

Abstract:

Determining cost-effective field methods for detecting carnivores is critical for effective survey and monitoring studies. As the bobcat (*Lynx rufus*) undergoes range expansion in the northern and eastern United States, field methods may be useful for informing revisions in population management. We paired 2 scat detection-dog teams and 16 remote cameras at 4 survey sites within central Wisconsin, during summer 2011, and compared detection totals, detection probabilities, and costs between methods. Laboratory expenditures are an additional cost for scat collection, and we modeled the probability that a collected scat was genetically confirmed as bobcat as a function of dog, handler, site, and the strength of the dog's behavior. We estimated that detection-dog surveys required only 2 days to achieve a 90% probability of detecting a bobcat in a 4-km² area, while a single camera station would require 7–8 weeks. But a month of detection-dog surveys cost 33% more than a 4-month camera survey, with projected cost differences increasing annually. There were dog-specific differences in collection rate, and the probability that a collected scat was genetically confirmed as bobcat was best predicted by the individual dog associated with collection and the survey area, rather than the handler or the dog's observed response. We recommend cameras as a generally more cost-efficient bobcat survey method, and we advise against relying on the strength of an individual dog's response as a means of screening samples for genetic analysis. However, the most appropriate survey method is likely to be goal-dependent, and we recommend that detection-dog contractors both advertise and match the strengths and weaknesses of specific dogs with the needs of clientele.

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