

# SOUTH TEXAS WILDLIFE



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drought. After the rains returned during fall 2013, bobwhite abundance increased dramatically from 2014 through 2016, which reflected their response to above-average rainfall during these years. From 2016 to 2018, dry conditions again prevailed, and abundance declined back to the 2010 levels observed at the beginning of the study. The 2019 bump upward reflected how bobwhites responded to a year of favorable rainfall, before declining again in 2020 back to where they were a decade earlier.

There are some important lessons to be learned from our graph. The first lesson pertains to how closely bobwhite abundance trends on the three East Foundation ranches track one another. Each of the ranches has very different rangeland vegetation. The San Antonio Viejo Ranch is classic South Texas sand sheet rangeland in Jim Hogg County, dominated by mesquite, other brush, and large expanses of native grasses. El Sauz Ranch is near Port Mansfield

## BOBWHITE UPS AND DOWNS

by *Delanie E. Slifka and  
Leonard A. Brennan*

There is somewhere around 10 million acres of habitat that can support wild populations of northern bobwhites in South Texas. However, bobwhite abundance is strongly influenced by rainfall. When it rains, South Texas is truly one of the last great places to hunt and to see bobwhites on a grand scale.

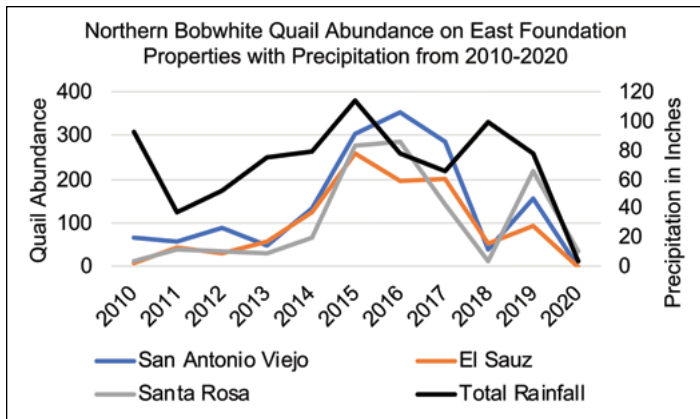
Editor's Note: Delanie Slifka is a graduate student at the Caesar Kleberg Wildlife Research Institute/Texas A&M University-Kingsville and Dr. Leonard Brennan is the C.C. "Charlie" Winn Endowed Chair for Quail Research at the Caesar Kleberg Wildlife Research Institute and professor at Texas A&M University-Kingsville.

How quail populations vary in space and time is a cross-cutting theme for research at the Caesar Kleberg Wildlife Research Institute (CKWRI). During the past 10 years, we have had the opportunity to count quail (along with dozens of other species of birds) on three East Foundation ranches. In this article, we focus on the ups and downs of three bobwhite populations over an 11-year period (2010 to 2020).

If you study the bobwhite population trend lines on the graph (following page), you can see that starting in 2010 abundance on the three ranches was similar, extremely low, and stayed quite low through 2013, which was a period of prolonged

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Number of bobwhites detected on breeding bird survey routes and amount of rainfall on the three East Foundation ranches from 2010 to 2020.

on the coast and contains a diverse mix of oak mottes, Gulf cordgrass, other brush and grasses, and sand dunes. Finally, Santa Rosa Ranch is near Riviera and has extensive oak mottes that have recently been invaded by guineagrass. It is noteworthy that bobwhite abundance trends were virtually identical across these three ranches, a hand-in-glove relationship if there ever was one, despite the differences in vegetation.

The second lesson pertains to the importance of collecting long-term data. For example, if we had only data for a three- or four-year period, we would have a partial and misleading picture of things. If we had only data from 2010 to 2013, we could only infer that bobwhite abundance was low and not changing. But, then if we had only data from 2015 to 2017, we could only infer that bobwhite abundance was relatively or perhaps extremely high. Overall, however, the full 10-year picture of bobwhite abundance is one of lows, highs, and in-betweens. In other words, bobwhite *ups and downs*.

The third lesson pertains to how rainfall patterns influence bobwhite

abundance during successive years. If you examine the two peaks in the graph from 2016 and 2019, the upward surge in abundance from 2013 to 2016 shows that when three successive years of above average rainfall occur they can generate an impressive

population boom. In contrast, the one-year peak in 2019 shows a more modest boom with a single year of favorable rainfall. In conclusion, we are extremely fortunate to work with partners such as the East Foundation who take a long-term view of wildlife research on their ranches. Most wildlife studies in the United States these days run two to three years at most and are funded in response to some form or another of political expediency, usually following a crisis.

The data used in this article were collected by numerous people. Tom Langshied started the study in 2010. Maia Lipshutz and Janel Ortiz continued the study and used data for their respective M.S. and Ph.D. projects. Drs. April Conkey, Humberto Perotto, and David Wester, along with numerous other CKWRI faculty served on graduate student committees and offered important insight and guidance over the years. The Coates Foundation provided support for the first few years of the project and the East Foundation has continued this support. This has been a team effort indeed! ~

## CKWRI NEWS

### The Texas Wild Turkey Book Has Been Published

We are pleased to announce “Wild Turkeys in Texas: Ecology and Management” has been published by Texas A&M University Press and is available at <https://www.tamupress.com/book/9781623498559/wild-turkeys-in-texas/>. As highlighted in the spring issue of *South Texas Wildlife*, this book was spear-headed by **Dr. William Kuvlesky Jr.** who brought together experts on wild turkeys and land management in Texas (includ-



Shown holding the book “Wild Turkeys in Texas: Ecology and Management” is Texas A&M University-Kingsville president **Dr. Mark Hussey** with dean of the Dick and Mary Lewis Kleberg College of Agriculture and Natural Resources **Dr. Shad Nelson** (L-R), lead author and editor **Dr. William Kuvlesky Jr.**, and the CKWRI’s **Leroy G. Denman, Jr.** Endowed Director of Wildlife Research **Dr. David Hewitt**.

ing six other CKWRI scientists) to synthesize the most current information about ecology and management on the three subspecies of wild turkeys found in the state.

### South Texas Wildlife Conference Announced

Mark your calendars! The 17th South Texas Wildlife Conference will be held 9 am to 4 pm Friday, August 28 at the SSGT Willie De Leon Civic Center in Uvalde. The title for this conference is “Looking to the Future: Water, Habitat, Disease and Wildlife.” Early online registration is open until August 21 at <https://texaswildlifeassociation.salsalabs.org/SouthTexasWildlife-Conference2020/index.html>.

Visit our web page at <http://www.ckwri.tamuk.edu>

### By The Numbers

- 4 typical number of eggs found in the clutch of the American **AVOCET** (Handbook of the Birds of the World, Vol. 3, 1996, Lynx Edicions)
- 39 the approximate length in inches of a newborn manatee (The Mammals of Texas, 7th Edition, D.J. Schmidly and R.D. Bradley, 1994, 2004, 2016, University of Texas Press)

## Alec D. Ritzell Memorial Fund for Wildlife Research and Education

As you may know, one of our own, graduate student **Alec Ritzell**, passed away in March 2020 from an unexpected illness. To honor his memory, the *Alec D. Ritzell Memorial Fund for Wildlife Research and Education* is being developed. We are seeking donations to bring the fund to the level needed for a named endowment. Once established, the endowment will be used as a memorial scholarship to benefit graduate students at the CKWRI. For more information about Alec and how to donate please visit <https://www.ckwri.tamuk.edu/AlecRitzell>. ~

## CONVERTING BERMUDAGRASS TO NATIVE GRASSLAND

by Anthony D. Falk, Forrest S. Smith, and William P. Kuvlesky Jr.

Bermudagrass is an aggressive non-native grass originating from Africa. It was introduced as a forage and turf grass. There are over 200 agronomic and turf varieties used in the United States. While Bermudagrass is an important forage and hay crop, it is among the top 10 most troublesome weeds across the southeastern U.S.

Bermudagrass can create single-species stands that lack the plant diversity required by a number of wildlife species. This limits food sources for ground foraging birds, such as bobwhites. Besides lacking food sources, dense stands of Bermudagrass restrict quail movements and do not provide the structure needed for quail nesting.

Editor's Note: Mr. Anthony Falk is the assistant director of Texas Native Seeds at the Caesar Kleberg Wildlife Research Institute (CKWRI), Mr. Forrest Smith is the Dan L. Duncan Endowed Director of the *South Texas Natives* Project and the Texas Native Seeds Program Director at the CKWRI, and Dr. William Kuvlesky Jr. is a research scientist at the CKWRI, and professor and assistant dean of the Dick and Mary Lewis Kleberg College of Agriculture and Natural Resources at Texas A&M University-Kingsville.

## Did You Know?

The Virginia opossum “is the only marsupial to occur in North America north of Mexico.” (The Mammals of Texas, 7th Edition, D.J. Schmidly and R.D. Bradley, 1994, 2004, 2016, University of Texas Press)

Bites from the tarantula species occurring in Texas are generally not considered to cause serious injury to humans. (A Field Guide to Spiders & Scorpions of Texas, J.A. Jackman, 1997, Taylor Trade Publishing)

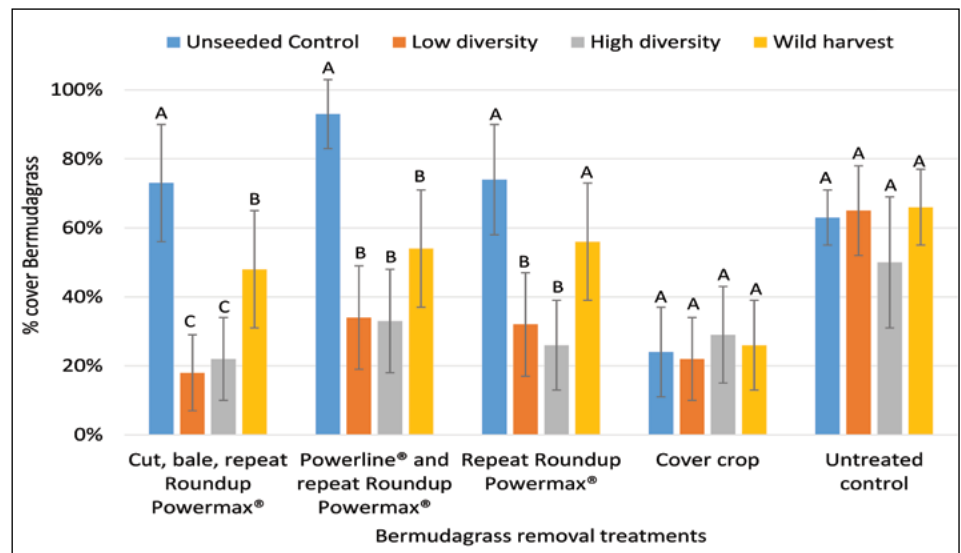
Because of the negative effects of Bermudagrass on quail habitat in Texas, many landowners desire to restore areas dominated by it to native prairie. Texas Parks and Wildlife Department funded our project looking at several methods to remove stands of Bermudagrass and replace it with native grasses that will provide habitat needed by bobwhites. Cooperators in the effort included Texas AgriLife Research in Beeville, Stephenville, and McGregor.

We tested four Bermudagrass removal methods, three seed mixes, and three planting techniques in four Texas ecoregions. Our goal was to determine optimal combinations of treatments to restore diverse native grasslands for bobwhites in areas dominated by Bermudagrass.

The removal methods included cutting and bailing the Bermudagrass and then treating the regrowth with five applications of Roundup Powermax® sprayed at 96 oz/acre over an 18-month period; a single

application of Powerline® Arsenal sprayed at 96 oz/acre followed by four applications of Roundup Powermax® at 96 oz/acre over an 18-month period; five applications of Roundup Powermax® sprayed at 96 oz/acre over an 18-month period; a cool-season cover crop to try to shade out the Bermudagrass; and an untreated control.

The three seed mixes tested were low and high diversity mixes of commercially produced, locally adapted species; a wild-harvested mix purchased from a commercial seed company; and an unseeded control to allow natural revegetation. Each mix was planted three ways: with a Truax no-till seed drill, disking and then drill seeding using the Truax, and disking and then broadcast seeding using a tractor-mounted broadcaster followed by packing. To evaluate the effectiveness of these treatments, we measured the resulting cover of Bermudagrass and the number of plant species (termed species richness).



Percentage of Bermudagrass cover for each removal method and seed mix combination. Different letters represent statistical differences among seed mixes within removal method.

Several treatment combinations of Bermudagrass removal and seed mixes significantly reduced the cover of Bermudagrass. In particular, Bermudagrass removal techniques that used herbicides, followed by seeding using the low or high diversity seed mixes reduced the percentage of Bermudagrass cover by nearly 50% compared to unseeded controls and 30% compared to the wild harvest seed mix. We also found seeding techniques that included disking reduced the cover of Bermudagrass more than the no-till seeding method.

Bermudagrass removal techniques using herbicides in combination with the low and high diversity seed mixes resulted in higher species richness compared to plots seeded with the wild harvest mix or were not seeded. Bermudagrass removal treatments that used herbicides and included disking with the planting technique had higher species richness than plots that were no-till

**Advisory Board**

The Advisory Board of the Caesar Kleberg Wildlife Research Institute (CKWRI) provides leadership in all aspects of our work. We are indebted to them for their commitment to the CKWRI and its mission.

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*Emeriti:* A.C. "Dick" Jones, IV and James A. McAllen



Photo by Anthony Falk

**A stand of Hidalgo Germplasm multi-flowered false rhodesgrass was successfully established after removing Bermudagrass.**

drilled or received the cover crop or untreated control Bermudagrass removal treatments.

If reducing Bermudagrass cover and restoring the highest number of native species to provide habitat for quail is the management goal, then the best short-term results will be obtained by cutting, bailing, and repeat application of Roundup to existing Bermudagrass stands, followed by planting a high diversity seed mix by disking and drilling.

Native grasslands and the species that rely on them are threatened across much of the state. Being able to provide landowners and managers with a prescription to convert existing stands of Bermudagrass to native grasslands is one way that we can help restore these habitats and the species that rely on them. We are hopeful that the above prescription will be used so that more acreage currently in Bermudagrass will be converted to native grassland. ~

**Consider giving a donation to the CKWRI**

### What Do They Eat?

Mexican hog-nosed snakes prefer reptiles and amphibians, but will eat birds, bird eggs, and small mammals. (Texas Snakes: Identification, Distribution, and Natural History, J.E. Werler and J.R. Dixon, 2000, University of Texas Press)

Inca doves are granivores, eating a wide range of forb and grass seeds, waste grain, and birdseed, but they have been known on occasion to eat cactus fruits. (<https://www.audubon.org/field-guide/bird/inca-dove>)



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