

# QUAIL NEWS

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The newsletter of game bird research and management from the Bollenbach Chair in Wildlife Ecology, Oklahoma State University.

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## ESTIMATING BOBWHITE DENSITY WITH POINTING DOGS

It might be possible to estimate bobwhite density with modern technology, the magic of calculus and a pointing dog.

Grant Mecozzi and I tested the concept during the 2005–2006 and 2006–2007 hunting seasons in north Texas and northwest Oklahoma. We put GPS units on dog collars to record their location every 7 seconds as they hunted. We also measured the distance from where a dog went on point to the center of a covey flush.

The PFD, or point-to-flush distance, is a key variable. The nature of these distances allows us to estimate the effective width of a dog's search zone.

There is some fairly highfalutin mathematics involved in obtaining the estimate once the data have been collected.

The dogs in our sample (mostly English pointers) had an effective search zone 29 yards wide for full coveys (7 or more birds). The effective search zone for singles was 9 yards wide. This implies dogs are about 3 times more effective at finding coveys than at finding singles.

The next step was to transfer the GPS locations into Geographic Information System (GIS) software for further analysis. In GIS, we buffered a dog's track log with half the width of the effective search zone. This means we added that distance to each side of a dog's track; the total search zone width was still 29 yards. We then used GIS software to estimate the area of a buffered dog track. Estimated bobwhite

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density on a particular hunt was simply the number of original birds flushed (no recounts) divided by the area of the buffered track.

Hunts with 2 or more dogs on the ground complicated estimation of the effectively searched area. In this case, the area searched by 1 dog is to some extent redundant of the area searched by other(s). To get valid estimates of density, it is necessary to remove between- or among-dog redundancies in the searched area. The GIS software we used made it easy to eliminate redundancy.

Estimates during the 2006–2007 season indicated that the search area of 2 dogs hunting at the same time averaged 37.4% redundant. This implies 2 dogs were functionally equivalent to 1.7 dogs. On 1 hunt, 2 dogs were functionally equivalent to 1.4 dogs.

For 3 or more dogs, redundancy averaged 77.3%. This implies 3 dogs were functionally equivalent to 2.2 dogs, on average. The effectiveness of adding dogs to a team appears to follow a law of diminishing returns in terms of the total area searched for bobwhites.

We also obtained estimates of a dog's exploration rate. This is the rate that it searches new space. During 2005–2006, the exploration rate averaged 42 square yards/second. The average for 2006–2007 was 56 square yards/second. The

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difference between seasons occurred because bobwhite abundance declined by about 85% between years. In the second year, dogs spent more time ranging and less time investigating, pointing, and searching for downed birds. Thus, they ate up the countryside at a higher rate.

There is twisted irony here: bobwhites per se reduce the search efficiency of bird dogs.

Dogs traveled at an average velocity of 5.4 mph but there was great variation among individuals. The more coveys pointed, the slower the velocity, for the obvious reason that dogs on point aren't moving.

Walking hunters traveled at 1.8 mph, on average.

This new method of estimating bobwhite density would be somewhat difficult for a landowner or hunter to apply without help from a university specialist or some other specialist. Application of the method entails use of mathematical theory and GIS software. However, the method might prove useful in research applications and that, in turn, could lead to more sophisticated bobwhite management.

## BEHAVIOR OF BOBWHITE HUNTERS AND DOGS

Grant E. Mecozzi, Department of Natural Resource Ecology and Management, OSU, recently completed his thesis on the behavior of walking bobwhite

hunters and their pointing dogs. He observed hunts primarily in northwestern Oklahoma and north Texas; he attached GPS units to hunters and dogs. Here are some tidbits from his study.

- The average hunter traveled 1.7 miles on a hunt (park, make circle, return to vehicle). The longest hunt was 2.3 miles. The average dog, in comparison, traveled 5.3 miles. The record for a dog was 18 miles.
- The average hunt lasted 82 minutes in 2005–2006 (many quail) and 50 minutes in 2006–2007 (few quail).
- The average distance between hunting dogs was 77 yards.
- The average distance from dog to hunter was 60 yards.
- Shooting success averaged 58 birds downed/100 shots fired in 2005–2006 and 41/100 shots fired in 2006–2007.
- Hunters spent 61% of their time walking in 2005–2006 versus 75% in 2006–2007. Hunters spent 26% of their time in covey-associated activities (approaching point, searching for downed birds, hunting for singles) the first year versus 1.5% the second year.
- Dogs spent 51% of their time hunting (ranging) in 2005–2006 versus 82% in 2006–2007. Dogs spent 20% of their time in covey-associated activities (searching for downed birds, honoring point, pointing, searching for singles) the first year versus 5% the second year.

[Editor's note: After defending his thesis, Grant got called up to defend his country. He deploys to the Sandbox in November or December. If I were in Iraq, young man, I would ask to be in your platoon.]

## COUNTING BOBWHITES WITH HELICOPTERS TESTED IN SOUTH TEXAS

Methods of estimating bobwhite abundance often are expensive, time-consuming and limited to small areas. Recent research by biologists with the Caesar Kleberg Institute, Texas A&M University-Kingsville, indicates helicopter counts might be useful for censusing large areas at reasonable costs.

Joshua P. Rusk and associates tested counting methods on the King Ranch, Brooks County, Texas, during 2001–2005. They compared density estimates from walking transects with those obtained from helicopter transects.

During a walking transect, biologists walk straight lines. When they flush a covey, they record the number of birds and the right-angle distance from the transect line to where the covey flushed. The distance measurements provide a means of estimating the effective width of survey coverage (in the same manner as the first article in this edition). Helicopter transects were conducted in a similar manner.

Visit the Bollenbach Chair website at <http://bollenbachchair.okstate.edu/>. The site contains information on the biology and management of bobwhites, coming events, back issues of *Quail News*, and other topics.

“Helicopter transects appear to be a viable alternative to walked transects for estimating density of bobwhites, especially when densities are low and walked transects are impractical,” the scientists reported. “Because helicopters are already being used extensively for white-tailed deer surveys in southern Texas, information necessary to estimate bobwhite density could be recorded for little additional expense.”

For further information, contact Fidel Hernández at Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX 78363. Ask for a reprint of *An Evaluation of Survey Methods for Estimating Northern Bobwhite Abundance in Southern Texas*.

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***Editorial: Why quail management fails***

In early August 2007 I was slated to lecture at Dale Rollins Quailmasters course in Roby, Texas. Shortly before that event, the devil grabbed my lower right lumbar region with his steely claws, forced me to my hands and knees, and spit wasp venom in the puncture wounds. I had to cancel the engagement.

(Doc Deborah shot me with 3 cc of cortisone in the right sacroiliac joint and that did the trick. One of the nice things about growing old is that you start to get even with the health insurance companies.)

Anyway, Dale had asked me to speak on the subject of this editorial: why quail management fails. I told him it would be a short lecture. He reminded me that I had written an essay of the same title back when I did a column for *Quail Unlimited* magazine. I managed to jot down a few thoughts on the topic before the back attack.

I changed the title to “Why Quail Management Does Not Always Seem to Succeed Most of the Time.” That’s admittedly wishy-washy, but it well reflects that fact that I didn’t know where I was going with the topic.

Defining failure entails a definition of success. To me, management is successful if 1) you end up with more bobwhites after executing management practices or 2) you sustain good populations through all the insults (droughts, freezes, heat waves) that nature offers up.

Speaking of those insults...I might be more pessimistic than a bobwhite watching Dale Rollins approach a point, but I doubt we will ever be able to manage against weather insults. The best we can do is keep the low populations higher to bring them back faster after a collapse.

Sometimes we manage under premises that, if not false, have a low

degree of association with truth. The Principle of Edge and the so-called Edge Effect leap to mind. The Principle of Edge has a grain of truth that plays out most vaguely on the back forty. The Edge Effect might be a pipedream. We can't expect management based on false premises to bear fruit.

Sometimes we manage where no management is needed. We can't expect a positive response from bobwhites in this case. Examples? Consider a pasture with good dispersion of woody and herbaceous cover relative to bobwhite mobility. We can add feeders, food plots, water, disced strips, half-cutting and all the other practices you can think of and the added management probably won't affect bobwhite abundance.

Sometimes we mix up human values and quail values in our management. Or, maybe I should say we manage for human values rather than quail values.

The word catechism comes to mind. This is a fundamental body of principles or beliefs, especially when accepted uncritically.

We have created a quail catechism, I guess. It is loaded with buzz words such as "diversity" and buzz phrases such as "brush sculpting." If the catechism has not become a human value, it is a sibling thereof.

The quail value set—the one Mother Nature imposed through countless generations of begetting, living and dieing—is much broader

than the human value set. The quail value set holds from Canada to Guatemala, and from Colorado to Virginia.

When we impose the quail catechism on the broad value set of quail themselves, we might reasonably expect no response from a quail population in many situations. This means we could control brush with different implements in different patterns, we could graze with different stocking rates and grazing systems, and nothing happens to a quail population. We have satisfied our values, which are but a slender subset of theirs.

**Fred S. Guthery**  
**Bollenbach Chair in Wildlife Ecology**



## **NATIVE FIRE ANTS DEPREDATE BOBWHITE NESTS IN SOUTH TEXAS**

The red imported fire ant has long been accused of villainous behavior towards nesting bobwhites, but heretofore native fire ants have been seen as benign. Recent research in South Texas documented nest loss to the native southern fire ant.

Michael J. Rader and colleagues set out infrared video monitoring systems at 127 bobwhite nests during the laying seasons

of 2002–2005. The study took place in Brooks County.

Four species were responsible for 83% of nest losses: coyote (32%), striped skunk (24%), southern fire ant (15%) and badger (12%). (The percentages represent percent of losses, *not* percent of nests.) Raccoons, rodents, bobcats, and snakes also destroyed nests.

“Fire ant mounds rose from the ground directly beneath the nests and immersed the nest bowl and eggs in a pile of dirt particles, displacing the hen,” said Leonard A. Brennan, a member of the research team.

Fifty percent of nests hatched successfully. This is a relatively high success rate because the expected rate for bobwhites is 30%.

“Our results and those of other researchers indicate that bobwhite nest-predator communities differ regionally,” the scientists reported.

“A universal approach to mitigating nest predation is not likely to be applicable in regions similar to southern Texas, with high nest-predator diversity.”

For further information contact Leonard A. Brennan, Caesar Kleberg Wildlife Research Institute, Texas A&M University-Kingsville, Kingsville, TX 78363. Ask for a reprint of *Identifying Predators and Nest Fates of Bobwhites in Southern Texas*.

## BOLLENBACH WILDLIFE SYMPOSIUM SLATED FOR WOODWARD

Mark your calendars for 18–19 October 2007 to attend the Bollenbach Wildlife Symposium in Woodward, OK.

The first day will include field tours of the Selman Ranch and the Cooper Wildlife Management Area. Topics addressed on the Selman Ranch include the management of sand plum (an important plant for bobwhites), plant identification, pond management, and lesser prairie-chicken management. Cooper topics include patch burning and quail management.

The morning of 19 October is devoted to wildlife management. The keynote speaker is Deborah Clark of the Birdwell-Clark Ranch near Wichita Falls, TX. She will address simultaneous management for livestock and wildlife. Other topics include management of wild turkey, white-tailed deer, bobwhites, salt cedar, grazing, and food plots.

A social and silent auction will be held at the Northwest Inn on the evening of 18 October. Lodging at the Northwest Inn (800/727-7606) is \$60/night plus tax.

Registration is \$50 before 15 September and \$75 thereafter.

Visit <http://nrem.okstate.edu/Extension/> to download a registration form. Contact Dwayne Elmore, State Wildlife Extension Specialist, for further

information (405/744-9636, [dwayne.elmore@okstate.edu](mailto:dwayne.elmore@okstate.edu)).

## BITS AND PIECES.....

- Radiotelemetry has been a mixed blessing for quail researchers. The technology allows researchers to study survival, mobility, and habitat use by bobwhites, but the transmitters, attached like necklaces, seem to handicap the birds (“radio-handicapping”). Recent research in the Southeast indicates bobwhites with radios survive at the same rate as bobwhites with leg bands only. This is evidence that radios do not handicap bobwhites in this U.S. region. In other regions, however, there is good evidence that the radios debilitate quail.
- “Time is running out and we can no longer depend upon chance to provide all the right conditions for quail. The alternate route is at the choosing of the land manager. He can conserve the remaining quail habitat, improve it, and even extend it if he wishes. This does not need to conflict with good land management, nor prove unduly expensive. On the contrary, most of the practices which result in good quail habitat fit into the framework of good soil and water conservation, thus cutting the cost of quail management as such.”—A. S. Jackson, *Quail Management Handbook for west Texas Rolling Plains* (Texas Parks and Wildlife Department, 1969).
- The Department of Natural Resource Ecology and Management publishes a quarterly, electronic newsletter with information on the ecology and management of fish, forests,

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- Texas A&M University Press will publish *A Primer on Natural Resource Science* by Fred S. Guthery in 2008.
- *On Bobwhites* by Fred S. Guthery (Texas A&M University Press, 2000) is available from the Department of Natural Resource Ecology and Management, 008C Ag Hall, Stillwater, OK 74078 for \$20, including shipping and handling. The book is in its second printing and available only in paperback.
- *Bobwhites on Oklahoma Farms and Ranches: Management Options for Landowners* by Fred S. Guthery, Ronald E. Masters, and Michael D. Porter is available free from the Department of Natural Resource Ecology and Management.

Support quail research. Send a tax-deductible contribution made payable to “OSU Foundation/Game Bird Research Fund” in care of Fred S. Guthery, Department of Natural Resource Ecology and Management, 008C Ag Hall, Oklahoma State University, Stillwater, OK 74078. Contributors receive *Quail News* and *Quail Flash*.