The Bobwhite Post

A Publication of the Richard M. Kleberg, Jr. Center for Quail Research

Photo by Eric Grahmann

Caesar Kleberg Wildlife Research Insitute • Texas A&M University-Kingsville Volume 18, Issue 2 • Fall-Winter 2015

From The Field: Northern Bobwhite Use of Bermudagrass Pasture Restored to Native Vegetation

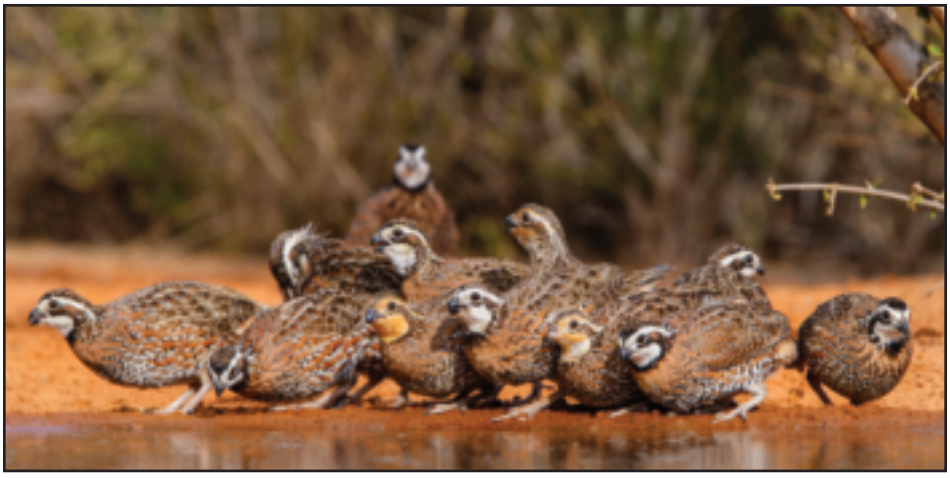


Photo by Larry Ditto

Conversion of native grassland to invasive non-native grasses poses a serious threat to northern bobwhites. Non-native grasses can reduce bareground needed for travel and food searching, and forbs required for cover, seeds and insects. Bermudagrass is a common non-native grass planted for cattle grazing, aesthetics and erosion prevention. It has been estimated that bermudgrass covers more than 10 million acres in the southeastern U. S. Like pastures dominated by other nonnative grasses, bermudagrass provides poor habitat for bobwhites. One suspected reason is that bermudagrass pasture generally lacks the structural diversity and composition native plant communities provide. In other words, bermudagrass grows fairly uniform, reducing bareground and inhibiting the growth of important native plants. Bobwhite habitat is characteristically patchy in nature with great plant diversity. Overall, conversion of native rangeland (bobwhite habitat) to bermudagrass is the primary factor blamed for the decrease in bobwhite populations in both the Blackland Prairies and Post Oak Savannah of Texas.

Restoring diverse plant communities in areas dominated by bermudagrass could greatly improve habitat for bobwhites. In 2014, we initiated a study to document and compare habitat attributes and metrics of bobwhite abundance and production between coastal bermudagrass pasture, pastures restored to a mix of bunchgrasses and forbs, and a native shrubland that has had minimal disturbance. Our study is taking place on the San Christoval Ranch in addition to 2 bermudagrass pastures on an adjacent property. Prior to our study, all of the bermudagrass on the restored sites was sprayed with glyphosphate herbicide (Roundup®) and later planted with a mix of native and non-invasive bunchgrasses and forbs. During August through September, we sampled vegetation attributes known to be important to bobwhites and we monitored bobwhite relative abundance using trap success. We monitored productivity using radiotelemetry from March through September.

We aimed to determine and compare the suitability of bobwhite nesting cover between our study pastures. We used the published threshold of 250 nest clumps/acre as one metric to determine the suitability of pastures for bobwhites. Restored sites provided a higher density of suitable nesting clumps/

Continued on Page 2

Richard M. Kleberg, Jr. Center for Quail Research

Research Scientists

C. C. "Charlie" Winn Endowed Chair For Quail Research, *Leonard A. Brennan*

Alfred C. Glassell Jr., Endowed Professor For Quail Research, *Fidel Hernández*

assistant professor of research: gamebird science, *Eric Grahmann*

The Bobwhite Post is provided compliments of the Quail Coalition, Inc. To receive a free copy or to send a tax-deductible donation to quail research, please write to the Caesar Kleberg Wildlife Research Institute, MSC 218, Texas A&M University-Kingsville, Kingsville Texas, 78363.

ac than the recommended minimum of 250 clumps/ac. The native site fell below this 250 clump/ac threshold in both 2014 and 2015, and one of the 2 bermudagrass sites provided a higher bunchgrass density than the recommended minimum in both 2014 and 2015. The native site is dominated by a diverse brush and forb community but has limited perennial bunchgrasses because of its natural xeric nature.

We standardized trapping effort to monitor bobwhite relative abundance. Averaging the number of individuals trapped between 2014 and 2015, we captured an average of 91 bobwhites in the restored site, 26 in native shrubland, and 19 on the bermudagrass site. When estimating 6 month survival of radio-marked birds, survival was 40% in the restored site, 41% in the native site and 20% in the bermudagrass site when averaging across 2014 and 2015. During 2014, none of the 4 bobwhites captured on the bermudagrass pasture survived the breeding season.

This is the first study of which we are aware that has focused on the population level respone of northern bobwhites to bermudagrass. Our study reinforces that bermudagrass pasture provides poor habitat for bobwhites. However, the effects were dependent on management. For example, we know bermudagrass pasture can be restored to quality bobwhite habitat by intentionally killing this sod-forming grass, then by planting bunchgrasses and forbs. But, bermudgrass pasture can also revert back to bobwhite habitat accidentally through the cessation of fertilization and weed spraying. Management (either intentional or unintentional) that increases the canopy cover of forbs and abundance of bunchgrasses to known required thresholds for bobwhites, will likely improve habitat where these components were lacking. Furthermore, allowing some brush to return in bermudagrass pasture up to 25% coverage could also enhance habitat for bobwhites where quality loafing cover is missing. Overall, if managers are interested in promoting bobwhites, bermudagrass should not be planted and existing stands should not be managed for uniformity. This research is ongoing, and therefore results should be considered preliminary.

– Carter Couch and Lenny Brennan

Carter is a doctoral candidate at the Caesar Kleberg Wildlife Research Institute. He is a native of Wichita Falls, Texas and is working under the direction of Dr. Lenny Brennan.

ON POINT: FINALLY!

The 2015-2016 quail hunting season in South Texas is shaping up to be one of the best in recent---and not so recent---memory. While many bird hunters were pleasantly surprised that the 2014-2015 quail hunting season in South Texas was fairly good, this year, various factors have converged to produce what will surely be a historically magnificent season. So then, what are these "various factors" that have combined to produce a quail season that will likely go down as one for the record books? That is exactly what I am going to address in this brief essay. There are Four Factors that have led

up to the current state of high levels of quail abundance in South Texas

Factor one: The Drought

The 2010-2011 quail season was unique in that it was bounded by drought beginning in 2008 and then a continuing dry spell from the spring of 2011 into the fall of 2013. Because it was bookended by drought, the 2010 nesting season was only partially sufficient at producing a bobwhite population recovery. This is because, as we will see below, it takes at least two consecutive years of above average rainfall for bobwhite populations to recover from drought.

Factor two: The Habitat

Habitat, especially brushy habitat, is the key factor that allows bobwhites to survive through the frequent droughts that plague South Texas. Woody cover is critical for bobwhites to make it through periods of intense heat and drought, and this is where they go when conditions deteriorate.

The fact that we are blessed with more than 10 million acres of habitat in South Texas that will produce wild bobwhites---when it rains---is also important to appreciate. A good portion of this habitat is what landscape ecologists call "contiguous" or connected. This allows the birds to disperse and recolonize areas that were vacated during the previous drought year(s). Our molecular genetics research over the past decade has indicated that dispersal is much more important in the realm of bobwhite life history than we previously thought. Having vast areas of habitat that are connected is critical for bobwhites to disperse during periods of population recovery.

Photo by Rachel Smith

The important thing to realize is that habitat, first, is the reason we have quail at all, but it also sets the stage for quail population recovery from drought. Habitat can also "set the table" so to speak for quail. Rainfall then puts the food on their plates and allows them to start their engine of population recovery. It is also important to note that rainfall also mitigates excess heat. Excess heat makes it most difficult for bobwhites to lay eggs and produce young birds.

Factor three: The Rain in 2013-2014

Our most recent---and by all standards historical---drought pretty much ended during late August and early September of 2013, when it finally started to rain in South Texas again. Seeing the end of an historic drought was remarkable. What was even more remarkable was that South Texas bobwhites started to nest and lay clutches of eggs in September of 2013. They produced broods at least well into November. We know this because there were many reports of half-grown bobwhites from ranches in mid-January 2014. It takes about eight weeks for a bobwhite to become half grown, so backdating to the hatch brought us to realize that many birds were hatched as late as mid-November 2013. Remarkable indeed.

The other point to appreciate here is that with so many birds being hatched so late in the year, they had very little time to die before the 2014 nesting season started. The fact that the rains continued into and through the 2014 nesting season set the stage for the population recovery we are now witnessing.

Factor four: The Rain in 2015

As we moved forward into the 2015 quail nesting season, the rains continued. Although spotty in places, and more abundant in others, overall spring rainfall in 2015 was adequate for producing a good early hatch, and for allowing, in some places, broods to be produced into the mid to late summer months. For example, we saw several bumble-bee sized broods on a ranch in Jim Hogg County during the middle of August. The birds were obviously giving it their whole-hearted effort to reproduce.

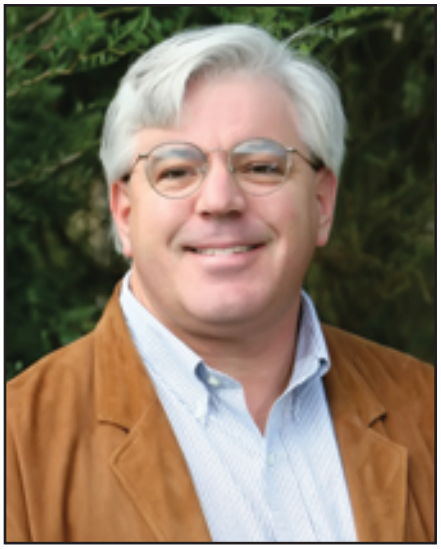
What This All Means

The bobwhite population recovery we are now---finally---enjoying in South Texas, actually began in 2013. We have had an unprecedented three-years-in-a-row of good bobwhite production. Typically it takes two back-to-back years of above-average precipitation for bobwhite numbers to recover after a drought. The fact that we have now seen three consecutive years of good bobwhite production is unprecedented during the past fifteen years that I have been studying bobwhites in South Texas. We need to enjoy it while it lasts, because we know it is not going to last forever. The bobwhite population recovery will probably last as long as the current El Nino conditions in the Pacific hold on. As El Nino goes, so go bobwhites in South Texas.

Bobwhite populations are booming once again in South Texas. It was not long ago that they were a bust. But this is what characterizes bobwhite populations in this part of the world: a boom and bust dynamic. Typically, over the course of a decade, we can expect about two years of exceptional quail hunting, about three years of average (acceptable?) quail hunting, and about five years of lousy or below average (unacceptable?) quail hunting. This is just the way it is with quail populations in this part of the world. When quail hunting in South Texas is good, it is very, very good. When it is bad, it is terrible. During those terrible years, we need to hunt doves and deer and let the bobwhites survive in the deepest brush. As we have seen during the past couple of years, South Texas bobwhites have a remarkable ability to recover when conditions improve. The key is to be patient. If we conserve their habitat, we will be rewarded with exceptional quail hunting when the rains return.

– Lenny Brennan

Lenny Brennan is a research scientist and the C. C. "Charlie" Winn Endowed Chair for Quail Research at the Caesar Kleberg Wildlife Research Institute. Lenny is a native of Connecticut and has been a member of the Caesar Kleberg Institute for 14 years.



Non-Profit Org.
U.S. Postage
Paid
Corpus Christi, TX
Permit #1103

TEXAS A&M UNIVERSITY KINGSVILLE

Caesar Kleberg Wildlife Research Institute
Texas A&M University-Kingsville
700 University Blvd, MSC 218
Kingsville, Texas 78363-8202

Editors: Eric Grahmann and Fidel Hernández