

The Bobwhite Post



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Dr. Leonard A. Brennan Selected for Endowed Quail Chair at CKWRI

Dr. Leonard “Lenny” Brennan has been selected to fill the Endowed Chair in Quail Research at the Caesar Kleberg Wildlife Research Institute. Lenny is coming from the Tall Timbers Research Station in Tallahassee, Florida, where he served as the Director of Research from 1993-2001.

Lenny obtained his B.S. in Environmental Studies in 1981 from the Evergreen State College, Olympia Washington. In 1984, he earned his M.S. in Natural Resource Management from Humboldt State University. For his thesis research, Lenny investigated the summer habitat ecology of mountain quail. In 1989, Lenny obtained his Ph.D.

in Wildlife Ecology from the University of California-Berkley. His dissertation research focused on the comparative use of forest resources by chestnut-backed and mountain chickadees in western Nevada.

From 1990-1993, Lenny was a research scientist in the Department of Wildlife and Fisheries Sciences at Mississippi State University. While at Mississippi State, Lenny developed a research program focused on determining the factors responsible for the bobwhite decline observed in Mississippi. In 1992, Lenny chaired the Strategic Planning Committee for North American Quail Management Plan. He was the co-editor for the Proceedings of the Fourth National Quail Symposium in 1997. In 2000, he wrote the species account of northern bobwhite for the Birds of North America series. Currently, Lenny serves as Editor-in-Chief of the Journal of Wildlife Management, 2000-2002.

Lenny will join the Institute’s research team in August 2001 as the Endowed Chair in Quail Research. Together, Lenny and I will develop the quail research program for the Institute.

On behalf of the Institute, this readership, and South Texas bobwhites, welcome aboard Lenny!!!

Radio-marked Bobwhites... “Bummer of a birthmark, Hal”

Several years ago, the great newspaper cartoonist, Gary Larson, decided to fold up his drawing board, give his readers one final laugh, and call it quits. Larson was the brains behind the ingenious cartoon, *The Far Side*, which often used animals to capture the humor behind human trivialities. While pondering the content of this article (survival estimates of radio-marked bobwhites), I was reminded of a *Far Side Cartoon* that I read a while back....



Photo by Fidel Hernandez

Radiotelemetry is a convenient tool for monitoring bobwhite survival. However, the accuracy of the data is unknown. Radio transmitters may inflate the natural mortality rate of bobwhites.

Two deer (walking upright, of course), happened to cross paths in a wooded forest. One deer was sad and depressed, as indicated by his drooped shoulders and stooped head. He was noticing sadly the birthmark on his chest--a gigantic bulls-eye target. The other deer, upon noticing the unfortunate marking, remarked with a sigh of relief "Bummer of a birthmark, Hal"...

When analyzing survival data for radio-marked bobwhites, I sometimes wonder if the radiotransmitter represents a "bummer of a birthmark" for quail. Several radiotelemetry studies have reported low survival rates for bobwhites. For example, in a Missouri study, Dr. Wes Burger reported that spring-fall survival (1 April - 30 September) was 33%, whereas fall-spring survival was 16%. Dr. Burger estimated an annual survival rate of 5%.

Is this low survival rate sufficient to sustain a bobwhite population? Does radio-marking inflate the natural mortality of bobwhites?

In 1997, Dr. Fred Guthery developed mathematical equations that illustrated the theoretical relationship between the annual survival of bobwhites and the net production (juveniles/adult) that was required to sustain a population. For a population to be stable, the mortality of adults had to be matched by the increment of juveniles. His analyses indicated that bobwhites in southern latitudes sustained about 70% annual mortality with a net production of 2.3 juveniles/adult, whereas bobwhites in northern latitudes sustained about 80% mortality with ≥ 4 juveniles/adult. In other words, "Dixie" bobwhites were better survivors but poorer producers relative to "Yankee" bobwhites.

Dr. Guthery's equations allowed researchers to evaluate radiotelemetry survival estimates from a

different perspective. Researchers now could estimate the net production required to sustain a population given a survival estimate. For example, if radiotelemetry indicated an annual survival rate of 30%, this would require a net production of 2.3 juveniles/adult to produce a stable population.

I calculated the spring-fall, fall-spring, and annual survival of our radio-marked bobwhites for the year 2000. I designated the spring-fall period (15 March -15 October) based on the nesting ecology of our radio-marked bobwhites. Fall-spring (16 October- 14 March) comprised the remaining months required to complete 1 year. During spring-fall, bobwhites experienced 21% survival (based on 172 bobwhites), whereas fall-spring survival was 26% (based on 118 bobwhites). The annual survival of bobwhites was about 5%.

These survival estimates correspond reasonably well with Dr. Burger's study. However, how well do they relate to Guthery's mathematical predictions? An annual survival rate of 5% would require a net production of about 19 juveniles/adult to sustain the population. A quick way to evaluate these results would be to compare them to the age ratios obtained from our study area. Age ratios based on harvest data indicated a net production of only 11.3 juveniles/adult (Table 1).

To add insult to injury, age ratios based on harvest data may be biased towards juveniles. Several studies have shown that juveniles are more susceptible to harvest than adults, resulting in an over-representation of juveniles in the bag. The research of Drs. Roseberry and Klimstra (deceased) from Illinois suggested that juveniles were about 24% more vulnerable to harvest than adults over the entire season.

Table 1. Estimates of annual survival for a stable bobwhite population based on age ratios (harvest data) from the South Texas Quail Research Project study area

Year	Juvenile/Adult		Survival
	Harvest	Trapping	
1995	17.7	---	5%
1996	12.9	---	7%
1997	9.4	---	10%
1998	6.2	---	14%
1999	11.9	3.1	8%
2000	9.9	3.3	9%
Avg	11.3	3.2	8%.

The age ratios based on our trapping records of bobwhites appear to reflect this bias. The age ratio was lower (3.3 juveniles/adult) for the hunting season (November-February) based on trapping data compared to the harvest data (Table 1).

Our radiotelemetry data estimated a 5% annual survival of bobwhites, requiring a net production of 19 juveniles/adult. Harvest data indicated a 9% annual survival, requiring a net production of 9.9 juveniles/adult. Our trapping data estimated a 24% annual survival, requiring a net production of 3.3 juveniles/adult. Assuming our trapping data reflects accurately the age structure of the population, the annual survival estimate of 24% inferred from our trapping data matches closely with Dr. Guthery's estimate of 30% for Dixie bobwhites.

Does telemetry provide accurate survival estimates? The net production of 19 juveniles/adult required to sustain a population with 5% annual survival certainly raises concerns. Are predators attracted to the radio transmitter? Do transmitters affect the flight behavior of bobwhites? Bummer of a birthmark, Hal? It very well could be.



On Point



... and Counterpoint

The Myth of The Hygienic Bobwhite

The need for surface water by bobwhites has been a source of controversy in bobwhite management. During the 1930s, Herbert Stoddard stated that bobwhites did not need surface water for drinking purposes. In southeastern US, bobwhites apparently obtained sufficient moisture from preformed water and dew. However, this belief was viewed with skepticism in more arid regions, such as South Texas.

In 1951, Val Lehmann reportedly observed 468 bobwhites drinking water from an earthen reservoir in 2 hours during a drought. Dr. Fred Guthery subsequently questioned this observation, stating Lehmann's observation "must be an extremely rare occurrence." Assuming an average covey size of 10 bobwhites, Lehmann was observing a covey at the reservoir every 2.5 minutes during the 2-hour period.

In light of this, Dr. Guthery and his students conducted various studies in South Texas on the topic of water and bobwhites. In one study, they observed the drinking behavior of bobwhites at 2 sites in South Texas. No bobwhites were observed at 1 site receiving about 21 inches of rain. At the second site (9 inches of rain), they observed 27 quail visits during 142 hours of observation from 4 May to 2 October 1984–1985. They concluded that when preformed water was limited, bobwhites in the warmer portions of Texas apparently drank surface wa-

ter to supplement the water they acquired from food (preformed water) and metabolism (metabolic water).

Research in South Texas also field tested the response of bobwhites (percent gain from spring to fall densities) to waterers. The particular study was conducted on 2 sites (1 control and 1 watered site) from 1986 to 1989. The general weather conditions during the study was an extremely wet year (1986–1987) by regional standards followed by dry conditions thereafter. Percent summer gain did not differ between the control (-34%) and watered site (-53%) during droughty years. Thus, the research indicated that providing waterers to bobwhites was not a beneficial or effective management practice.

The belief that surface water was important to bobwhites extended beyond drinking. In 1953, Lehmann speculated that during drought, incubating hens bathed in surface water to increase nest humidity. His belief originated after observing 3 nests successfully hatch all eggs during a severe drought (not defined). These nests happened to be located <870 yards from surface water. After this incident, Lehmann

wrote, "...we realized the possible significance of surface water in promoting yield. These particular females...daily flew to a nearby water hole and bathed for periods of seven to ten minutes prior to afternoon feeding; moisture important to hatching was almost certainly carried back to nests on their plumage." This is solely speculation; Lehmann did not document this occurrence visually or provide empirical evidence.

Desert sandgrouse (pigeon-like shorebirds in Africa), are capable of transporting water from waterholes back to nestlings, which can be up to 19 miles away. At the waterhole, sandgrouse soak their belly feathers, which are modified to hold water during flight. Upon return to the nest, sandgrouse assume an upright position, attracting the chicks to the parent. The chicks then obtain water by squeezing the wet feathers in their bill.

Although desert sandgrouse have modified feathers for water transport, these modifications have not been documented for bobwhites. Thus, the myth of the hygienic bobwhite is more than likely backwash.



Selected References

Cade, T. J., and G. L. Maclean. 1967. Transport of water by adult sandgrouse to their young. *Condor* 69:323-343.

Guthery, F. S. 1999. The role of free water in bobwhite management. *Wildlife Society Bulletin* 27:538-542.

Covey Calls

Upcoming symposiums, banquets, and meetings for Quail Enthusiasts

The Fifth National Quail Symposium (Corpus Christi, TX)

Every few years, the scientific community hosts a national quail symposium highlighting recent research on the various quail species. This symposium is a forum where quail biologists from across the US gather to discuss quail biology and management. It also serves as a networking medium for state natural resource agencies, quail professionals, landowners, managers, and other quail enthusiasts.

The Fifth National Quail Symposium will be held in Corpus Christi, Texas on 23-27 of January 2002. The program committee is chaired by Mr. Steve DeMaso, Upland Game Bird Program Leader for Texas Parks and Wildlife Department. The program will include a welcoming reception, technical sessions, King Ranch tour, and banquet. For more information on the pro-

gram, contact Steve DeMaso at (512) 389-4975 or via e-mail at: steve.demaso@tpwd.state.tx.us

The local arrangements committee is chaired by Dr. Bill Kuvlesky, Research Scientist with the Caesar Kleberg Wildlife Research Institute. For more information on registration or local arrangements, please contact Bill (361) 593-3922 or via e-mail at: william.kuvlesky@tamuk.edu

We look forward to your participation!

South Texas Chapter of Quail Unlimited Banquet (Kingsville, TX)

The South Texas Chapter of Quail Unlimited will host its Annual Banquet in Kingsville, Texas on 18 August 2001. The Banquet will take

place at the JK Northway Coliseum. Doors open at 5:30 pm. For more information, contact Chapter Chairman, Mr. Steve Kopp, at (361) 394-6031 or Ronnie Howard or Barbara Perkins at (361) 568-3536.

Greater Houston Chapter of Quail Unlimited Fall Meeting (Corpus Christi, TX)

The Greater Houston Chapter of Quail Unlimited will hold its Fall meeting on 9 October 2001 at the Houston Country Club. The meeting will include a presentation by Mr. Robert Perez, State Quail Biologist, Texas Parks and Wildlife Department. For more information, contact Mr. Larry McWherter, Chapter Chairman, at (713) 840-6555.

Until next time--

Fidel Hernandez

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