

# INSIDE DEER RESEARCH

A newsletter for the supporters of the Deer Research Program  
Caesar Kleberg Wildlife Research Institute

January 2015  
Volume 9, Issue 1

## A DROUGHT-RESISTANT, SOUTH TEXAS SUMMER FOOD PLOT

By Emily Belser, Timothy E. Fulbright, David G. Hewitt,  
Charles A. DeYoung, and Don A. Draeger

In South Texas, water is often a limiting factor for crops in the absence of irrigation. Thus, food plots for white-tailed deer are not common in the region, especially during summer. Instead, many landowners and ranch managers turn to pelleted feed as a supplement to natural vegetation. But what if we told you there was a food plot available in South Texas, consisting of native plants that require no maintenance, no cost, and are not only drought resistant, but could even produce more preferred deer food during drought?



This “food plot” consists of the fruits and pods of prickly pear cactus and honey mesquite, both of which are key summer-time food sources for white-tailed deer in South Texas. Deer consume the pads of prickly pear year-round, which can serve as an important source of water. The fruit (also called “tunas”) is a preferred food for white-tailed deer; and drought-year or not, prickly pear produces fruit each summer. Like prickly pear tunas, sugar-rich mesquite bean pods are also a preferred food source for deer. In addition,



pod production increases during drought and heat stress. Greater production during drought could help make up for the lack of production by other plants.

In June 2014, we collected data on disappearance rates of marked prickly pear fruit and mesquite bean pods within each of the twelve 200-acre research enclosures on the Comanche and Faith Ranches. In addition we also measured total mast (i.e. fruits and pods) production of prickly pear and mesquite.

Although some disappearance data are still being gathered, preliminary results show that mesquite mast disappeared sooner than prickly pear mast (see Figure 1). Mast took longer to disappear in enclosures with high mast production than in enclosures with low production. Our findings show that the economic theory of supply and demand also applies to deer – mast in enclosures with low production (low supply) was in higher demand, and therefore disappeared more quickly.

Biomass of prickly pear and mesquite mass in the enclosures

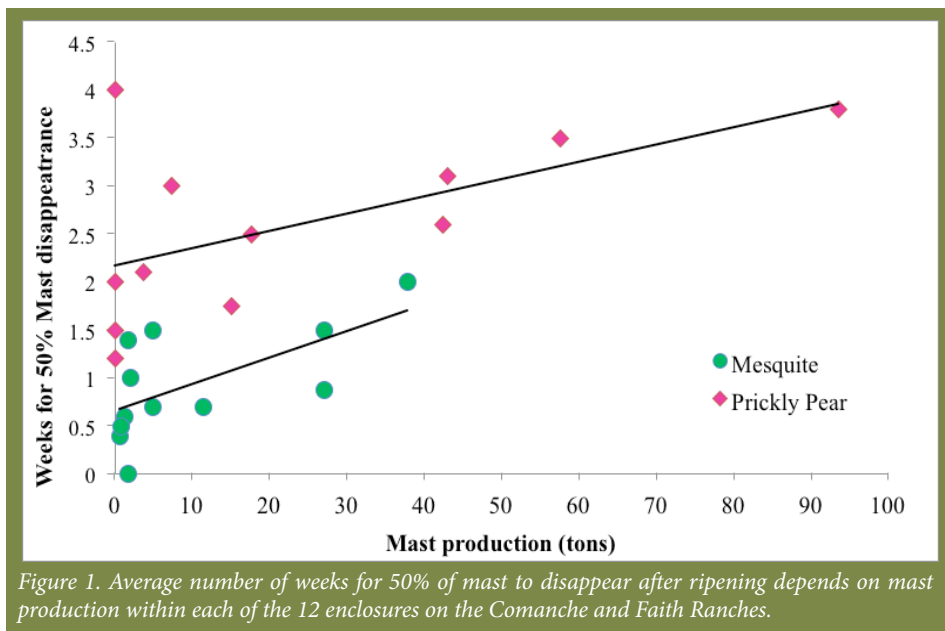


Figure 1. Average number of weeks for 50% of mast to disappear after ripening depends on mast production within each of the 12 enclosures on the Comanche and Faith Ranches.

varied from as low as 1,441 lbs up to 262,853 lbs of mast in enclosures with high production. This production is equal to 29 to 5,245 50-pounds bags of pelleted deer feed for every 200 acres. At \$10/bag, mesquite and prickly pear mast could be valued from \$290

up to \$52,450 for every 200 acres, depending on production. Many wildlife species eat prickly pear and mesquite mast, so deer do not consume all of the mast produced, but it is clear large amounts of deer food can be grown by these two native plants, even during a

dry summer.

Although only in the first year of data collection, we are already gaining a greater appreciation of the value of this mast. Mesquite and prickly pear are often targeted for control in ranch management plans. A reduction in mesquite and cactus is warranted in many situations, but if ensuring the availability of good food for wildlife during summer is important, managers should leave areas with productive mesquite and prickly pear. By leaving well dispersed patches of these iconic South Texas species, managers can take advantage of nature's food plot, which will be the easiest food plot they could hope to grow.

*\*Funding for this research provided by T. Dan Friedkin, Comanche Ranch, the Stedman West Foundation, and Faith Ranch.*

## THINGS THAT MATTER TO YOUNG FAWNS

By Asa Wilson, Charles A. DeYoung, Tim E. Fulbright, David G. Hewitt, and Don A. Draeger

Everyone knows that fawn survival in south Texas is higher following wet springs and summers. Alternatively, fawn survival can be very low during severe droughts. What causes this difference?

Managers commonly value heavy grass cover for concealing fawns from predators, primarily coyotes. Certainly concealment is important; but avoiding heat stress is also important during brutal south Texas summers. We conducted a study on the Comanche and Faith ranches\* in Dimmit County to explore characteristics of bedding sites selected by young fawns. Fawns were radio-collared

soon after birth and relocated at 7 and 14 day intervals. Extensive measurements were made at fawn bed sites at these intervals and at random sites in the vicinity.

There was little difference between bed site characteristics at 7 and 14 days after birth so data for the intervals were combined. Fawns selected sites with more brush cover as compared to random sites. Interestingly, fawns bedded closer to shrubs to the east and west versus other directions. We interpreted this to mean they were seeking shady spots for relief from the sun. This helped make bed sites 4 degrees F cooler than

surrounding areas. Another factor that may have contributed to cooling was fawn selection for a ground cover of plant litter rather than bare dirt.

We measured bed site concealment from "coyote height" about 15 feet away. Fawns consistently selected more horizontal concealment than occurred at random sites. Frequently, horizontal concealment cover consisted of grass, but other plant types also contributed. Our study was conducted in 2011 and 2012. Severe drought prevailed in 2011 with somewhat better conditions in 2012. As would be expected, concealment

cover for fawns was greater in 2012.

We could not tease out the relative importance of cover from predators versus protection from heat; however, the important message is that fawns select sites that provide a measure of both. Another important factor in the mix affecting fawn survival is nutrition. Our study showed that survival of fawns that were larger at birth was much better than low birth-weight individuals. This could be a factor of doe age, with young mothers birthing lighter fawns as well as the nutrition of all does during pregnancy.



Photo by David Hewitt

*\*Funding for this research provided by T. Dan Friedkin, Comanche Ranch, the Stedman West Foundation, and Faith Ranch.*

For more information about these projects and more, visit <http://www.ckwri.tamuk.edu/research-programs/deer-research-program/research/comanche-faith-study>.

## A HEALTHY DEER RESEARCH PROGRAM

By David Hewitt

A deer herd is a product of its environment. Abundant, high quality food fuels high productivity. Good cover protects the deer from the elements and excessive predation. Managers further nurture the deer herd by regulating the harvest and managing cover and food to meet the deer's needs.

A wildlife research program also reflects its environment and the CKWRI Deer Research Program is in fertile ground, indeed. The vast expanse of South Texas' Last Great Habitat provides the space necessary for world-class wildlife research. Add the resources and nurturing support of wildlife enthusiast from throughout Texas, and the CKWRI Deer Research Program has everything necessary to produce trophy-caliber research, the excellence and relevance of which are recognized far outside the region that produced it.

The funds that fuel research programs at the CKWRI come from 3 general sources. First are funds provided to support specific projects. Second are endowment funds provided for specific reasons, such as to support faculty salaries, graduate student fellowships, or a lectureship. Finally are donations to the Deer Research Program that enable scientists

and students to be flexible in a rapidly changing research landscape. Such gifts can be leveraged through research collaborations to increase the information generated by a research effort. The gifts may be used to conduct pilot projects to determine if a novel idea justifies a comprehensive research project, or support infrastructure purchases used on many research projects, such as scales to weigh deer and radio-receivers for telemetry studies. These gifts also support students travel to professional meetings where student share their research findings and learn about results of projects conducted elsewhere.

A final use of donations to the CKWRI and the Deer Research Program is to support the salary of people that provide special expertise necessary to fulfill our research mission. Dr. Andrew Tri is an example of one such person who started at the CKWRI this autumn. Dr. Tri's expertise is analysis of population and animal movement data. The Deer Research Program supports several studies that require estimating deer population sizes and analyzing data from GPS collars on deer. Our ability to learn more about deer from these studies will be enhanced with help from Dr. Tri.

## MARK YOUR CALENDAR!

**2015 Deer Associates Meeting**

**March 5, 2015**

**J.W. Marriott Resort**

**San Antonio, TX**



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## VISIT THE CKWRI DEER RESEARCH PROGRAM WEBSITE

[www.ckwri.tamuk.edu/research-programs/deer-research-program](http://www.ckwri.tamuk.edu/research-programs/deer-research-program)

### CKWRI WELCOMES DR. ANDREW N. TRI



Andrew Tri is a 4th generation conservation practitioner and is a wildlife biologist at the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville. He spent his youth in the outdoors, fishing, hunting, and trying to identify various critters in the woods of his native Minnesota.

Andy graduated with a B.S. in Fisheries, Wildlife, and Con-

servation Biology from the University of Minnesota-Twin Cities in St. Paul, MN (2007), a M.S. in Range and Wildlife Management from Texas A&M University-Kingsville (2010), and a Ph.D. in Forest Resources Management from West Virginia University in Morgantown, West Virginia (2013). During his tenure at West Virginia University, he also received a graduate certificate in Applied Statistics from West Virginia University. Andy became a Postdoctoral Fellow at West Virginia University after his Ph.D., and is now the Project Manager/Wildlife Biologist for Caesar Kleberg Wildlife Research Institute and the East Wildlife Foundation in 2014.

### CKWRI DEER RESEARCHERS

#### **David G. Hewitt, Ph.D.**

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(Ecology and Nutrition)

#### **Charles A. DeYoung, Ph.D.**

Research Scientist  
(Population Dynamics)

#### **Timothy E. Fulbright, Ph.D.**

Meadows Professor in Semiarid Land  
Ecology  
(Wildlife Habitat)

#### **Randy DeYoung, Ph.D.**

Research Scientist  
(Molecular Genetics)