

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

How does supplemental feed affect white-tailed deer activity?

by Kim Echols

Supplemental feeding of white-tailed deer is common in South Texas and research suggests in many circumstances it can improve body condition and increase antler size, reproduction, and survival. But supplemental feed may have other effects. Supplemental feed is thought to reduce a deer's foraging time, and if that is the case, what do deer do with the rest of their day, and do they use their environment differently as a result? These are the questions I address in this enewsletter.

My colleagues and I evaluated the activity and spatial relationships of 37 white-tailed deer (19M:18F) from December 2009 - December 2010, relative to feed/water locations and herd Our study occurred near Carrizo density. Springs on the Comanche and Faith ranches with the generous financial support of T. Dan Friedkin and the Stedman West Foundation. The deer we studied were in 8 200-acre high-fenced enclosures. Four enclosures had a target deer population of 10 deer, and 4 enclosures a target population of 40 deer. All enclosures had water troughs in the center and 2 enclosures of each density had feeders adjacent to the water where pelleted feed was available free-choice yearround.



Deer were fitted with collars equipped with a Global Positioning System (GPS) and activity sensors which enabled us to track deer movements and types of activity. Locations were obtained every 30 minutes and activity summaries recorded every 15 minutes. Our objective was to determine if movements and activity differed based on the deer's sex, presence of supplemental feed, deer density, and time of day (6am-8pm vs. 8pm – 6am). Preliminary analysis or our GPS collar data suggest:

- Deer in fed enclosures were 4 times more likely to be within 55 yards of the feed/water stations than deer in unfed enclosures, where only water was available.
- Deer in high density enclosures spent 2/3 more time near the feed/water than did deer in low density enclosures.
- Males in fed enclosures traveled faster than males in unfed enclosures.
- Males overall traveled faster than females.
- Deer in low density enclosures traveled ¼ mile further each day than deer in high density enclosures.
- No clear effect of supplemental feed or deer density was seen on activity levels during night.
- In low density enclosures, individual deer locations overlapped, while in high density enclosures, individual deer locations overlapped much less (Figure 1). These data suggest that social interactions play an important role in how deer use the surrounding habitat.

The take home message is that feed affects deer activity, especially that of male deer, who travel further each day than do their unfed counterparts. In addition, the higher the deer density, the smaller the area traversed by deer, even in 200-acre enclosures. This means as density increases, deer access fewer of the resources in their



July 2011

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Figure 1. Locations of deer (each color is a different deer with females in the upper panel and males in the lower) in research enclosures varying in deer density in Dimmit County, TX between December 2009 and December 2010.

About the Author: Kim Echols is the Field Director of the Comanche-Faith Research Project and works collaboratively with Dr. Charles DeYoung, Don Draeger, Dr. Tim Fulbright, Dr. David Hewitt, and a host of graduate students.

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