




The Bobwhite Post

By Dr. Fidel Hernandez and
Dr. Lenny Brennan



This newsletter is provided by The Texas State Council of Quail Unlimited



Richard M. Kleberg, Jr. Center for Quail Research
Caesar Kleberg Wildlife Research Institute
Texas A&M University-Kingsville

Fall-Winter 2003
Volume 6, Issue 2



Quail Unlimited in Texas: Continued Supporters of Quail Research

By Dr. Fidel Hernandez

Fund raising for wildlife research is never an easy task. However, several dedicated organizations have helped make this effort much easier for us. Since the beginning of the South Texas Quail Research Project (STxQRP), we have received continued support from Quail Unlimited Chapters in Texas: the South Texas, Houston, and East Texas Chapters, as well as the Texas State Council of QU. Recently, Mr. Tim Conolly, State Chairman, delivered 2 new ATVs leased by the Texas State Council for use by the STxQRP. Given our extensive study areas and harsh South Texas environment, ATVs help make data collection much more efficient and timely.

On behalf of the Caesar Kleberg Wildlife Research Institute, I send a heartfelt thanks to Quail Unlimited in Texas for their continued and generous support of our quail research.

It was the worst of Times, then it was the better of Times

By Dr. Fidel Hernandez

Quail season is here, and as the season gets underway, the sentiment surrounding this present time reminds me of a literary masterpiece... A Tale of Two Cities by Charles Dickens. Dickens begins his tale by stating, "*It was the best of times, it was the worst of times, ... it was the epoch of belief, it was the epoch of incredulity, ... it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us.*" Judging from the drastic differences in precipitation from last year to the present, I think that Dickens' opening to his tale adequately capture our hopes, doubts, and questions concerning this year's quail season. As a quail researcher, the scenario of contrasting years raises 2 fundamental questions. First, how much did habitat change between years? And, second, what effect did this habitat change have on bobwhite demographic parameters such as survival and nest success?

Evaluating habitat. We are able to gain some insight into these questions through the data of the STxQRP. We monitor bobwhites throughout the year via radiotelemetry, maintaining >50 radiocollared bobwhites on the ground at all times. This continuous

monitoring allows us to estimate bobwhite survival, as well as nest success. We also measure several habitat variables to provide an assessment of habitat conditions for bobwhites. These variables include percent bare ground, bunchgrass density, and disc of vulnerability. We monitor these variables because they provide some indication of habitat structure and thus help understand relationships between habitat condition and bobwhite population response.

We visually estimate percent bare ground using a 8" x 20" frame. We estimate bunchgrass density (i.e., density of suitable nest sites) using belt transects that are about 2 yds wide and 33 yds long. We walk along these transects and count the number of suitable grass clumps that we encounter. We consider a grass clump suitable for



Photo by Fidel Hernandez

We measure habitat conditions in our study areas to assess changes in habitat suitability for bobwhites. Here, we use a profile board to estimate the distance at which a bobwhite would be visible to an approaching mammalian predator. During hard times, this distance can be great.

nesting if it is at least 8" high and 10" in diameter. We measure disc of vulnerability using a profile board that is about 8" wide and 40" tall. This profile board has a marking across the board at 10". To estimate disc of vulnerability, we observe the profile board from about 12 yds away and 20 inches off the ground and determine if the 10" marking is 100% visually obstructed. We take a reading in 8 directions surrounding the point. If all the readings are visually obstructed, then the point is usable to bobwhites. If not, then the point is categorized as unusable. This technique is a modified version of the disc of vulnerability developed several years ago by Dr. Fred Guthery and Steve Kopp and attempts to measure the vulnerability of bobwhites to mammalian predators.

Bobwhite response. The beginning of our tale starts a few years ago, when South Texas experienced several consecutive dry years. The weather made a turn for the worse in January 2002, when for the next 6 months we received virtually no rainfall. This dry spell, coupled with the hot South Texas sun, turned the rangeland into a "sea" of scattered, crisp, brown plants. The range looked bleak for bobwhites, until July 2002, when heavy rains came....and continued to come...and haven't stopped since.

Weather conditions changed drastically from 1 year to the next, as indicated by the Modified Palmer Drought Index (Table 1). This index gauges the severity of a drought with values ranging from positive 6 (extreme wetness) to negative 6 (extreme drought). Habitat conditions also changed considerably as precipitation increased with a general trend for less bare ground, more nesting cover, and more usable points. However, neither survival nor nest success appeared much affected by the change in habitat. This was intriguing. Intuitively, we would expect that improved habitat conditions would result in improved bobwhite survival

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Table 1. Comparison of habitat variables and bobwhite demographic parameters between a relatively dry and wet year, Brooks County, Texas. All results are reported as means, except for disc of vulnerability and survival estimates. For 2002, drought index is from Jul 01 to Apr 02 and fall-winter survival is from Sep 01 to Feb 02. For 2003, drought index is from Jul 02 to Apr 03 and fall-winter survival is from Sep 02 to Feb 03.

| Variable | 2002 | 2003 |
|---|--------|--------|
| Modified Palmer Drought Index (Jul-Apr) | -0.7 | 4.6 |
| Percent Bare Ground | 56% | 36% |
| Bunchgrass Density | 156/ac | 416/ac |
| Percent Usable Points | 44% | 61% |
| Fall-Winter Survival (Sep-Feb) | 55 % | 60 % |
| Spring-Summer Survival (Mar-Jul) | 34 % | 44 % |
| Percent Nest Success | 50 % | 52 % |

and/or nesting success. But this wasn't the case. So, what would account for the anticipated increase in bobwhites following the rains?

This question is difficult to answer at the moment because we do not know exactly the magnitude of the increase. However, if fall 2003 populations exhibit considerable increases, then what accounts for this increase if survival and nest success remained relatively constant between years? Assuming that our habitat variables measure conditions in a manner meaningful to quail and our estimates of demographic parameters are unbiased, then our results imply that neither survival nor nest success are responsible for the population increase, but rather, some other parameter(s) are driving the quail increase.

Two potential parameters come to mind: 1) the proportion of hens that nest and 2) brood survival. Despite similar survival and nest success

between years, if a greater proportion of hens nested during 2003, then productivity would be greater. Likewise, if brood survival was greater, then productivity also would increase in 2003. What actually happened in our case?

Our radiotelemetry data indicates that **all** radiocollared hens nested during both years. Thus, given our scenario, this implies that increased brood survival possibly explains the anticipated increase in quail numbers. Unfortunately, because of limited manpower and resources, we are unable to obtain direct estimates of brood survival at STxQRP. However, brood survival can be estimated from juvenile:adult ratios which can be obtained from harvest records. Thus time will help unfold our developing tale.

As for now, the opening lines to our Tale of Two Quail Years merely state, "*It was the worst of times, then it was the better of times*". And we best enjoy them, for in semiarid South Texas, the worst of times will surely come again.



On Point



... and Counterpoint

BURNING THOUGHTS

By Dr. Lenny A. Brennan

During the past two years, as I have traveled around Texas, I have been somewhat surprised that relatively few people seem to embrace the use of prescribed fire for quail habitat management. Don't get me wrong, there are plenty of people in Texas who understand the importance of prescribed fire for land stewardship and management. Nevertheless, I have been fascinated to hear a quail management and research colleague who stated, in public, that "Fire is over-rated for quail management in arid or semiarid parts of Texas."

He argued this point because the roots of prescribed fire for quail management are in the humid southeastern states where rainfall is often 60 inches or more per year. In that part of the world, vegetation grows so quickly that annual applications of prescribed fire are essential for maintaining usable habitat space for quail. Missing even one year of fire can spell disaster for quail habitat management.

In some of the best remaining Texas quail country, rainfall averages 20-30 inches per year. Fine fuels provided by grasses and forbs accumulate at a much slower rate than they do in the southeastern states, hence a lesser need for fire, especially since many of these plants serve as forage for livestock. This is a point well taken. However, there is a broader context to consider.

Fire was the predominant ecological force that shaped the prairie and pine forest habitats of Texas over tens of thousands of years. Lightning strikes, and Native Americans, were

the primary sources of ignition. Over recent history, as the cattle and ranching culture dominated Texas, forage for livestock—grass—became the gold upon which fortunes were made when it rained—or lost—during drought. Allowing fire to burn up grass that could otherwise go into the belly of a cow became an anathema to livestock managers. Culturally, fire came to be seen as a competitor, rather than a cooperator, when it came to raising cattle.

Over time, as cattle and people broke the natural fire cycle, woody shrubs and brush came to be more prevalent, and in fact even dominant, on many areas that were once grasslands, prairies, and savannahs. The open country landscape was not so open any more. The elimination of fire that once favored grassland vegetation at the expense of shrubs and brush ultimately reduced the capacity of the land to support livestock—and quail.

The management response to brush invasion on rangelands has typically been to chain it, plow it, shred it—and sometimes—burn it. The idea typically has been to suppress, remove, reduce the coverage of brush and increase the coverage of grass and forage. Unfortunately, the replacement of the fire cycle with the grazing cycle set plant succession on a course that is difficult to reverse with management. Without frequent fire, woody plants mature to the point where they "fire proof" themselves. Even the hottest summer fires only top-kill the woody

plants, which will quickly regrow from well-established root stocks. What does all this mean for quail? A lot as it turns out. While cows and quail can co-exist, they can do so only under conditions where the grazers leave enough grass for the birds to have adequate nesting cover. The grass has to grow faster than the cows can eat it. Or, the cows must be removed from a pasture before they eat the grass below a certain height (say 8 inches) or density (about 200 basket ball sized clumps per acre).

Recently, a number of South Texas quail enthusiasts have drastically reduced, or even completely removed, cattle from their quail pastures. In talking with these folks, many of them are planning to replace cattle with fire, once the grass begins to get too thick for the birds. Even after a couple of years of above-average rainfall—and deferment from grazing—the grass is still not too thick for the birds. However, enough fine fuels are accumulating on these areas so that it will not be long before fire will need to be prescribed to keep things in shape for quail. With this fire will undoubtedly come some economical brush reduction.

So, in closing, I would disagree with my colleague. Because of the emerging shift from cattle to quail, and the new found abundance of grass on many areas where it was once quite scarce, I would say that fire has been overlooked, rather than over-rated.



Selected Reference

Guthery, F. S. 2000. Prescribed burning. Chapter 18 in *On Bobwhites*. Texas A&M University Press, College Station.

Quail Call:
*Upcoming wildlife
meetings of interest*

Texas Quail Short Course III

It has been several years now since we've had a Texas Quail Short Course. The first Texas Quail Short Course was held in 1994 at Texas A&M-Kingsville. These symposiums were designed with a purpose of educating landowners, land managers, hunters, and quail enthusiasts about quail management using science based information. The last Texas Quail Short Course was held in 1996. As such, we are currently organizing Texas Quail Short Course III for this coming spring. The symposium will be held on the campus of Texas A&M University-Kingsville during March 8-9, 2004. The Short Course will consist of a series of presentations on topics ranging from livestock grazing for bobwhites to the issue of predator control to harvest management, as well as updates on the Texas Quail Conservation Initiative. It also will include a half-day field trip to a nearby habitat demonstration area. The symposium is being hosted by The Richard M. Kleberg, Jr. Center for Quail Research at the Caesar Kleberg Wildlife Research Institute. We will be pro-

viding more information on registration for Texas Quail Short Course III in the near future. For more information on the symposium, please contact the Institute office at (361) 593-3922 or visit our website at www.ckwri.tamuk.edu **after 15 December 2003**. We look forward to seeing you this Spring!

39th Annual Meeting of the Texas Chapter of The Wildlife Society

The Texas Chapter of The Wildlife Society will be having its annual meeting during February 19-21, 2004 in Kerrville Texas. This year's plenary session will be "Wildlife Privatization: who owns wildlife?", with presentations from Dr. Jim Teer, Dr. Fred Bryant, and Dr. Valerius Geist. The Texas Chapter meeting consists of wildlife presentations that address topics such

as game management (white-tailed deer, wild turkey, quail, feral hogs, mountain lions, etc.), non-game management (songbirds, wading birds, reptiles, amphibians), and habitat management (brush management, exotic species, etc.). The meeting includes presentations from all the universities in Texas with wildlife or ecology programs, as well as state and federal agencies such as Texas Parks and Wildlife Department and Natural Resource Conservation Service. For meeting information and registration, please contact the Chapter President, Dr. Terry Blankenship at (361) 364-2643. For more information on The Texas Chapter of The Wildlife Society, please visit their website at www.tctws.org.

Until next time -- .

Fidel Hernández

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Kingsville, TX 78363
Permit #172