management professional (PMP): inspects, vacuums, installs encasements, installs monitors, steams, treats if necessary, schedules a follow-up 10-14 days later
 - Resident: prepares for the PMP according to provided instructions **minimize burden and disruption of bugs and residents' lives**
 - Staff member: "knock & talk": meet with the resident and makes sure preparation instructions are understood, get resident support/supplies if needed, check in on progress before the PMP comes to treat.

Treatment options

- Pesticides
 - Spray
 - Dust
 - Fumigation
- Heat
 - Dryer
 - Steam
 - Container
 - Whole unit
- Freezing
 - Liquid CO₂
 - Chest freezer
- Vacuuming
- Isolation
 - Encasements
 - Clear bags
 - Closed plastic containers
 - Make the bed an island

IPM in action: bed bugs

4. Focus until "no bugs, no bites"

- PMP: follow-up visit 10-14 days after treatment, and routinely until infestation is gone
- Resident: continues to cooperate and prevents reintroduction
- Staff: supports resident and checks in on progress

IPM in action: bed bugs

5. Return back to routine inspection and monitoring—find introductions before they become infestations

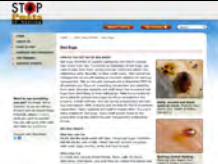
Questions?

<p>In-house options (minimum training)</p> <ul style="list-style-type: none"> ✦ Encasement ✦ Monitoring ✦ Quick (15 min) visual inspection ✦ Steam ✦ Clothes Dryer ✦ Vacuum ✦ Heat chamber (FL model) ✦ Diatomaceous Earth (APPLICATOR'S LICENSE) ✦ Resident training/support 	<p>Leave it to the experts</p> <ul style="list-style-type: none"> ✦ Canine inspection ✦ Whole-unit heat treatment ✦ Pesticide application ✦ Thorough inspection ✦ Active Monitoring
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"We do IPM because it is the right thing to do and because it works. Allowing our residents to live in a pest-free home is a basic service as well as a huge quality of life issue."

—Gail Livingston
Director of Operations and Property Management
Boston Housing Authority

IPM resources




Websites

- The Northeastern IPM Center's IPM in Multifamily Housing website and blog: www.stoppests.org
- The National Center for Healthy Housing: www.nchh.org
- The National Pesticide Information Center: <http://npic.orst.edu/>
- Boston's Healthy Pest Free Housing Initiative: <http://www.bphc.org/hpfn/AboutUs/Pages/home.aspx>
- HUD's Office of Healthy Homes and Lead Hazard Control

People

- Allison Taisey: aat25@cornell.edu or 607-220-6417
- Paul Guillebeau: bugman@uga.edu



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

Get StopPests to your PHA:

1. E-mail StopPests@cornell.edu
2. Name a pilot site and IPM coordinator
3. Work with StopPests on realistic goals
4. Meet minimum requirements
5. Hold an on-site IPM in Multifamily Housing Training
6. Continue to work with StopPests



Thank You!



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