

2017

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Recommended Citation

Martin, James A.; McGrath, Diana J.; Wood, Seth; and Terhune, Theron M. II (2017) "Refining the Hunting Zone of Hunter-Covey Interface Models," *National Quail Symposium Proceedings*: Vol. 8 , Article 76.

<https://doi.org/10.7290/nqsp088kxk>

Available at: <https://trace.tennessee.edu/nqsp/vol8/iss1/76>

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REFINING THE HUNTING ZONE OF HUNTER-COVEY INTERFACE MODELS

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ABSTRACT

Regulating harvest is important to sustain northern bobwhite (*Colinus virginianus*) populations. Direct measures to control harvest such as setting fixed proportions (i.e., percent of fall population) are not typically feasible, thus, indirect measures (e.g., managing access, season length) are more commonly used. However, these measures are predicated on relationships between hunter effort and kill rate (K) which is a function of several parameters including: the probability of encountering a covey (p), where p is a function of the effective area hunted (a) divided by that available (A). Thus, a , is a product of the velocity of hunter movement (v), hours spent hunting (h), and the effective width of the hunting zone (w). Velocity and hours spent hunting are easy to quantify, however, estimating w is more difficult and to-date not undertaken. We focused on w , specifically w_{ded} , the distance a dog detects a covey assuming the covey is stationary. We assume stationarity such that evasive behaviors can be estimated separately from the olfaction process. The objective of our experiments was to estimate the influence of weather on w_{ded} . We used pen-raised bobwhites placed about 150 meters apart to simulate hunts ($n = 13$) on two study sites. A handler guided a single birddog through the course, downwind from birds, and recorded the distance from the pointed dog to caged birds. Dogs pointed birds ($n = 236$) at an average distance of 6.2 m (SD = 4.2). Wind speed was positively associated with detection distance ($r = 0.19$, $P < 0.01$), while temperature was negatively associated ($r = -0.18$, $P < 0.05$). The hunter-covey interface is a dynamic process driven by a myriad of factors. Our results suggest simple weather parameters influence the effective area hunted, therefore, affecting the kill rate that managers want to control.

Citation: Martin, J.A., D. J. McGrath, S. Wood and T. M. Terhune II. 2017. Refining the hunting zone of hunter-covey interface models. National Quail Symposium Proceedings 8:280.

Key words: *Colinus virginianus*, covey, hunt, hunter-covey interface, northern bobwhite, pointing dog

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