



In the heat of a South Texas day, white-tailed deer typically hide out in tall, dense brush. Thus when planning brush management, CKWRI researchers recommend keeping the tall brush.

RESEARCH SUGGESTS SOUTH TEXAS HEAT IMPACTS DEER PRODUCTIVITY

THIS ARTICLE BY COLLEEN SCHREIBER WAS PRINTED IN THE APRIL 2, 2015 ISSUE OF LIVESTOCK WEEKLY, AND IT IS REPRINTED HERE WITH PERMISSION.

South Texas may be the last great habitat, but it's also known for its hot weather and unpredictable rainfall patterns. Wildlife adapt to the regions in which they live, but as with humans, a little too much of anything — be it summer's heat or winter's cold — can have a negative impact on their ability to thrive. White-tailed deer are no different.

The productivity of a deer population in South Texas is undoubtedly tied to rainfall. Fawn to doe ratios, antler size and population growth overall tend to be better in wet years compared to dry years. The typical explanation is that these metrics are better in wet years because forage availability is better — there's more of the good stuff out there on the landscape — and therefore the deer's level of nutrition is better.

A typical response to counter poor nutrition, particularly in dry years, is to make available a consistent, high quality pelleted feed. However, the team of researchers at the Caesar Kleberg Wildlife Research Institute has found that this practice alone does not solve all the problems associated with drought. On the CKWRI Comanche-Faith project, a decade-plus research effort, researchers documented that supplemental feed indeed improves

the fawn to doe ratio, antler size and the population growth rate. Even with the presence of supplementation, however, the deer still did more poorly in the dry years compared to the wet years. In other words, the variation in productivity is still there, year in and year out, regardless of whether the deer have supplementation.

"That suggests it isn't just about nutrition, that something else is going on," says Dr. Dave Hewitt, the leader of the deer research group at the CKWRI.

Another line of evidence to support this hypothesis comes from data collected in the deer pens at the Kerr Wildlife Management area at Hunt. Researchers see variation in yearling buck weights and antler beam length from year to year even though these deer are maintained on the same level of nutrition year in and year out. More to the point, these yearling bucks are less productive in the dry years, even in a pen situation where nutrition is adequate.

An observation heard from ranch managers time and time again is that consumption of pelleted feed by deer drops off during the summer months, regardless of whether it's dry or wet. And in fact, on the Comanche-Faith project researchers documented a consistent drop in consumption during the summer months

relative to other seasons. More data on another South Texas research project showed that feeder site visitation dropped off in June, July and August.

One possible explanation is that the South Texas heat is causing problems for the deer. Basically every function from movement to digestion, reproduction, growth and maintenance causes a deer to produce heat. Not only that, dry years are typically hotter than normal. Thus, Hewitt suggests that deer have to find other ways to rid their bodies of excessive heat.

“Perhaps they reduce intake of pelleted feed to reduce the amount of heat they generate,” says Hewitt.

Researchers have also learned that deer consume large amounts of mast such as mesquite beans and prickly pear tunas during the summer months.

“Another possible reason that the deer switch from pelleted feed to more mast might be because the pelleted feed, which typically has a lot of grain, ferments quickly in the deer’s rumen, and in the process produces a lot of heat over a short period of time,” explains Hewitt. “The native vegetation, on the other hand, is not as easily digested; therefore, the heat accumulated from the digestion process is spread over a longer period. So perhaps this is part of the explanation for why deer eat less supplemental feed in the hot summer months.”

CKWRI researcher Tim Fulbright points out that unlike humans, deer do not have sweat glands. They can pant, however, to dissipate heat. The problem for South Texas whitetails is that water is often limiting, and to dissipate heat by panting, adequate water is needed.

Given that Fulbright suggests that South Texas whitetails, most likely use behavioral adaptations to survive the heat – adaptations as simple as reducing movement during the heat of the day and choosing locations that tend to be cooler.

Using GPS collars, CKWRI scientists have learned more about how deer move across the landscape and more about their habitat selection. In the heat of the day, the deer typically hide out in tall dense brush. Also other movement data showed that during the heat of the day, fawns tended not to be in the tallest brush but rather selected for



White-tailed deer fawns tend to select bed sites under woody plant canopies where it is cooler during the day; they also choose locations with taller grass for hiding. They choose it also for the litter, because it may provide insulation from heat radiating from the ground.

horizontal screening, particularly tall grass. In another study researchers learned that fawns tended to select bed sites adjacent to brush clumps. Fawns also tended to select sites with considerable litter. CKWRI researchers suggest that perhaps the fawns used the litter to insulate them from the heat radiating from the ground. They

found, in fact, that their bedding sites in litter were four degrees cooler than other random spots in the nearby habitat.

In planning brush management, CKWRI researcher Charlie DeYoung, who also does a lot of management-related consulting, says when it comes to managing the heat for deer the two things to keep in mind are vegetation and water.

“Preserve the tall brush,” says DeYoung.

Generally when using a roller chopper or aerator saving the big stuff is not an issue because such equipment is not able to tackle the really big stuff. However, where he has noticed problems, where the big brush has been damaged, is when herbicides are applied from the air.

“I don’t like to see hundreds of acres of tall brush in a block being sprayed,” says DeYoung.

He suggests, instead, spraying in strips or better yet leaving a pattern of mottes with large brush dotted across the landscape. Also when doing brush strips, a helpful management technique that could help dissipate heat further, he says, is to orient the brush strips with the prevailing wind.

As for water management to help with the searing South Texas heat, DeYoung suggests that the more water there is available the better it is for the deer. He knows of managers who put a water trough by every deer feeder and others who have a water source for every 300 acres.

“There’s no data to say one is better than the other,” DeYoung reiterates, “but deer need water when they’re feeding, and if water is readily available, they’re going to eat more.”

Water distribution, he points out, is relatively easy to accomplish and at a minimal cost, at least compared to other major management infrastructure.

A project underway now at the Faith and Comanche ranches is investigating further the importance of water. 🐾

