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Fulfilling Your Ranch's Potential - Habitat Matters

By David Hewitt

"I have a supplemental feed program, so nutrition is covered. Which deer should I cull?" This statement represents the thoughts of many managers in thinking about their deer management program. It shows that deer nutrition has evolved from an understanding and appreciation of the interaction between deer and their habitat to choosing the protein content of a pelleted feed. The difference in performance between supplemented herds and those with no supplement might suggest providing supplement does indeed cover the deer's nutritional requirements. But a closer reading of the data tells a different, nuanced, and more interesting story.

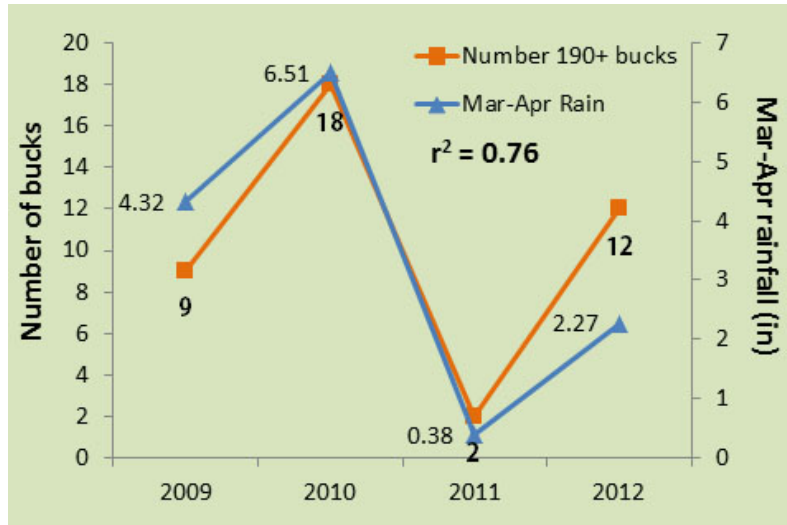
This e-newsletter explains why habitat matters in deer management.

Evidence – There are several datasets which suggest that meeting a deer's nutritional requirements is not as simple as flipping a switch to deliver supplemental feed. A landowner survey conducted by the CKWRI and TPWD in the late 1990s showed that the harvest rate of bucks with at least 140 B&C antlers and the weight of the heaviest buck harvested both increased in a wet year relative to a dry year, even on ranches in which pelleted supplement was fed continually.

A nine-year study on the Comanche and Faith Ranches in the western part of South Texas investigated deer population dynamics and productivity in twelve, 200-acre enclosures. Six of the enclosures had supplemental feed and six did not. Deer in enclosures without supplement did not perform as well as deer in enclosures with supplement, which was not a surprise. However, the study encompassed wet years and drought years. The surprise came with the realization that parameters such as fawn survival to 8 months of age, fawn:doe ratios, population growth rates, and antler size varied with rainfall in the enclosures with supplemental feed.

Despite intensive feeding programs, some properties struggle with recruiting fawns, such that deer population size remains low despite an exceedingly conservative deer harvest. A study of consistency in size of antlers, a concept referred to as repeatability by geneticists, showed that for mature bucks in South Texas antler size was more variable in environments with variable rainfall than in environments with less variable rainfall, even in the presence of supplement

A large ranch in South Texas tracks the number of bucks with antlers larger than 190 inches B&C each year. Despite an intensive supplemental feed program that remained essentially unchanged from 2009 through 2012, the number of trophy bucks varied widely with rainfall (see figure).



The number of 190+ B&C bucks on a ranch in South Texas. Despite a well-developed supplemental feed program on the ranch throughout the period shown, the number of trophy bucks varied with rainfall.

Explanations – Although pelleted feed improves many aspects of deer performance, the examples described above show that pelleted feed may not be sufficient to fully address the nutrient requirements of a deer herd. These observations also suggest that if habitat quality is allowed to decline, you are removing resources necessary for your deer herd to meet its potential. We do not know exactly why deer productivity varies with habitat quality, even in the presence of supplemental feed, but here are some reasonable explanations:

- **Fawns do not get full access to supplemental feed** . Fences to exclude pigs and javelina also exclude fawns. In addition, social hierarchies exclude fawns from concentrated food sources, such as supplemental feed. Fawns that cannot eat pelleted feed, or that cannot eat enough feed, must live on the available forage. Therefore, the quality of forage has a big impact on fawn performance. Poor habitat will result in poor fawn growth and survival.
- **Female deer do not get full access to supplemental feed** . Several studies have shown that not all female eat pelleted feed and that pelleted feed may be a smaller portion of the diet for female than male deer. As with fawns, social interactions with more dominant bucks probably limit female use of supplemental feed. Females without access to pelleted feed will produce fawns reflecting the nutrients obtained from forage. Therefore, poor habitat will result in some female deer without the resources to raise big, healthy fawns. The resulting small fawns are likely to develop into small adults.
- **Some bucks do not get full access to supplemental feed** . These bucks are not high in the social hierarchy and derive most or all of their nutrients from forage. Therefore, poor habitat will lead to these bucks performing poorly, even if they have the genetic potential for large antlers.
- **All deer eat forages other than pelleted supplement** . The remainder of their diet will be influenced by the choices and quality of the available forage. Poor habitat can reduce the quality of the vegetation portion of all deer diets.
- **Diverse foraging choices improve nutrient intake and balance** . Deer consume more food and are less likely to experience nutritional deficiencies if they are given a choice among many types of forage varying in nutrient composition and flavors. Deer clearly prefer forage to pelleted feed because they reduce consumption of pellets when native forages are

lush and nutritious. Deer in areas of poor habitat, even with ad lib pelleted feed, likely eat less total food, may not be able to balance nutritional requirements, and therefore perform below their potential. Again, poor habitat can result in a deer herd not meeting its potential.

- **Habitat affects deer performance in ways other than through nutrition.**
 - a. Deer without good escape cover may not be able to fully utilize good forage because, to do so would require they travel too far from escape cover.
 - b. Poor escape cover may cause an increase in stress hormones in deer. High levels of stress hormones have cascading negative effects on health and productivity of deer.
 - c. Deer use brush cover to protect themselves from hot and cold temperatures; deer that spend excessive energy maintaining their body temperature have less energy for growth.
 - d. Poor ground cover could make fawns more susceptible to predators.
 - e. Poor distribution or quality of water likely reduces deer performance by limiting the areas deer can use, reducing the amount of feed and forage consumed, or causing deer to travel long distances to meet their water requirements. Thus, poor quality habitat may negatively impact deer populations, often in insidious ways.



Browse is the base of deer forage in South Texas. Recognizing overuse of common browse species enables a manager to adjust deer density to ensure deer have diverse foraging choices.

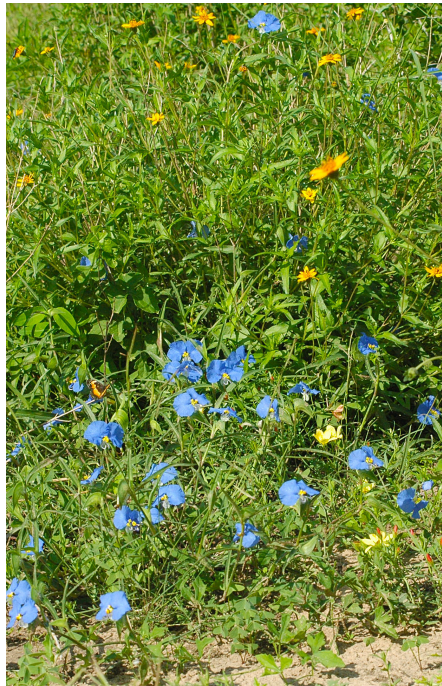
Upshot – Because deer productivity varies with habitat quality, even in the presence of supplemental feed, a wise manager should strive to provide the very best habitat possible. This means:

- **Manage for a density of deer compatible with the existing habitat.** Although an appropriate deer density varies with productivity of the land, heavy use or loss of preferred forage species should be a red flag that deer density is too high.
- **Manage livestock grazing to not negatively impact abundance of forbs.**
- **Plan brush management projects to maintain diverse vegetation for food and cover.**
- **Restrict spread of invasive grasses.** Old world bluestems, Bermuda grass, tanglehead, and

buffelgrass are examples of grasses that can dominate rangelands. Although little is known about impacts of invasive grass species on deer populations, there are reasons for concern and so a manager who wishes to maintain future management options should seek to minimize invasive grasses.

- **Finally, enjoy the multiple benefits that come from good land stewardship.** High quality habitat improves game bird hunting, wildflower photography, bird watching, family walks, and opportunities to appreciate the fascinating ecological process occurring on your ranch.

Including habitat as a central part of your ranch management will pay dividends in the productivity of deer and in the ways in which you can derive enjoyment from your time afield. Failing to promote high-quality habitat is akin to a coach leaving a top player on the bench. Field your best team and make your habitat shine.



Forbs are the icing on the cake that is high-quality habitat. South Texas rivals the best deer habitat on the continent when rains and wise management result in diverse, robust, forb growth.

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The study on repeatability of deer antlers is published as [Foley et al. 2012. Repeatability of antler characteristics in mature white-tailed deer in South Texas: consequences of environmental effects. Journal of Mammalogy 93:1149-1157.](#)