Increased scientific rigor will improve wildlife research and management

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Wildlife management relies on rigorous science that produces reliable knowledge because it increases accurate understanding of the natural world and informs management decisions. A new *Journal of Wildlife Management* article evaluates the prevalence of scientific rigor in wildlife research and outlines the components of a rigorous scientific method.

The analysis of 24 issues of the *Journal of Wildlife Management* from August 2013 through July 2016 found that 43.9% of studies did not appear to test hypotheses, although reliable knowledge relies on explicit hypothesis testing. This may in part be due to a lack of common understanding of what rigorous science entails.

The authors describe how a rigorous scientific method includes 1) generating a research question from theory and prior observations, 2) developing hypotheses (i.e., plausible biological answers to the question), 3) formulating predictions (i.e., facts that must be true if the hypothesis is true), 4) designing and implementing research to collect data potentially consistent with predictions, 5) evaluating whether predictions are consistent with collected data, and 6) drawing inferences based on the evaluation.

"Reliable knowledge is challenging to produce and communicate, so our goal was to develop a cohesive reference for conducting rigorous science," said lead author Sarah Sells, of the University of Montana, Missoula. "Increasing awareness of how we can produce reliable

knowledge through scientific research will ultimately lead to greater effectiveness of wildlife management and conservation."

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