



# *The Bobwhite Post*



A publication of the Caesar Kleberg Wildlife Research Institute  
at Texas A&M University-Kingsville

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## **The Unveiling**

Like a finished painting whose cover has just been removed, the new format for our quail newsletter also can be revealed...*The Bobwhite Post!* But not only has the name changed, so has the layout. The newsletter now has expanded to 4 pages which will allow in-depth coverage of the South Texas Quail Project, discussions regarding quail management, and sections highlighting recent contributions, question/answer discussions or new research ideas. I would like to thank 2 very special people who made this new design possible. **Dr. Mickey Hellickson** devoted long hours to producing a magnificent "calling bobwhite." **Mrs. Jodi Thompson** also graciously allowed me to use her beautiful pointing bird dog in our newsletter.

I also thank the **Texas State Council of Quail Unlimited** and the **Caesar Kleberg Wildlife Research Institute** for their support in producing this newsletter free of charge to you. It is this kind of generous support that makes my job such a pleasure. A heart-felt thanks to everyone.

These are exciting times in Quaildom, and there is a lot of quail information out there. It will be my mission to make this wealth of knowledge accessible to you. I be-

lieve you will enjoy this new, informative, scientific, yet friendly layout. I welcome your comments.

## **Cosmic Bobwhites: Part I**

Animals are amazing organisms. Being a biologist, I am reminded just how remarkable they truly are time and time again. Consider these amazing feats. Some birds are able to migrate long distances from wintering sites to the same breeding grounds year after year using the earth's magnetic field. Dogs, lost during family vacations, have been known to return to their owner's home despite being transported long

distances inside trailers. Horses, through unusual nervous behavior, have foretold upcoming weather catastrophes. Observing this year's nesting season, I ask myself, "Can bobwhites predict upcoming dry conditions, or possibly even a drought?" Here's what I mean.

The conditions coming into 2000 were good. We had just completed what was a decent year for quail in 1999. Also, unlike most of the state, south Texas was blessed with adequate precipitation all during the breeding season and early into the nesting season. Conditions appeared prime for production. But



*Photo by Fernando Holschneider*

**During April-July 1999, we found 104 nests. Although the same research effort has been devoted to locating nests in 2000, we have found only 37 during the same period.**

following this abundant rainfall, conditions slowly began to change. Our preliminary findings were indicating that nest production was low.

June and July were relatively dry, with July receiving no rain and having several days with temperatures above 100 degrees F. Could bobwhites sense early into the nesting season that less favorable times were coming?

In 1999, the first hen to nest began incubation around April 3. Between April-July 1999, we located a total of 104 nests. Average clutch size for this period was 14 eggs. The largest clutch had 23 eggs, and 29% of the nests had clutch sizes of 16-20 eggs. Sixty-three percent of the nests were successful. Egg hatchability (the percentage of eggs hatching from a clutch) was standing good at 86%.

By contrast, in 2000, the first hen to nest began incubation around May 1, nearly a month later than in 1999. We only located 37 nests between April 1 and 31 July 2000, about 1/3 as many as last year. Average clutch size (12 eggs) and egg hatchability (86%) corresponded well with last year. However, our largest clutch size was 17 eggs, and only 2 nests had clutch sizes >16 eggs. Nest success was great though (71% hatching).

This raises the question "If the same effort was devoted to finding nests both years, why does nest pro-

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Great News! Thanks to special contributors, we are able to continue our bobwhite research efforts in South Texas. Thank you for all your support and encouragement. A generous donation was received from:

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duction appear lower in 2000 despite the good conditions?" Were bobwhites able to forecast that drier conditions were coming, and therefore limit production? Are bobwhites drought-o-meters? Because we won't know how the story will end until the nesting season is complete, I will defer that discussion for Part II of this essay. In the meantime, let's discuss some interesting characteristics of bobwhite nests.

Nesting success in south Texas appears to be higher (nearly double) than what is normally reported from other regions of the US. Nesting success for the entire 1999 season was about 71% out of 135 nests. Nest success this year also is about 71%. However, in Illinois, John Roseberry and Willard Klimstra reported that of 863 nests, 34% were successful. Ralph Dimmick reported a much lower nest success in Tennessee, with 23% nest success of 256 nests. In southeastern US, Herbert Stoddard documented only

36% of 602 nests were successful. Casual observation appears to indicate that bobwhite nest success declines as one moves outward north and east from south Texas.

Nest orientation is thought to be influenced by prevailing winds and the sun's position at the hottest part of the day. Val Lehmann noted that in south Texas, 43% of 177 nests faced west. Only 8% of the nests faced east or southeast, into prevailing winds. We found that 20% of our current nests faced east or southeast. John Roseberry and Willard Klimstra also reported 38% of their nests faced northeasterly in Illinois, away from southwest prevailing winds. They even found that the nest entrances of the ground-nesting meadow lark also showed a predominantly northeasterly orientation. However, Herbert Stoddard stated nests that in his study, "were just as likely to face one point on the compass as another."

Nesting ecology is an interesting aspect of the bobwhite life history. Many questions remain unanswered that probably never will be fully answered. The fact that bobwhites occasionally throw research biologists curve balls is great. Not only does this help to remind us how little we know, but to us quail biologist this represents so much more....job security. Cosmic bobwhites? Let's play ball! (to be continued).



**Quail Quips**

In the late 1970s, Dr. Dale Rollins investigated the food habits of bobwhite and scaled (blue) quail that coexisted in southwestern Oklahoma. Rollins found there was a high degree of diet overlap between the 2 species. Foods that comprised 94% of the blue quail's diet constituted 96% of the bobwhite's diet. Rollins observed that diet appeared to be largely influenced by availability. Seeds that were common items in quail crops one year were almost nonexistent the next. He speculated competition between the 2 species would be highest during drought, when food resources became more limiting.

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On  
Point ....



...and  
Counterpoint

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### Fire ants: are we just blowing smoke?

When looking for the smoking gun responsible for the bobwhite decline, the subject of red imported fire ants (hereafter fire ants) often arises. Are fire ants responsible for the decline? Let's take a look at what some researchers have to say.

Craig Allen reported that fire ants, which are native to South America, were accidentally introduced into the US around 1930 at the port of Mobile, Alabama. By 1980, fire ants had become established well into Texas. Allen reported that a pattern existed between the bobwhite decline in Texas and fire ant infestation. After some research in the Coastal Plains of Texas, he found that bobwhite density more than doubled in areas that were controlled for fire ants. Thus it appeared that fire ants could be limiting bobwhites.

In 1991, Dr. Leonard Brennan stated that "*many people commonly consider...fire ants the primary cause of low northern bobwhite numbers...The fire ant myth ...must be eliminated through education.*" He referenced a field study conducted in Georgia where out of 1,072 nests, fire ants were implicated in the loss of only 1 nest. Further, his research discovered that bobwhite density was 1 bird/ac. in an area containing high densities of active fire ant mounds (81/ac.). This implied high quail densities could exist in the presence of high fire ant densities. In 1993, Allen

counterargued that Brennan's comments were invalid for various reasons, one being that his referenced studies were conducted prior the development of multiple-queen mounds. Single-queen mounds are territorial which somewhat limit fire ant densities. However, multiple-queen mounds are characterized by multiple fertile queens, a loss of territoriality, and a corresponding high density of up to 567 mounds/ac.

Fire ants may impact bobwhite populations either directly or indirectly. Direct impacts may include lower chick survival due to fire ant stings. Studies indicate that fire ant stings can decrease foraging time, movements, and vision of chicks, making them vulnerable to predators. Indirect effects may result from lower insect abundance in areas occupied by fire ants. Research has documented lower insect abundance and diversity in areas with fire ants. Chicks require a high protein diet (insects) during their early life.

In 1997-98, Dr. James Mueller investigated the impacts that fire ants have on chick survival. Mueller reported that chick survival from

nest areas treated with insecticide was more than twice that of chicks from untreated nests (66% vs. 22%). However, Brennan argues that "*if fire ants are antagonistic to quail, then they should attack other ground-nesting birds. Why has it been possible to restore, sustain and increase wild turkeys in areas heavily infested with fire ants? Why have bobwhites declined in many areas where fire ants do not exist?*" Brennan believes land-use changes at the landscape level are responsible for the bobwhite decline. He states, "*rather than look for a panacea, we need to identify ways that good quail management can be integrated with contemporary land uses....If proven bobwhite management techniques....result in sustained densities of 1-2 bobwhites/ha, then it is likely that the fire ant issue is a red herring rather than a real problem.*" But guess what? Unfortunately, research now appears to indicate that fire ant densities may increase following bobwhite management or soil disturbances, such as discing or burning. Ding-ding-ding-ding. Round 2.



### Selected References

- Brennan, L.A. 1991. How can we reverse the bobwhite decline. Wildlife Society Bulletin 19:544-555.
- Allen, C. R., S. Demarais, and R. S. Lutz. 1995. Red imported fire ants impacts on northern bobwhite populations. Ecological Applications 5:632-638.
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**Quail Queries:**  
*New Ideas for Quail  
Research*

**Usable Space for Bobwhites**

Bobwhite management has undergone several facelifts through the years. Practices that once were considered effective now are shunned. Bobwhite management is currently “under-the-knife” once more. Dr. Fred S. Guthery from Oklahoma State University states that the usable space hypothesis should be the basis for quail management. He reports that bobwhite abundance is dependent on the amount of usable space in an area. That is, the more spaces that are usable by bobwhites, the more bobwhites that will be present. The goal of management then should be to increase the amount of usable for bobwhites. What exactly is usable space? To be considered usable, a space must be associated with habitat that is compatible with the physical, behavioral, and physiological adaptations of bobwhites. In other words, space has to meet the needs or conditions for which bobwhites are adapted.

The concept of usable space is not new. Disguised under differ-

ent wording, this concept has been around at least since the 1930s. So why has this concept raised so many eye brows? Although the usable space concept is not new, its implications go against gut instinct. The theory implies that if an area is saturated with usable space through time, then bobwhite abundance only will increase by adding more usable space, not by improving the quality of the habitat. There may be no point in doing habitat management if an area is saturated with usable space.

So should managers direct their resources towards managing marginal habitat or good habitat? Where will management result in greater bobwhite densities? Which area will be more cost-effective to manage? We are currently pursuing the possibility



*Photo by Fernando Holschneider*

of a study that will answer these questions. The basic premise would be to increase usable space through management (discing, half-cuts, proper grazing, etc.) on marginal and good habitat. We then would monitor bobwhite reproduction, survival, and density on these areas. We gladly welcome your thoughts, comments, ideas, and support. Until next time.

*Fidel Hernández*

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