



# INSIDE DEER RESEARCH

*A newsletter for supporters of the deer research program at the  
Caesar Kleberg Wildlife Research Institute  
Texas A&M University-Kingsville*

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## Sexual Segregation: Bucks from Mars and Does from Venus?

By Randy W. DeYoung

As a popular book about the differences between men and women indicates, males and females behave very differently, almost as if the sexes originated on different planets. Although the book focuses on human behavior, the general observation can easily be extended to animals. In white-tailed deer and many other ungulate species, males and females do not associate with each other during most of the year. This behavior, termed sexual segregation, encompasses the different use of space, habitat, or forage (or some mixture of these) by the sexes during most of the year.

White-tail does live in small, relatively stable groups for most of the year, consisting of several does and their fawns from the previous year. Bucks may form loose, buck-only groups during non-rut, but tend to be solitary during the rut. Temporary aggregations of bucks and does may be seen at water sites, feeders, food plots, etc., but the sexes live separate lives during most of the year.

These observations are no surprise to those of us who spend time outdoors photographing, hunting, or otherwise engaged in observing wildlife. Have you ever wondered why the sexes live such separate lives during most of the year? Or wondered if this separation had any consequences for the ecology and management of deer?



**White-tailed deer bucks in South Texas average 150 pounds and eat large amounts of food in autumn, then during the rut in December, they lose accumulated fat.**



**White-tailed does in South Texas average 100 pounds and experience their greatest nutritional demands in late summer.**

If you have, you would not be alone; sexual segregation in ungulates has been a topic of research and debate among scientists since Charles Darwin first formally considered the subject in the 1800's.

A number of explanations for sexual segregation behaviors have been proposed during the century and a half after Darwin's description, but consensus in the scientific community seems to be crystallizing around two main drivers of the behavior: risk from predators and differences in body size and nutritional requirements. Although it is difficult to separate predation risk and nutrition (sometimes areas with high predation risk also have highly nutritious forage), sexual segregation for predator avoidance may be easily observed in species like mountain sheep. Better forage is available on lower slopes of mountains and ridges, but young lambs are easy prey in that habitat, so the lower slopes are used exclusively by rams. Ewes with lambs tend to remain in higher, rougher terrain with good visibility, essentially sacrificing forage quality for the safety of their offspring.

Other species, including white-tailed deer, seem to fit the nutritional requirement model best. Although the two sexes occupy the same general habitat for much of the year, the type and amount of plants that bucks and does eat can differ dramatically. Overall, bucks are larger and thus must eat more food than does. Bucks' large body size confers an advantage, however, in that bucks can eat and more efficiently digest fibrous plants, foods that are typically abundant. In contrast, does must search out higher quality plants and plant parts, which are much rarer, especially during late pregnancy and milk production. At this time, a doe's energy and protein demands skyrocket and her digestive system actually changes—her intestines lengthen and her liver enlarges, allowing the doe to maximize absorption of nutrients.

Thus, the sexes have very different forage needs, which translate to different diets and a means to avoid competing with each other for forage resources. These observations are more than an interesting theoretical exercise, as the difference in diets also has management implications. Habitat management, or even feeding,

can easily benefit one sex but not the other. Therefore, for research and management purposes, bucks and does have to be viewed almost as if they were two separate species— not separate by virtue of a different cosmic origin, but by their stomachs and physiological demands.

## **Alkek Ungulate Facility Dedicated**



The CKWRI Deer Research Program took a giant leap forward on April 30, 2007 when the Alkek Captive Ungulate Facility was dedicated. This state of the art research facility was funded by Charlie Williams and the Albert and Margaret Alkek Foundation, Charlie Winn, and Stuart Stedman. The Alkek Ungulate Research Facility gives CKWRI scientists the controlled conditions needed to study deer physiology, nutrition, and behavior. The facility has been put into immediate service with a study of the effects of feeding whole cottonseed to deer. Studies waiting to begin include a study of deer nutrient requirements and a study to determine palatability of baits designed to deliver vaccines to deer.

### **DID YOU KNOW?**

**The oldest deer species is the white-tailed deer, having evolved 3 million years ago.**

**The youngest deer is the mule deer.**

**The white-tailed deer's range extends from 18 degrees South latitude in Peru to 61 degrees North, almost to the Arctic Circle in Canada; this is the largest latitudinal range of any ungulate species**

## Deer Associates Program

One year ago, the Caesar Kleberg Wildlife Research Institute initiated its Deer Associates Program. During the first year, 16 participants enrolled. The objectives of the *Deer Associates Program* are to:

- 1) Provide a venue to engage a select group of deer enthusiasts in Texas and share results of CKWRI deer research,
- 2) Provide a means to collect, organize, and use deer census and harvest data to benefit deer management and research,
- 3) Provide a source of funds to enable the CKWRI to conduct research beneficial to deer management in Texas.

The centerpiece of the *Deer Associates Program* is a website where participating ranches enter deer management, deer population, and deer harvest data. The website calculates summaries and basic statistics from these data that will be useful in the ranch's deer management program. CKWRI scientists also use these data to better understand deer management and ecology across Texas.

Participants in the program, along with a biologist or ranch manager, are invited to attend an annual *Deer Associates* meeting. At this meeting, presentations on deer research and management will be given by CKWRI scientists and other deer experts. The next *Deer Associates* meeting will be held September 14th in San Antonio.

The enrollment fee for the program ranges from \$1,000 to \$2,000 per year, depending on options chosen. For more information on the program, please contact David Hewitt (david.hewitt@tamuk.edu) or Elizabeth Moody (elizabeth.moody@tamuk.edu).

## Killam Lectureship on White-tailed Deer Research

The second Killam Lectureship on White-tailed Deer Research was presented by Dr. Terry Bowyer of Idaho State University on May 1 2007. Dr. Bowyer gave a technical presentation on the role of predators in ungulate ecology and management and then presented a public lecture on sexual segregation and how it influences ungulate management. See the article by Dr. Randy DeYoung in this issue of *Inside Deer Research* for more on sexual segregation.

The Killam Lectureship seeks to promote greater understanding of white-tailed deer ecology and management. The 3rd Annual Killam Lecture will be presented next spring.



David Killam, a member of the Caesar Kleberg Wildlife Research Institute Advisory Board, and his family, sponsor the *Killam Lectureship on White-tailed Deer Research*.

### DEER ASSOCIATE MEMBERS

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## Timing of Fawn Birth in South Texas

By David G. Hewitt

In many parts of the white-tailed deer's range, fawns are born in May or early June. In much of South Texas, fawns are born in July. Anyone who ventures into the Texas brush in July knows that life can be tough for deer at this time. Why are fawns born at a time when forage conditions are poor, temperatures are routinely over 100 degrees, and water may be scarce?

One reason fawns in South Texas may be born in the middle of summer relates to the fawns' nutrient needs and their ability to meet those needs. Fawns, even after they are weaned, have a small rumen that is not able to digest poor quality forage. Furthermore, fawns have high nutrient requirements because they are growing so fast. Put these two facts together and it is obvious that high quality forage is necessary to grow big healthy fawns.

What does this have to do with fawns born in July? If a doe gives birth in May, she would provide milk through June and part of July, and then she would begin to wean her fawns. During late summer when forage is typically poor, fawns



would need to meet more and more of their nutritional needs by consuming forage. This is a recipe for small, unhealthy fawns at best, and low fawn survival at worst.

If fawns are born in July, they will be living largely on milk during the worst part of summer. The doe can use forage she eats as well as fat and protein stored in her body during the spring to produce milk. When the fawns are weaned in September or October, autumn rains have arrived (we hope!) and fawns can use the resulting high quality forage to grow into big healthy deer.

For More Information on the Deer Research Program please contact:

David Hewitt ([david.hewitt@tamuk.edu](mailto:david.hewitt@tamuk.edu)) and/or  
Elizabeth Moody ([elizabeth.moody@tamuk.edu](mailto:elizabeth.moody@tamuk.edu))

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



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