



# Environmental Public Health Monitor

## Sleep tight...but they are biting !

“Feeding Frenzy!” - The headline screamed. Bed bugs are back, and no one can sleep tight.

The bed bug (*Cimex lectularius*) has been a parasite of humans throughout written history, and was confirmed as early as the Egyptian Pharaonic period. Early Americans used to put bedposts in small cans filled with kerosene, in a sort of moat-like fashion to keep the bedbugs from climbing into the bed. One would also not let the sheets hit the floor or have the bed too close to the walls, lest the bedbugs could climb into bed that way.

The bed bug's adaptation to humans is so complete that its bite is rarely felt until well after the bug leaves its victim. At one time, this small, brown bug was perhaps the most pervasive and unwanted pest in America. The widespread use of synthetic insecticides, especially DDT, greatly reduced the bed bug population during the 1940s and 1950s in developed countries.

Bed bugs, however, are on their way back, with reports from Australia, US, Canada and many European countries. The resurgence is part of a worldwide trend. In the US, for example, a survey by a pest control company found bed bug-related service calls jumped 20% from 2003-2004, after a 500% upswing from 2002-2003. The problem was especially bad for the hostels in the early years, but the bugs are now moving out of the hostels and into permanent lodging with local residents. In 2003, a motel chain in the US was successfully sued for US\$382,000 after guests were bitten by bed bugs.

The City of Toronto reported a bed bug problem among homeless people in shelters since 2001. By 2003, at least a dozen shelters, hostels, and other forms of public housing were known to have ongoing problems with bed bugs.

In Australia, bed bug complaints to pest control companies rose nearly 700% from 2000 to 2004. The country faced a similar epidemic in the 1950s, before the bugs were wiped out with the aid of the now banned chemical DDT.

Many factors are probably contributing to the upsurge, with travel, type of pesticides used and trade being the major factors.

### Travel:

Increasing world travel has been suggested as the main cause for the upsurge. An Australian study found the increased need for bed bug treatment in early 2000 was mainly associated with budget style accommodation and backpacker hostels, which have high visitation from overseas guests. A recent report commissioned by Sydney City Council found that eight out of ten backpacker hostels in the city's eastern suburbs were infested with bed bugs. Recent reported infested sites now include private homes, 'up-market' hotels, interstate trains, charter boats, and even ocean going cruise ships. The Australian Quarantine and Inspection Service recorded 23 interceptions of bed bugs since 1986 when the database was first established. 74% of the detections occurred since 1999 and 74% of the detection came through personal baggage with most via air travel. In the US, the bed bug problem coincided with a weak US dollar in early 2002 leading to an influx of travel

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The bed bug is also known as the wall louse, house bug, mahogany flat, red coat, and crimson Rambler

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### Special points of interest:

- Australia recorded a 500% upswing of bed-bug related calls to pest control companies in 2002-2003
- Factors contributing to the bed bug resurgence included travel, type of pest control chemicals used and second-hand furniture trade

## Capital Health News

\* CH-EHS staff were recently recognized for their achievements. EHOs voted for the staff serving in each category. The awards and winners for 2005 are:

1) **Dr. KS Penniford Director's Award: Lance Honish.** For outstanding achievement in the field of public or environmental health over the past year. This award is granted to an individual who has undertaken special projects and/or has made an extraordinary contribution to the field;

2) **Mr. LC Clark Director's Award: Carol Alloway.** For maintaining a high standard of professionalism over the past year. This award is directed to a field EHO who was courteous, respectful, and punctual over the past year, demonstrated compassion towards the people they served, and was noted for going beyond the call of duty to handle a particularly difficult situation(s) or person(s) in a professional manner; and

3) **Mr. JM O'Laney Director's Award: Phi Phan.** For outstanding support, contribution, or service to our organization over the past year. This award is given to an individual responsible for organizing and or presenting at seminars, Info-Shares, staff meetings or conferences.

There are also the **Managers' Awards**, given to a staff member in each of the four EH program areas, to recognize the hard work by selected staff. The recipients for the four program areas: Food, Built Environment, Healthy Rural Environment, and Regional Programs are: **Nyall Hislop, Sandra Hamilton, Raymond Desmit, and Edwina Kordyback**, respectively. These individuals are recognized for their hard work and tireless effort in carrying out their duties.

Congratulations to all award winners and thank you again for your hard work and contributions to the field of environmental and public health.

Other CH news:

\* EHOs issued Executive Officer's Orders to the owners of three housing premises containing marijuana grow operations.

\* A tanning operation was closed because of problems with severely cracked Plexiglas covers on the tanning beds and the lack of hot water for cleaning.

\* A District EHO investigated a complaint from a resident concerning health effects associated with her neighbour's coal burning stove. As a result of the investigation, the Medical Officer of Health sent a letter to regional municipi-

palities outlining problems associated with coal burning appliances and asked that such appliances not be approved for residential use.

\* A rental home was condemned due to extensive disrepair and numerous violations of the Minimum Housing and Health Standards.

\* Two property agents were found guilty of renting a condemned dwelling and were fined by the court.

\* A Court Order was obtained to allow EHO access to a previously condemned premises. The basement suite was condemned in August 2005 and for the last two months, the owner has not permitted EHOs access to the property. Inspection confirmed the suite was occupied and a "Notice to Vacate" was issued.



*EHOs recognized for their hard work*

### **Built Environment Activities Summary:**

December: 152 complaints investigated and 34 housing related orders issued

January: 235 complaints investigated and 34 housing related orders issued

## General News

\* More frequent floods and drought, blamed by some scientists on global warming, brought a near 20% rise in natural disasters in 2005. The death toll fell to 91,963 from 244,577 in 2004, when the figures were swollen by the impact of the Asian tsunami. Over 80% of the fatalities in 2005 came from a single disaster— October's earthquake in Kashmir, just as the tsunami caused over 90% of deaths a year earlier. Without the earthquake and the tsunami, the death toll in both years was under 20,000, confirming a trend for more frequent, but less lethal disasters. However, with rising urbanization and people in developing countries often crowding into environmentally dangerous areas around big cities, the risk of disasters is growing. In

2005, there were 360 natural disasters, with floods and droughts making up 237 of the total. Disasters affected the lives of 157.5 million people. Disasters cost US\$159 billion in 2005, up 71% from 2004, almost entirely because of hurricane Katrina, which alone cost \$125 billion.

SOURCE: Reuters Jan 30

\* 2005 was the warmest recorded year on Earth's surface, and it was unusually hot in the Arctic. All five of the hottest years since modern record-keeping began in the 1890s occurred within the last decade. In descending order, the years with the highest global average annual temperatures

were 2005, 1998, 2002, 2003 and 2004. High temperatures in 1998 were due to a strong El Nino pattern.

SOURCE: Reuters Jan 25



*Five of the hottest years occurred within the last decade*

# Sleep tight...but they are biting !

(...from page 1)

from abroad. A Florida couple taking a Caribbean cruise reportedly awoke to find at least 40 bed bugs in their bed.

## Pesticides

Recent changes in the type of chemicals used for pest control also had an effect on infestations. Insect management now targets the control of specific pests, which means bed bugs are unlikely to be affected incidentally as “collateral damage” caused by broad-spectrum insecticide sprays against other pests such as cockroaches. After DDT was banned, the most effective pesticide for bed bug control was Dursban and methyl bromide. Dursban provided good residual control but is no longer available for indoor use. Methyl bromide has been classified as a Category I ozone depleting substance and as of January 1, 2005, other than for the stock of the chemicals that has already been imported, the use and manufacturing of methyl bromide will be tightly regulated. The phase out of methyl bromide began in 2000. In 2001, the consumption of methyl bromide had been reduced by 50% when compared to 1991 levels. With the phasing out of methyl bromide, there is no other effective chemical with residual power for bed bug control. Synthetic pyrethroids are now commonly employed. These have, however, a repellent effect and bed bugs can therefore avoid lethal contact. Pyrethroids do not have a long residual activity which means reinfestations are more likely to occur. Compounded with the fact that bed bugs can go without feeding for 80 to 140 days, it would explain why the use of non-residual pesticide is not successful in the control of bed bugs.

## Other Trades and Activities:

The trade in second-hand furniture, especially beds, has facilitated the transfer of bed bugs locally. In New York, the municipal government passed a new law to ban the reconditioning of mattresses in order to control bed bugs. They are also requiring separate transport of old and new mattresses by furniture companies that remove old mattresses while delivering new ones.

With the introduction of central heating,

bed bugs began their spread especially in northern Europe. Central heating in modern buildings eliminated extreme variations in temperatures, allowing bed bugs to survive better in countries with colder climates.

Are we losing the battle to control bed bugs? There are other methods one can employ to control infestation. The pest control industry is working closely with hospitality related businesses to develop new treatments aimed at dealing with the issue. The first step in treatment involves an in-depth inspection including a wall-to-wall look at the carpet, mattresses, and lighting fixtures.

Diatomaceous earth is also effective for bed bugs. A University of Toronto study found carpet tape and commercial glue traps are effective in trapping adult bugs.

Bed bugs can survive periods of sub-freezing weather for several weeks therefore lowering the thermostat will be unsuccessful. The bug however, will succumb relatively quickly to high temperatures. A gradual rise in temperature will cause bed bugs to disperse therefore the high temperatures must be applied suddenly. The most practical method is through the use of steam. 45C is reported to be lethal to all stages including eggs on which most insecticides are not effective, so steaming is an effective way of killing bed bugs in mattresses, carpets, and baseboard crevices. The steam machines must be operated with a low vapour flow rate and the nozzle directly onto the surface being treated. Items can also be wrapped in plastic and placed in a hot, sunny location for at least a few days and monitored with a thermometer. There was one report in Australia where a hotel put the beds out on the street, so that they could clean them. The beds were stolen, so sweet justice was to be had.

Vacuuming is an effective way to remove bed bugs, but it must be done thor-

***Bed bugs can survive freezing temperature for several weeks but succumb easier to high temperature***



copyright, 2004 M. Potter University of Kentucky

***Bed bugs are often found along the seam of the mattress***

oughly, every day. There is a need to tilt the mattress, box spring and other furniture upside down to get to all sides. The vacuum must be emptied immediately. Putting sheets, pillowcases, and blankets in a hot dryer (60C) for 20 minutes will also be effective.

The early method of ‘building a moat’ is still one of the simplest ways to set up a physical barrier to prevent bed bug bites. Bed bugs cannot fly or climb polished glass or metal easily. Standing the legs of beds in soapy water, glass jars or metal cans can be effective. One can also coat the legs with petroleum jelly or double-sided sticky tape. This is assuming the bed bugs are not in the mattress or box spring.

While staying in hotels, customers should examine beds for telltale signs of the bugs, especially around upper and lower seams of the mattress and behind the headboard. Suitcases should be elevated by using luggage stands.

## Bed Bug Possible Hiding Places:

- Seams, creases, tufts, and folds of the mattress and box spring
- Cracks in the bed frame and head board
- Underneath chairs, couches, beds, dustcovers
- Between the cushions of upholstered furniture
- Underneath area rugs and the edges of carpets
- Between the folds of drapery or curtains
- In the drawers of night stands, dressers
- Behind the baseboards
- Around door and window casings
- Behind electrical switch plates
- Under loose wallpaper, paintings, posters
- In cracks in the plaster
- In telephones, radios, clocks

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Protecting the public's health***



**Spider Web**

The following are Web sites related to the topics in this month's EPHM.

1) City of Toronto, Staff Report

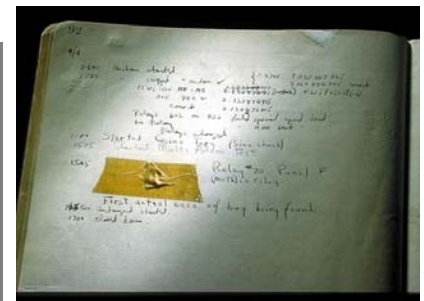
[www.city.toronto.on.ca/legdocs/2005/agendas/committees/hl/hl050404/it010.pdf](http://www.city.toronto.on.ca/legdocs/2005/agendas/committees/hl/hl050404/it010.pdf)

2) Pest Control Canada

<http://www.pestcontrolcanada.com/INSECTS/bedbugs.htm>

**Did you know.....**

- The word "bug" came from a 1535 translation of the Bible "Thou shalt not nede to be afrayed for eny bugges by night", meaning "frightful object"
- In describing operational problem, the term "bug" first originated from Thomas Edison to mean industrial defects. In 1945, a computer at Harvard University was having a problem which was resolved after a moth was pulled out from an electronic relay. The operator recorded in the log book: "First actual case of bug being found"



**The first computer bug**

## ***EPH Monitor—Cumulative Index, 2003 to 2005***

**Volume 5, 2003**

*February, Issue 1:*

- WNv Response Plan in CH
- WNv in North America

*April, Issue 2:*

- PBDE— The New PCB
- Teflon, the Non-Stick Cookware

*June, Issue 3:*

- Pesticides for Cosmetic Use
- 2,4-D, The Case For and Against
- How Safe is your "Organic" Garden?

*August, Issue 4:*

- Fire Pit Health & Safety
- The Science of Wood Burning
- Staring a Campfire

*October, Issue 5:*

- Drinking Water and DBP
- Chemical versus Microbial Risks in Drinking Water
- USEPA Safe Drinking Water Rules

*December, Issue 6:*

- Pool Water Parameters
- How Long is Too Long in a Spa or Sauna?
- Recreational Water Illnesses

**Volume 6, 2004**

*February, Issue 1:*

- Swimming Pool Pathogens
- Use of CT Value for Fecal Accidents in pools

*April, Issue 2:*

- Legionella in Water Supplies
- US Dog Bite Prevention Week

*June, Issue 3:*

- Health Issues Relating to Air Travel
- Disease from Other Types of Transportation

*August, Issue 4:*

- Harmful Microorganisms in Our Environment
- Hygiene Hypothesis
- The Common Communion Cup

*October, Issue 5:*

- Mold is Gold
- Automobile Pollution and Health
- The Mighty Mite

*December, issue 6:*

- Mobile Phones and Radiofrequency
- Myths and More Myths about Cell Phones

**Volume 7, 2005**

*February Issue 1:*

- Surface Disinfection in Hospitals
- Toy Story

*April, Issue 2:*

- The Dark Side of Body Art
- Body Art— Before and After

*June, Issue 3:*

- Fluoridation— Both Sides of the Story

- Ways to Lower Fluoride Intake

*August, Issue 4:*

- Swim at Your Own Risk
- Risk-Based Recreational Water Guidelines

- More than just Sand Castles

*October, Issue 5:*

- Agricultural Practices and Zoonotic Disease

- Emerging Zoonotic Pathogens

*December, Issue 6:*

- Residential Coal Heating in Urban Areas