

Research: Bedbugs can thrive despite inbreeding

December 7 2011, By KEVIN BEGOS, Associated Press



In a Feb. 1, 2011 file photo, bedbugs are seen next to the tip of a finger in a container from the lab at the National Pest Management Association, during the National Bed Bug Summit in Washington. Researchers now say that the creepy bugs have a special genetic gift: withstanding incest. It turns out that unlike most creatures, bedbugs are able to inbreed with close relatives and still produce generally healthy offspring. That means that if just a few bedbugs survive in a building after treatment, they repopulate quickly. (AP Photo/Alex Brandon, File)

Bedbugs aren't just sleeping with you. They're sleeping with each other. Researchers now say that the creepy bugs have a special genetic gift: withstanding incest.



It turns out that unlike most creatures, bedbugs are able to inbreed with close relatives and still produce generally healthy offspring. That means that if just a few bedbugs survive in a building after treatment, they repopulate quickly.

Coby Schal and Ed Vargo are entomologists at North Carolina State University, and they presented preliminary research on <u>genetic diversity</u> in bedbug populations on Tuesday in Philadelphia, at the annual meeting of the American Society of Tropical Medicine and Hygiene.

"We kept discovering the same thing. Within a given apartment, or even a given building, there was extremely low genetic diversity," said Schal. "In most cases there's just a single female that founded the population."

Schal said that was a surprise, since an animal or <u>insect population</u> with limited diversity will usually build up and then crash, because <u>genetic</u> <u>defects</u> tend to magnify with inbreeding.

"But somehow bedbugs are able to able to withstand the effects of inbreeding, and do quite well," he said.

The new research is important, said Zachary Adelman, an entomologist at Virginia Tech University who wasn't part of the North Carolina State team.

"No one had looked at these things," he said of the <u>genetic makeup</u> of bedbugs. "It's pretty exciting."

And pretty depressing.

The researchers also found that while the community within a building tends to be similar, there are many different <u>strains</u> of bedbugs throughout the East Coast, suggesting that new colonies also get



introduced through foreign travel or commerce.

"That means they're coming into the country from lots of different places," which means that the bedbug problem isn't going to stop anytime soon, said Adelman.

The findings may also help explain another part of the bedbug boom.

Bedbugs - and other insects - develop resistance to insecticides. Schal said that if a treatment kills anything less than 100 percent of the bugs, the survivors will not only repopulate, but pass on the resistance they've developed to future generations.

"The insecticides really need to be robust" to do the job, Schal said.

Bedbugs are wingless, reddish-brown insects that bite people and animals to draw blood for their meals. Though their bites can cause itching and welts, they are not known to spread disease.

Another researcher notes that you have to discover a problem before you can treat it.

Rajeev Vaidyanathan of SRI International, a nonprofit research firm with headquarters in Silicon Valley, said he's working on a quick, easy test so people can discover bedbugs before they get bitten.

Vaidyanathan said current technology comes down to spotting live or dead bedbugs, or using dogs to sniff them out.

"Both are often ineffective and tedious," he said.

So Vaidyanathan is trying to developing a biochemical test to identify bedbug-specific proteins that they leave behind, even when only a few



bugs are present. Homeowners would swab a section of their home, and dip it in a special compound.

"A home pregnancy kit type of read-out. If there's a color change, you have a bug," he said, but it's too early to say when or if the idea will make it to market.

Vaidyanathan also pointed out some other forces behind the spread of bedbugs.

"The problems we are seeing with bedbugs in North America did not happen overnight," said Vaidyanathan. "We have the highest concentration in the history of our species of humans living in cities. <u>Bedbugs</u> do not have wings; they are nest parasites, so our own population density has helped them to thrive."

©2011 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.

Citation: Research: Bedbugs can thrive despite inbreeding (2011, December 7) retrieved 28 April 2024 from <u>https://phys.org/news/2011-12-bedbugs-inbreeding.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.