

Evaluation of Survey Techniques for Wild Turkey in the Southern Great Plains

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Abstract: Few studies have assessed methods of estimating abundance, density, and trends of wild turkey (*Meleagris gallopavo*) populations and most wild turkey survey efforts have been unstandardized, unsuccessful, or limited to small scales. However, successful large-scale monitoring programs are important to management decisions and evaluating management activities. Our objectives were to evaluate survey techniques for wild turkey. We used inflatable turkey decoys, radio-tagged wild turkeys, and computer simulations to evaluate road surveys and aerial surveys from fixed-wing aircraft (Cessna 172) and helicopters (Robinson R-44). We modeled detectability using logistic and linear regression. Modeling efforts suggested distance and flock size were important variables in detectability during road surveys, but flock size and vegetative cover were important during aerial surveys. Simulations indicated road surveys would underestimate density by 9%–12% (14.2%–29.7% CV), fixed-wing surveys would underestimate abundance by 10%–15% (2.0%–4.8% CV), and helicopter surveys would underestimate abundance by 6% (4.6% CV). Power analyses suggested aerial surveys can provide sufficient power to detect a population change of 10%–25% over a 4- to 5-year period and road surveys over an 8- to 12-year period. Although aerial surveys are more expensive than road surveys, considering costs, personnel time, precision, and bias, we recommend fixed-wing aircraft be used to monitor wild turkey populations.

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