



Deer Associates eNews

News from the Deer Research Program at the Caesar Kleberg Wildlife Research Institute

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Helicopter Surveys for Mule Deer – State of the Art

By Cody Zabransky

Helicopter surveys are commonly used to assess wildlife populations in many areas of Texas. People who use this method often believe that all animals are counted and thus a complete census is obtained. However, past research shows that only 17-65% of white-tailed deer are seen on a survey, which puts wildlife managers in a difficult position because setting harvest quotas, bag limits, and season lengths requires accurate population estimates.

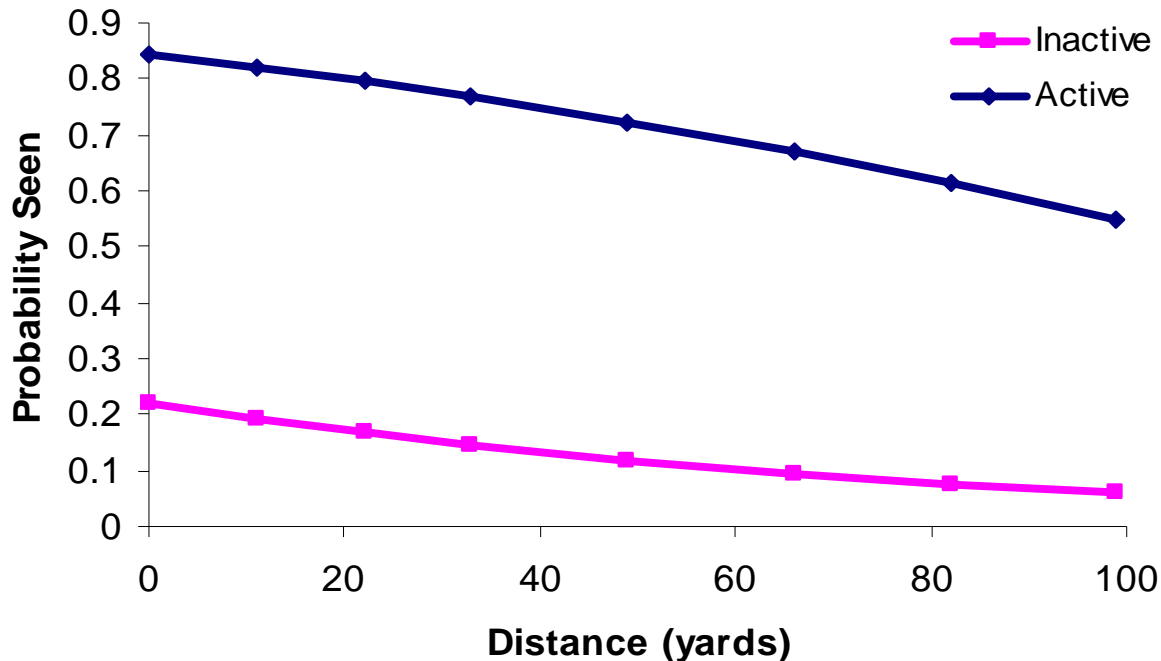
Texas Parks and Wildlife Department (TPWD) annually flies 3,000 miles of helicopter surveys for mule deer. Landowners in West Texas also conduct helicopter surveys of mule deer populations. Recognizing not all deer are seen during helicopter surveys, TPWD funded a project through the Caesar Kleberg Wildlife Research Institute to quantify factors affecting the likelihood of observing mule deer. Once those factors are understood, equations can be developed to correct for deer not seen on survey transects.

Over the last 2 years, 144 mule deer have been fitted with GPS collars across four study locations chosen to represent different types of Texas mule deer habitat. We will collar an additional 72 deer on two additional study sites in December 2009, the final year of the study. Repeated helicopter surveys have been flown in January and February. GPS collars record deer locations every five minutes during surveys to provide a detailed map of deer movements. Each collared deer seen during the survey is identified by unique color combinations on the collar and ear tags. Using data from the surveys, we can develop an equation that will correct for deer not seen and thus derive a population estimate closer to the actual population size.

Following is what we have learned so far:

- An average of 47% of collared mule deer is seen during helicopter surveys. This suggests that deer density is, on average, twice that calculated from the helicopter survey (but see the next point).

- As with white-tailed deer, the proportion of collared mule deer seen varies dramatically among surveys (24 – 80%), making it impossible to use a single correction factor to estimate the true population.
- Moving deer are at least four times more likely to be observed during a survey than bedded or standing deer. Part of the variation among surveys in the proportion of deer seen may be due to changes in the probability of deer running from the helicopter.
- The probability of observing a deer decreases for deer located further from the transect.



- Average proportion of does seen (48%) is similar to the average proportion of bucks seen (45%); therefore sex ratio data may be considered reliable.
- Additional analysis will investigate the effect of factors such as canopy cover, vegetation type, and terrain ruggedness on mule deer sightability.
- The final product of this research project will be a sightability model which will make surveys more accurate by accounting for deer not seen.

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