

Dogs have been used very effectively for the detection of a wide variety of things including drugs, bombs, fugitives, cadavers, mold, and termites just to mention a few. So why not bed bugs?

There *is* canine scent detection for bed bugs and these dogs can be very effective; however, every bed bug detection dog and handler team is different from the next and you need to find out exactly what you can expect from the team that is performing the inspection. A well-trained bed bug detection dog should be able to identify very small numbers of live bed bugs, sometimes as few as one. Additionally, the dogs should be able to discriminate live bugs and viable eggs from evidence left over from an old infestation (fecal spotting, caste skins, empty egg shells, carcasses). Unless they are able to do this, it becomes much more difficult to distinguish between active and old infestations.

Some trainers cross train dogs to detect multiple scents, which may make it difficult to interpret a dog's alerts. How do you know whether the dog is alerting on the scent of mold or of bed bugs if it has been trained

to detect both?

Like any other inspection tool, scent detection has shortcomings and is not always definitive. Nevertheless, scent detection adds a whole new dimension to the inspection. Bugs that might escape visual detection by a human may be detected by a bed bug sniffing dog and vice versa. Look at it this way: Bed bugs can be so difficult to detect that different methods may prove the most useful from one location to the next. The more bed bug detection tools you can deploy, the more likely you are to detect infestations early when bed bugs are the easiest to control.

THE MECHANICS. Human inspectors depend on their eyes, so an inspection is limited by what is visible to the inspector. Scent dogs depend on their noses, so their "inspection" is limited by what they can smell. Sometimes, bed bugs can be present but the odor is simply not available to the dog. The reasons for this vary, but the three most significant factors include the location of the bugs, air flow and temperature.

If bed bugs are located well above the dog's head, and the air flow is pulling the scent

upwards, the dog may not alert. Therefore, it is entirely possible for bed bugs to be in plain view high up on the wall or along the ceiling and not be detected by the dog. It is this type of "failure" that cause some to doubt the utility of scent-detection dogs.

However, there are just as many situations where the dog will alert on bed bugs that are difficult or unlikely for an inspector to find: an outlet with a bug or two behind it, a baseboard that has a few bugs behind it or eggs hidden along a carpet tack strip. A scent-detection dog can go under a bed and alert on bugs inside the box spring without an inspector having to take the mattress and box spring off. The dogs can alert to bed bugs behind a heavy entertainment center without anyone having to move it and can detect bed bugs or their eggs in a pile of clothing or a toybox full of stuffed animals.

What should be your response when the dog alerts? Do not put all of your trust in the dog's nose. Try and confirm the presence of live bugs or viable eggs in the area that the dog indicated. If you are going to inspect areas to confirm the dog's findings you will need to remove the mattress and

Four-Legged Bed Bug Detectives

A well-trained bed bug detection dog can greatly assist pest management professionals.

By Rick Cooper



box spring, take off the outlet switch, pull up the carpet, remove the baseboard, empty and move the entertainment center, and go through the pile of clothing and stuffed animals where the dog alerted. This can be done but obviously this adds time and money to the inspection.

Naturally, there is no guarantee that you will be able to find the bug(s) or egg(s) that the dog alerted on. If the evidence is inaccessible, or you simply fail to see it, you will not be able to visually confirm the alert. Also, the dog is alerting on a "scent picture," and while it will often be right where the bugs or eggs are, there is also the possibility that it is not. Scent travels with air, sometimes for significant distances. (Anyone who has tried to identify the location of a dead animal within the walls of a room knows this all too well.)

A multiple-dog approach can help overcome some of these issues and often adds to the level of certainty needed for both the handler as well as the contracting party. For example, if the first dog alerts, indicating that bed bugs are present in various locations, then a second dog is brought in to inspect the area and to see if it, too, alerts in the same vicinity as the first dog. Still, you must decide what you are going to do with this information. One option is to say that a double positive indication is viewed as a confirmation that bugs are present. A mixed result, one dog alerts and the second does not could be viewed as reason to perform a visual inspection in an effort to find bugs or eggs. If visual inspection fails to reveal evidence of a live infestation, you must decide whether or not you are going to trust the first dog or not.

Bed bug scent detection is not perfect. The contracting parties should agree in advance as to what methods will be used and how the information will be interpreted.

Questions to be considered include the following:

- Will they rely on the dog's detection alone?
- Do they want a second dog for confirmation purposes?
 - What if there are mixed results between multiple dogs?
 - What circumstances will mandate a detailed visual inspection to confirm the dog's alert?
 - How will they handle situations where the presence of bed bugs could not be confirmed through visual inspection?

SCENT DETECTION CANDIDATES.

Canine scent detection is useful for routine inspections of rooms in hotels, college

What to Look for When Buying or Leasing a Bed Bug Dog

Pest control companies that choose to lease or buy a bed bug detecting dog, or to contract for canine scent detection services, should carefully evaluate the training of the dog and the reputation of the trainer. Here are some important factors to consider:

Is the Dog's Training Up-To-Date? Most training is performed using training apparatus, but it is also important that dogs be trained in the field as well. The dog should be inspection ready at time of purchase; there should be no additional training needed. A dog should be able to go to a house or hotel room on the first day and be qualified to do the inspection with little guidance. The dog's work routine should be programmed during the training process, not afterwards.

There should be training records supported by microchip number, veterinarian-certified health certificate less than 30 days old, and a field deployment demonstration where you place "blind hides" for the dog and trainer to find. Check to see if the training facility and trainer is NESDCA certified. The certification will help ensure that the facility, its staff and methods of training meet high standards (see information on NESDCA on page 78).

Are the Dogs Cross-Trained with Other Scents? False alerts are a greater concern with dogs that have cross-trained on multiple scents (example: mold detection and bed bug detection). The most reliable type of training consists of limiting the dog exclusively to one odor, with no prior imprinting on other types of scent.

Can the Dog Differentiate Between Live Bed Bugs and Old Evidence? It is very important that dogs do not alert in the absence of live bugs and eggs and not old evidence (bed bug carcasses, cast exoskeletons, feces, harborage substrate, etc.). Dogs will encounter old evidence on a routine basis during inspections, so it is necessary that they do not alert to it in order to avoid confusion between active and old infestations.

Can the Dogs Detect Eggs? The earliest stages of an infestation may be limited to just a few eggs. The ability of a dog to alert to eggs when there are no other stages present is the highest level of detection possible. Such accuracy enhances our confidence in declaring that a treated infestation probably has been eliminated.


Are Reliability Claims Backed by Evidence? You may hear trainers and dog handlers claim that their dogs are 97 percent accurate (or some such number), but do they have the data to back the claims? Sometimes accuracy of claims are based upon the dogs ability to find bed bugs or eggs in a training apparatus. Such a test means little; accuracy rates are much higher than in the real world. Tests in a training apparatus do not reflect the dog's ability in the field, where air currents, distractions, and numerous other obstacles come into play. Accuracy claims should be based on field results from actual inspections, clearly reflecting the results of the inspections.

If the dog and its handler are only effective 75 percent of the time in the field, does this mean that the method is not worth the cost? It depends. How low is 75 percent when compared to a visual inspection of a low-level population (several bugs or eggs)? A human may also miss the evidence more than 50 percent of the time, and perhaps much more. And a canine-scent detection inspection combined with a visual inspection may have a much higher accuracy rate.

dormitories, cruise ships, group homes, shelters or any other high-risk environment. Such inspections should be in addition to basic visual inspections being conducted by in-house staff. Since the efficiency of dogs is much greater than humans, a typical inspection of a hotel room may only take a dog two to three minutes compared to 15 minutes or more for an equivalent inspection by a skilled technician. If the scent-detection dogs inspect all of the rooms once per month, even if the infestation is missed one month, it is unlikely to be missed the following month. Compare this to the current timeframe of

several months or more before most infestations are detected in similar sites.

Other environments where canine scent detection can be a valuable tool include those where the location of the bugs are unpredictable. Imagine trying to inspect a movie theater for bed bugs. How long would it take to check every seat, and would you even be able to find the bugs? During a canine scent-detection training exercise, one of the authors inspected an auditorium with 250 seats in only 20 minutes, with the dog finding 100 percent of the hidden bugs and eggs. Likewise, laundries, day cares, school

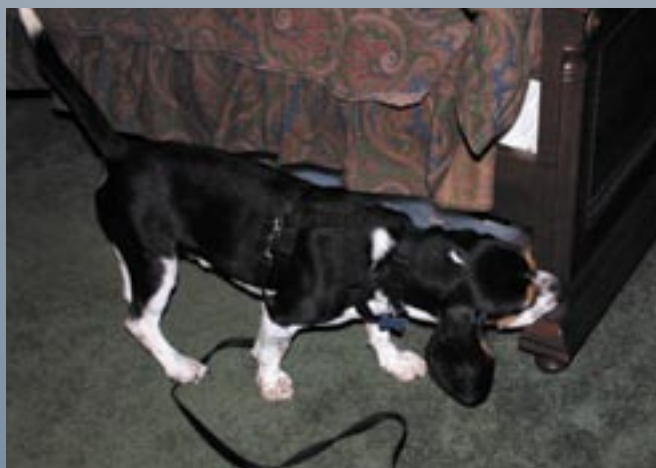
classrooms, office buildings, busses, trains, and other modes of public transportation are locations where canine scent detection is more practical and effective than a visual inspection. 

The preceding is an excerpt from an upcoming bed bug book by Rick Cooper and Larry Pinto. Stay tuned to www.pctonline.com/store to purchase the book.

The author is technical director, Cooper Pest Solutions, Lawrenceville, N.J., and can be contacted at rcooper@giemedia.com.



Cooper Pest Solutions recently evaluated Brody, a bed bug scent detection dog trained by Pepe Peruyero of J&K Canine Academy (www.jkk9.com) High Springs, Fla. Here, Brody is performing a variety of tasks, including (clockwise from below): Brody practicing on the scent detection-training apparatus; Brody inspecting a bed; Brody inspecting a bookcase; and, Brody alerting to a bed bug infestation on a sofa. (Photos © 2007 Cooper Pest Solutions)



What is NESDCA?

The National Entomology Scent Detection Canine Association (NESDCA) recently was formed and the group held its first meeting at the University of Florida Department of Entomology's Southeast Pest Management Conference. The objectives of the association are:

- To unite and assist all entomology scent detection canine teams in the training and continued improvement of all entomology scent-detecting work dogs.
- To establish a working standard for all entomology scent-detecting canines, handlers and trainers through an accreditation program.
- To provide educational material through publications, visual aids and training seminars.
- To improve the image of the entomology scent-detecting canine.

The standards that are being utilized by NESDCA are based upon research on canine scent detection conducted by scientists at the University of Florida's Department of Entomology. This association provides the insurance that the training facilities, training methods and dog/handler teams have met the high standards set by NESDCA. Training facilities that are NESDCA certified are listed on the NESDCA Web site.

Visit the NESDCA site at www.nesdca.com to learn more about the association, to find NESDCA certified training facilities, or to look up NESDCA certified dog and handler teams trained specifically for bed bug scent detection.