



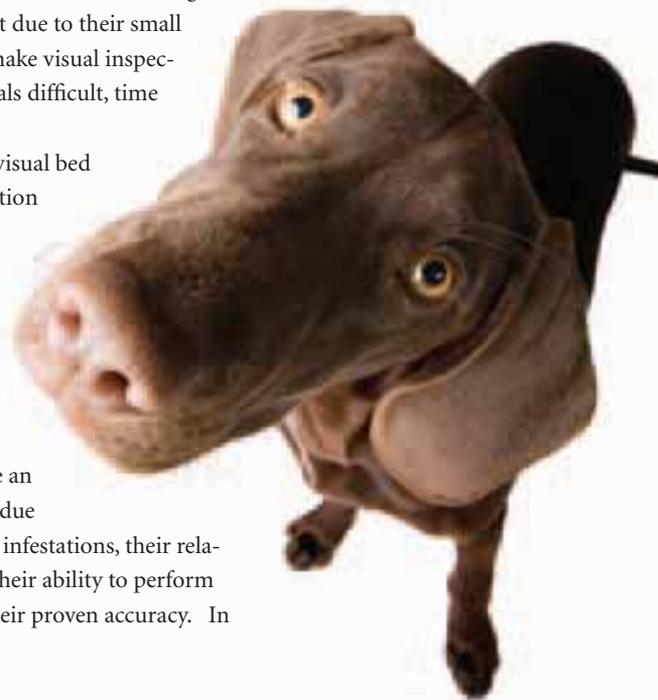
CANINE SCENT DETECTION **CERTIFICATION TESTING**

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The ability of canines to detect, discriminate and track odors is remarkable. Canines have the ability to detect odorant concentration levels at 1–2 parts per trillion (Walker et al. 2006), significantly better than their human handlers. Many law enforcement, military and government agencies utilize scent detection canines to identify and locate people, explosives, fire accelerants, narcotics, contraband items and many other odors. In the pest management industry, canine teams have been employed for years to identify termites and more recently, bed bug infestations in structures.

In the last decade, bed bug infestations have increased dramatically. In a recent National Pest Management Association (NPMA) survey, pest management professionals who reported annually receiving 1–2 bed bug calls a decade ago are now reporting 1–2 calls (or more) each week (Potter et al. 2010). In the same survey, 76% of professionals consider bed bugs the most difficult pest to control. One of the complicating factors in bed bug control is the cryptic nature of both nymphs and adults, which spend the majority of their time hiding in cracks and crevices near their feeding sites. In addition, bed bug eggs and nymphs are often difficult to detect due to their small size. Both cryptic behavior and small size make visual inspection efforts by pest management professionals difficult, time consuming and inexact.

Because of the labor intensive nature of visual bed bug inspections, canine bed bug scent detection teams have gained popularity to identify infestations and verify that treatment measures have been successful. Canines use their keen sense of smell, to help handlers target inspections, eliminating the slow process of visually inspecting (and often disassembling) furniture, beds and other features in the room. Canines are an extremely useful tool for bed bug detection due to their ability to detect extremely low-level infestations, their relative speed compared to human inspectors, their ability to perform searches in non-traditional locations and their proven accuracy. In





a controlled experiment in a hotel room, Pfister et al. (2008) documented that trained canine teams were 98% accurate in finding bed bugs in hotel rooms.

Canine Scent Detection Certification

The National Pest Management Association Bed Bug Best Management Practices (BMPs) provides guidance for pest management professionals and consumers regarding bed bugs, and specifically addresses the practice of canine scent detection. Most importantly, the document stresses the need for canine team performance testing and certification. Performance testing of canine scent detection teams confirms the team's competence by an independent third party evaluator by demonstrating the canine team's ability to perform an accurate search for live bed bugs and viable eggs. In addition, certification testing demonstrates the handler's ability to accurately interpret the canine's changes in behavior and final response associated with bed bug odor and confirms the canine's ability to differentiate the target odor from other odors present in the search area.

The BMPs state that all canine scent detection teams performing bed bug inspections should be certified by an independent third party evaluator according to the Minimum Guidelines for Canine Scent Detection Testing outlined in Appendix A of the BMPs. At a minimum, canine teams must be able to detect live bed bugs and viable eggs. The test should include distractors, or non-target odor sources in the search area that test the ability of the canine to differentiate the odor of bed bugs from other odors that they may encounter. Distractors may include (but are not limited to) food, toys, other insects, dead bugs or other commonly encountered things that the team may encounter in the search area. During the test, canine teams are tasked with identifying the location of hidden bed bugs or eggs. The use of bed bug odor extracts or chemicals that mimic the odor of bed bugs (pseudoscents) are prohibited from being used during the testing process.

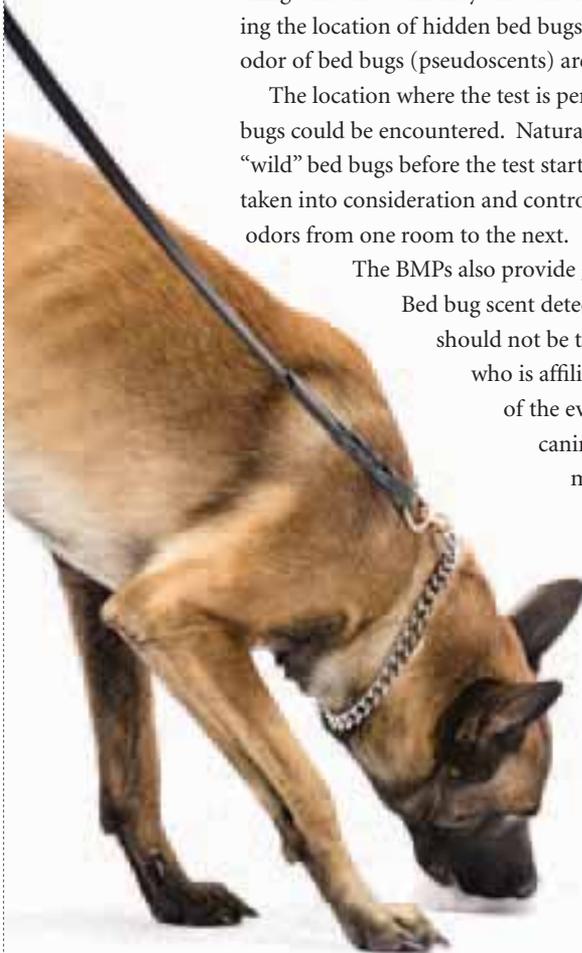
The location where the test is performed should mimic real-life scenarios, using actual locations where bed bugs could be encountered. Naturally, all testing areas should be inspected to make sure that they are free of "wild" bed bugs before the test starts. In addition, the potential for airflow between testing rooms must be taken into consideration and controlled for by the evaluator to limit the likelihood of cross contamination of odors from one room to the next.

The BMPs also provide guidance defining the credentials of the evaluators who perform the test.

Bed bug scent detection certification tests should include two evaluators. The evaluators should not be the person who performed the initial training of the canine or someone who is affiliated with the pest management firm of the team being tested. At least one of the evaluators should have at least five years of experience in scent detection canine handling and or evaluation in law enforcement, government agency, military or other comparable experience.

Canine Teams

The concept of teamwork is manifested in the close working relationship between handler and canine. Without human handlers interpreting the behavioral changes in their canine counterparts, canines have little value as bed bug detectors. In fact the concept of the canine team is so important that the BMPs require that canine/handler teams be certified together. If multiple handlers are assigned to perform inspection with a single canine, each combination of canine and handler must be tested individually. If a single handler works with multiple canines, the same rule applies. The reason for this requirement is that each canine has unique, often subtle, behavioral cues that indicate that it has detected a target odor, so handlers need to be trained and tested for





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work with each canine. In the same way that the BMPs do not provide for certification of individual handlers or canines, individual companies are not able to be certified either.

Choosing an Evaluator

Scent detection canine certification testing can be provided by an organized body or individual evaluators. When choosing who will perform the certification testing and provide the credential for your canine team, there are many factors to consider, not the least of which are the qualifications of the evaluators and the testing protocols and procedures employed.

Interview the evaluators or organization representatives to determine if their testing protocols are in line with the Minimum Standards for Certification Testing (BMP Appendix A). Request a copy of testing materials in writing before the test date so that your team can be prepared and you can compare them to the BMPs. Keep in mind that many organizations may have testing standards that are more stringent than the BMPs. The BMPs are meant to provide a minimum guideline, so stricter standards are perfectly acceptable. It's also a good practice to ask about the credentials and experience of the individuals that will be performing the testing to make sure that qualify.

Some additional questions to ask the evaluator might include:

- What kind of written proof or credentials will be provided to the team upon successful completion of the test? Will the credential indicate that the test was performed in accordance with the BMPs?
- What are the fees associated with testing? What are the fees for re-certification?
- Are there additional resources or services available from the evaluator such as training advice, networking, or support?
- Will evaluators come to your location to perform the testing, or will the canine team need to travel to the test site?
- If there is a disagreement with regard to the results of the test or the evaluator's assessment, what is the process for dispute resolution?
- What if a team fails? Can they test again immediately, or is there a waiting period required to allow for re-training before re-testing?





Reach out to other members of National Pest Management Association or state associations to get references for potential evaluators. Ask them about the testing procedure: Was the testing procedure easy to understand? Was the test what they expected relative to what was described by the evaluator?

It is also important to avoid real or perceived conflicts of interest when choosing an evaluator. Evaluators should be independent, third party, neutral observers with nothing to gain or lose if a team passes (or fails) the certification test. Evaluators who have an stake in your business, such as business partners, current trainers or others who have an interest in the canine, handler or business should be avoided.

What About Other Scents?

Certification testing is available for other pest management scent detection disciplines including termite, carpenter ants, and rodents. There are currently no BMPs or minimum testing guidelines for these disciplines, however the same considerations for choosing an evaluator should apply.

For more information about the NPMA Best Management Practices for Bed Bugs and the Minimum Standards for Canine Scent Detection Team Certification, or to view the most recent version of the BMPs, visit: <http://www.npmapestworld.org/publicpolicy/BedBugs.cfm> ◀

References

- Pfiester, M., P.G. Koehler and R.M. Pereira. 2008. Ability of Bed Bug-Detecting Canines to Locate Live Bed Bugs and Viable Bed Bug Eggs. *Journal of Economic Entomology* 101: 1389–1396.
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