



INSIDE DEER RESEARCH

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Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville

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MANAGEMENT OF POST-RUT BUCKS

by David Hewitt

Understanding management of white-tailed deer bucks after the rut requires an understanding of the rut's effects on bucks. Our understanding begins in evolutionary time as white-tailed deer developed behaviors and a social structure best suited for areas of dense cover interspersed with meadows and other openings where they can forage. This type

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of habitat is conducive for white-tailed deer to live in small, loosely knit groups.

Does in small, dispersed groups cannot be gathered into harems by bucks during the rut. Instead, a buck needs to search for does. To make his task even more difficult, a buck doesn't need to find just any doe, but one that is ready to breed. Until they are ready to breed, many does run from bucks, forcing the bucks to chase after them. All this activity requires a tremendous amount of movement and energy.

Bucks in South Texas fitted with GPS collars nearly doubled the distance they traveled each day

during the rut compared to months immediately prior to and after the rut. The average distance these bucks traveled during the rut was nearly five miles per day, but some days they traveled much more. Many bucks had multiple days during the rut when they traveled more than 10 miles.

An intriguing implication of this reproductive strategy is that foraging could be viewed as a detrimental activity for bucks during the rut. Any buck that devotes too much time to eating during the rut will not sire many offspring. This leads to the perplexing situation that, during the rut, bucks expend vast amounts of energy moving long distances, guarding receptive does, and interacting with other bucks,

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while at the same time, there is a strong incentive to minimize time spent eating. With a great deal of energy being expended and little energy coming in, bucks often finish the rut in poor condition.

The stress of the rut and the resulting weight loss makes bucks more susceptible to predation, disease, and starvation. In addition, some bucks may have sustained injuries during fights with other bucks. Many studies of white-tailed bucks in Texas show a peak in mortality after the rut. In fact, 80% of all the non-hunting mortality in mature bucks may occur in the four months from December through March. This mortality is important in managing a deer herd because it will reduce the number of bucks for harvest the following year. In addition, an increase in buck mortality will reduce the likelihood that a buck will live long enough to reach maturity. Having bucks survive to maturity is essential when managing for trophy bucks.

There are many things managers can do to improve the odds for post-rut bucks. Managing for the post-rut is important to not only reduce mortality at this critical time of the year, but also to give the bucks a jump on the next antler growing cycle. Bucks in good shape in April and May are likely to put more resources into growing antlers.

The first consideration in managing post-rut bucks would be to provide good nutritional resources before, during, and after the rut. This will help bucks prepare for, cope with, and recover from the stress of breeding. Proper grazing management and diverse plant communities are the first line of defense against post-rut mortality. Plant communities and plant species that produce good deer forage

from January through March should be well dispersed on the property. Many species of cool season forbs will begin to develop in February and March and can be particularly good at enabling bucks to put on weight. Preferred browse species, such as



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coma and granjeno in South Texas, and cedar elm and littleleaf leadtree further north, can also be important. Pads of prickly pear cactus are eaten this time of year and provide a ready resource for bucks to use.

For those wishing to provide extra nutrients, supplemental feed should be considered. Pelleted supplements are valuable because they contain high concentrations of digestible energy and can be eaten quickly, allowing bucks to recover body condition rapidly. Cottonseed may also have value during the rut because of high concentrations of oils that are readily available energy.

Corn also provides high amounts of digestible energy. One problem with supplemental feed is that it can only be offered at concentrated sites. If some bucks cannot access these sites because of aggressive interactions with other bucks, then not all bucks will benefit.

Other approaches managers may use to help bucks recover from breeding and reduce post-rut mortality include reducing the disturbance of bucks during this period. Excessive activity in pastures should be avoided. If brush management is implemented in late winter, it may be best to focus the disturbance in a small area and not have heavy equipment spread out over large areas. If post-season deer surveys are part of the management program, bucks should not be pursued aggressively with the helicopter.

Some bucks will fall prey to coyotes during this period, suggesting that predator control may benefit post-rut bucks. Although some coyote removal studies have increased fawn survival, there has not been a study showing an effect on buck survival. The primary reason may be that bucks susceptible to coyote predation may already be in such poor shape that they were likely to die whether or not they were found by a coyote. Investing resources to help bucks recover rapidly from the rut maybe more productive than intensive predator control.

DID YOU KNOW?

◇ Does demonstrate territorial behavior for the first 4 to 6 weeks after fawning, and aggressively chase other deer from their core home range, which usually includes *all* the bedding sites of their fawns.

◇ In the Texas Gulf Prairies and Marshes, deer drink 2 times a day during summer (May-September) and once a day during winter.

BUCK MOVEMENTS

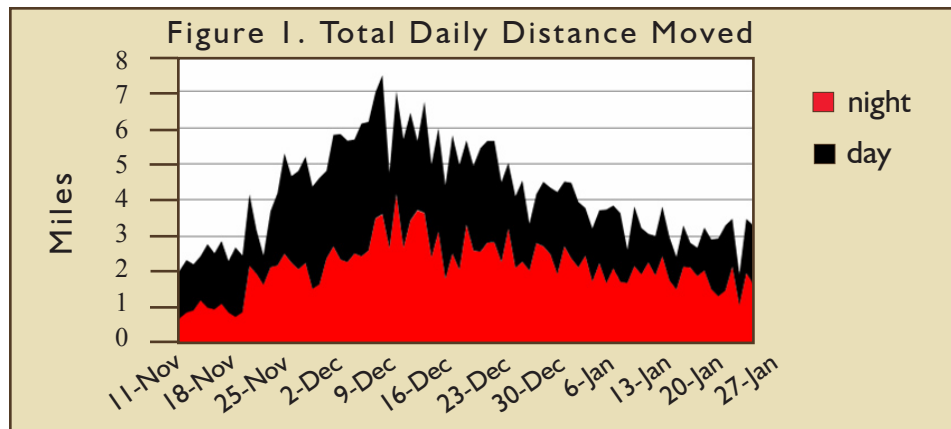
by Aaron Foley and
Randy DeYoung

Until recently, radio tracking animals involved going afield with a receiver and antenna, and using triangulation to laboriously locate an animal. Even with extreme care, this technique had an error of about 100 yards. Now, collars with GPS units can record dozens, even hundreds of locations each day, all within 5-10 yards of the animal's actual location. Armed with this technology, we have captured, aged, and collared 40 male white-tailed deer over 3 years in Kleberg County. Deer locations were recorded every 20 minutes starting in November and ending in February, encompassing the entire breeding season. We have been analyzing movement patterns of these bucks during the rut, which in combination with genetic analysis to determine which bucks successfully breed, will enable us to understand reproductive strategies employed by bucks. Our data are too preliminary to assess the relationship between breeding success and movement patterns but we are developing a greater understanding of just what those movement patterns look like.

Analysis of 33 individual bucks revealed an average home range of 2,967 acres, ranging from 332



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to 13,648 acres. Generally, home range size decreased as deer aged from yearlings to 3 years of age. Mature bucks had larger home ranges. One 4 year old buck had a home range of 13,648 acres and a 6 year old buck had a home range of 8,245 acres. Some home ranges in this study were affected by large agricultural fields which caused deer to move long distances.

Excursions, defined as short term (<24 hrs) trips that occurred outside of the home range, peaked in December. We counted a total of 14, 33, 16, and 8 excursions made by 33 bucks during November, December, January, and February, respectively. One particular buck had 2 home ranges approximately 3 aerial miles apart. This buck travelled 4.2 miles to his southern home range in 3 hours and remained there for 16 days. He then traveled back to his northern home range in 3 hours and remained for 20 hours before returning to his southern home range for the remainder of the breeding season. No other males in this study displayed this behavior.

Every hunter knows that bucks are more visible during the rut. Is this because bucks shift their activity to daylight hours, or is it because they become more active in both the day and night? Average daily movements of 15 bucks during 2007-08 revealed that proportion of total

daily movements during the daytime increased steadily (Fig. 1) throughout the rut. So, the greater visibility of bucks during the rut appears to be due both to the bucks moving more and to a greater percent of movement during daylight hours.

Our study is another example of the benefits of technology in wildlife research. The information we are discovering will be valuable to wildlife biologists seeking to manage bucks during the rut. Knowledge of buck movements will also enable deer enthusiasts to more fully appreciate the rigors white-tailed deer face during the rut.

RESEARCH UPDATE

WHOLE COTTONSEED AS A SUPPLEMENT FOR DEER

by Sarah Bullock, David Hewitt,
and Don Draeger

An increasing number of white-tailed deer managers are looking for an alternative supplement that provides the same benefits as pelleted feed. Whole cottonseed (WCS) has moderate to high content of protein, energy, and fiber and may be a viable supplement for white-tailed deer. Gossypol, a toxic pigment within the cottonseed, reduces

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www.ckwri.tamuk.edu/research-programs/deer-research-program

intake by non-target animals, but is of concern because of its ability to reduce reproductive ability and induce toxicosis when consumed at high doses.

The objectives of our project are to (1) evaluate the health and production of captive white-tailed deer on a diet of up to 50% WCS; (2) evaluate digestibility and utilization of WCS by white-tailed deer; (3) develop a regression relating WCS consumption to plasma gossypol concentration in captive deer; and (4) use this captive deer regression to determine consumption of WCS by wild deer via plasma gossypol levels.

Preliminary data suggest overall health and production of white-tailed

deer is not compromised by diets up to 30% WCS; however, deer appeared to limit intake with diets containing 50% WCS. Dry matter digestibility of WCS is comparable to pelleted feeds, although analyses are still being conducted on digestible energy and protein. Gossypol concentrations in the blood stabilize after 2 weeks with diets containing less than 25% WCS and 4 weeks for deer consuming over 25% WCS. Wild caught deer exhibited variable plasma gossypol concentrations indicating nearly all had consumed some cottonseed.

Results from this project will help managers make informed decisions on using cottonseed as a deer supplement.

Deer Associates Meeting

Rescheduled for

March 6, 2009

Due to Hurricane Ike, the Deer Associates Meeting has been rescheduled for March 6, 2009. Deer experts will present the latest information about exotic grasses and deer management, deer consumption of supplemental feed, and cottonseed as a supplement for deer.

For complete meeting information, please visit the Deer Program Website. If you have not registered, space is still available. We hope to see you there!

For more information on the Deer Research Program, please contact:

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To support the Deer Research Program, please send contributions to the address below.



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