# Success and Failures of an Ecological Detection-dog Service

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*Abstract:* The use of detection dogs in ecological research and management continues to grow. Two years ago, a collaborative effort was formed at Auburn University with the goal of training detection dogs for use in ecological research. Here we provide details about the projects for which we have used dogs, measures of success for those projects, and lessons learned. We have successfully used dogs in the field to find scat from black bear (*Ursus americanus*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and coyote (*Canis latrans*). We have also used dogs to locate live pythons (*Python* sp.) as well as root fungi (*Leptographium* sp. and *Ophiostoma* sp.) responsible for pine decline. Typically, sampling for scat using detection dogs has provided us with larger sample sizes than more traditional methods. For example, during 20 days of searching for bobcat, coyote, and gray fox scat in Kentucky, two of our dogs found 261 scats, while 100 hair snares returned only seven samples during the same period. In a study of black bears we conducted in Florida, dogs found scats in 48% of transects sampled while only 20% of game cameras detected bears. In separate, controlled studies, we learned that dogs were able to find bear scat up to three months after deposition which typically was two months after the scat was no longer visible. Sampling for live samples with detection dogs has also generated high success rates. In a controlled comparison between the ability of detection dogs and humans to find live pythons, our dogs were 665 times as likely to find a target snake as humans at low relative humidity (<85%). It is notable that the dogs also searched the study plot (1 ha) approximately 12 minutes faster than the human search teams. In addition, in a current study, 100% of over 100 fungus samples found by our dogs have returned positive for the invasive species of interest; none of the over 100 control samples have returned positive for the fungus. The use of detection dogs has not always been successful; field detections of scat from spotted skunks (*Spilogale putorius*) and long-tailed weasel (*Mustela frenata*) have, so far, proved too infrequent for use of dogs to be cost-effective. The variety of targets for which we have trained detection dogs continues to grow and measures of success increasingly support the benefits of detection dogs in many areas of ecology research.