Typical populations of bedbugs can cause harmful blood loss in humans, research finds

November 1 2012, by Mickie Anderson

(Phys.org)—For years, bedbugs have been turning up in sometimes odd and random places, such as subways, movie theaters, dressing rooms and schools, but scientists believed that to flourish, the insects would need more frequent access to human blood meals.

Turns out they don't.

A new University of Florida study, published online this month by the journal *Medical and Veterinary Entomology*, shows the blood-sucking insects can do much more than survive—they can even thrive—with far less access to human blood than previously believed.

And the news only gets creepier. The three-year study also found that it takes only about 11 weeks for one pair of bedbugs to spawn a large enough population to cause harmful blood loss in a baby, and just under 15 weeks for adult humans. Just 3,500 bedbugs feeding on a single baby or 25,000 on an adult can cause problems.

"By harmful, we mean it's not killing you, but your body would be stressed," said Roberto Pereira, a research associate scientist in entomology with UF's Institute of Food and Agricultural Sciences. "And when your body is stressed, all sorts of things can go wrong. Your blood volume would be low, your iron levels might be too low, or you might become anemic."

Pereira and Phil Koehler, a professor of entomology and UF/IFAS

faculty member, fed bedbugs in 5- and 15-minute periods and once, three or seven times per week, to see how the populations fared under different feeding conditions. Andrew Taylor, a former UF entomology undergraduate, and Margie Lehnert, a former entomology graduate student, assisted with the project.

Under the researchers' bedbug-feeding regimens, Koehler said, the populations grew under all conditions – even those bedbugs fed the least often and for the shortest duration, although that group's numbers grew slowly.

"Basically what we found is that they can live on a diet of weekly snacks," Pereira said.

The researchers also were surprised to discover that if not controlled, populations of bedbugs large enough to cause humans harm could grow four times more quickly than previously thought, in just an 11- to 15-week span.

After having been nearly eradicated in the U.S., the pests became resurgent in the late 1990s and early 2000s.

In 2011, the National Pest Management Association and the University of Kentucky released a survey of U.S. pest control professionals that found 99 percent of respondents had encountered bedbug infestations in the past year. Before 2000, only 25 percent of the survey's respondents had encountered the pests.

Koehler and Pereira's study also found that unless pest control efforts against bedbugs can kill at least 80 percent of a given population, they are not likely to have much success. Pest managers most often use pyrethrins against bedbugs, but bedbugs have grown increasingly resistant.

"Unfortunately, there are very few products that will do that," Koehler said. "And there is plenty of evidence that many populations of bedbugs in the U.S. are resistant."

There are some heat treatments that have been successful, but they are labor intensive, time-consuming and expensive, he said.

"One pair of bedbugs can become 35,000 in just 10 weeks if not controlled," Koehler said. "It's really a very difficult problem for people."

Provided by University of Florida