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THE EFFICACY OF GOPRO CAMERAS TO ACCOUNT FOR NORTHERN BOBWHITES FLUSHED, BUT UNDETECTED DURING AERIAL SURVEYS

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ABSTRACT

Estimating density and abundance is central to wildlife conservation for planning and decision-making purposes. Development of model-based techniques, such as distance sampling, allows researchers to estimate density with the inclusion of detection probabilities. However, the reliability of estimates obtained through this method are dependent upon the satisfaction of underlying assumptions, the most critical being that objects at zero distance from the observer be detected with 100% certainty. Conventional distance sampling, where line transects are traversed from an aerial platform, is a commonly used method to estimate northern bobwhite (*Colinus virginianus*) density over large, open areas. The restricted observer view from the helicopter raises concerns over undetected coveys flushing behind the helicopter. Our goal is to determine if GoPro cameras are a viable option to see coveys, if any, flushing behind the helicopter and thus, undetected by observers. We attached 2 GoPro Hero3+ cameras to a Robinson-44 helicopter while traversing line-transects during distance-sampling surveys in December 2015. Surveys were flown using 4 observers at an altitude of 10 m and a speed of 37 km/hour. Cameras were attached on either side of the helicopter to the door frame located between the front and backseats. We positioned GoPros facing down and toward the rear (tail) of the helicopter, a vantage point where observers may not be able to continually monitor. We set GoPros on video mode with a resolution of 960p and 60 frames per second. We will analyze the data by comparing video footage from the left and right side of the helicopter to time-stamped detection data. Preliminary analyses indicate that instances of coveys flushing behind the helicopter flight path are rare events. These data may be used to provide a correction factor to density estimates as well as provide us with insight into bobwhite response to helicopter activity.

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Key words: *Colinus virginianus*, distance sampling, aerial survey, detection, GoPro

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