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# Ability of Bed Bug-Detecting Canines to Locate Live Bed Bugs and Viable Bed Bug Eggs

Margie Pfiester , Philip G. Koehler, Roberto M. Pereira

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## Abstract

The bed bug, *Cimex lectularius* L., like other bed bug species, is difficult to visually locate because it is cryptic. Detector dogs are useful for locating bed

bugs because they use olfaction rather than vision. Dogs were trained to detect the bed bug (as few as one adult male or female) and viable bed bug eggs (five, collected 5–6 d after feeding) by using a modified food and verbal reward system. Their efficacy was tested with bed bugs and viable bed bug eggs placed in vented polyvinyl chloride containers. Dogs were able to discriminate bed bugs from *Camponotus floridanus* Buckley, *Blattella germanica* (L.), and *Reticulitermes flavipes* (Kollar), with a 97.5% positive indication rate (correct indication of bed bugs when present) and 0% false positives (incorrect indication of bed bugs when not present). Dogs also were able to discriminate live bed bugs and viable bed bug eggs from dead bed bugs, cast skins, and feces, with a 95% positive indication rate and a 3% false positive rate on bed bug feces. In a controlled experiment in hotel rooms, dogs were 98% accurate in locating live bed bugs. A pseudoscent prepared from pentane extraction of bed bugs was recognized by trained dogs as bed bug scent (100% indication). The pseudoscent could be used to facilitate detector dog training and quality assurance programs. If trained properly, dogs can be used effectively to locate live bed bugs and viable bed bug eggs.

**Keywords:** [Cimex lectularius](#), [pseudoscent](#), [dog](#), [Camponotus floridanus](#), [Blattella germanica](#)

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