

# 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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## GRASS BEATS PRICKLY PEAR AS BOBWHITE NEST COVER

More than 65 years ago, Paul L. Errington, one of the pioneers of wildlife management, suggested that management of habitat was one of the best ways to manage predation. Results of recent studies on rangeland in west-central Texas support his suggestion.

A team of researchers from Angelo State University and the Texas Agricultural Extension Service, San Angelo, set out to determine success rates for simulated nests placed either in prickly pear or perennial grasses. The simulated nests consisted of 3 medium-sized chicken eggs set in small soil depressions lined with dry grass. The availability of nesting cover was estimated by counting potential nest clumps more than 8 inches tall and 12 inches in diameter (grass) or more than 8 inches tall and 40 inches in diameter (prickly pear). The

simulated nests were monitored weekly for 28 days to determine success rates.

The researchers found evidence that nests survived slightly longer in prickly pear than in perennial grass at some times and areas. In other cases, nests in prickly pear and grass had similar success rates.

The probability of nest success declined weakly as potential prickly pear nest sites increased in density. This means that more prickly pear for nest sites would not be

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expected to foster nest success on a particular ranch.

On the other hand, the probability of success increased with the density of perennial grass nesting clumps. For example, at about 200 potential grass nests per acre, success was about 5%; at about 1,300 clumps per acre, success approached 80%.

This large variation in nest success—5–80%—occurred in the absence of nest predator control. The variation was associated with the availability of grass nesting cover: more grass nesting cover, greater nesting success. A success rate of 80% is remarkable because the average nest success rate for bobwhites is about 30%.

“For the land manager seeking to sustain or increase quail nesting success, an effort must be made to increase quality and quantity of nesting cover,” the researchers reported. They believed prickly pear is useful under overgrazing because it protects grasses and provides nesting cover where none might otherwise exist. Their results demonstrate that nest success increases most readily with the availability of perennial grass nesting cover. This finding is in accord with Paul L. Errington’s long-ago conjecture.

The availability of such cover is dependent on grazing intensity. If there are too many cattle in a pasture, they

will devour nesting cover, which leads to low nesting success.

For further information, contact Dale Rollins, Texas Agricultural Extension Service, 7887 N. Highway 87, San Angelo, TX 76901 (d-rollins@tamu.edu). Ask for a reprint of *Opuntia: a “prickly paradigm” for quail management in west-central Texas*.

## ELIMINATING TALL FESCUE FOR BOBWHITES

“Fields dominated by tall fescue are common throughout the southeastern United States and are poor habitat for northern bobwhites,” report L. Andrew Madison and associates, University of Kentucky.

These researchers examined the effectiveness of fire, disking and Round-Up™ to renovate tall fescue fields as bobwhite habitat. Some of their findings:

- Spring herbicide application most effectively reduced the coverage of tall fescue.
- Fall, spring, and summer disking reduced fescue coverage for 1 year, after which it returned to pretreatment levels.
- Fall, spring and summer burning had no effect on tall fescue coverage.
- Both fall disking and herbicide treatment improved winter feeding habitat in tall fescue fields (*see page 4*).

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## *Editorial: the puckishness of predators*

→ The helmeted guineafowl is the wild version of the domesticated guineafowl (spotted chicken) that occurs on farms in some portions of America. The wild guineafowl is an ancient gamebird, considered to be the most common and widespread gamebird in Africa. All is not well, though, in its haunts.

Local extinctions have occurred in parts of Africa. In other words, the bird has disappeared from specific, local areas.

Predators, among other malefactors, get blamed for these losses, but the ultimate cause is degradation of habitat through development of extensive livestock and especially crop farming. At any rate, this is the considered opinion of Rob Little, Tim Crowe and Simon Barlow, who wrote and illustrated *Gamebirds of Southern Africa* (Struik Publishers, Cape Town, 2000). (This beautifully illustrated book certainly would distinguish coffee tables in homes and hunting lodges on this side of the equator.)

→ Sound familiar? In America, predators get blamed for The Quail Decline as living space for bobwhites puckers like a pumpkin and shrinks like a pair of Levis. The shriveling of our hinterlands leads to local extinction, which may become widespread, which leads to the extirpation of whole populations.

→ But haven't gamebird managers in the United Kingdom had good success by eliminating nest "predators" from management areas? Yes. And they've supported their case with research of high quality.

The main "predators" of grey partridge nests on the cereal lands of England are fish crows and rats. Accordingly, managers there don't call what they do "predator" control any more because a rat is certainly a fuzzy form of predator. They call it "predation" control. The British man-of-war model does not cross the Atlantic with mast and sails intact.

→ Although research results from North America are limited, the results indicate that predator suppression (real mammalian predators, not rats) has at most a minor effect, if any effect at all, on the **number of bobwhites available at the start of hunting season**. This number is **the** bottom line in quail management. There is a tortuous web of reasons why this outcome prevails. Perhaps it's simplest to say that nature has fitted bobwhites with an obsessive-compulsive urge to beget and, given good nesting cover and good weather, most of them will succeed at least once in a given breeding season. With or without predators.

→ It probably doesn't matter whether we worry about predators or habitat loss when we worry about population declines of guineafowl and bobwhites. Worry is a sterile emotion that doesn't alter the course of nature.

On the other hand, when we set out to do something about The Quail Decline, we'd ought to have our minds on osage orange, not opossums; sand plum, not skunks; and ragweed, not raccoons. We'd ought to understand that solutions lie in the quantity and permanence of cover, not the puckishness of predators.



Fred S. Guthery  
Bollenbach Chair in Wildlife Ecology

For further information, contact Madison at Department of Forestry, T. P. Cooper Building, University of Kentucky, Lexington, KY 40546 (madison@mail.way.peachnet.edu). Ask for a reprint of *Effectiveness of fire, disking, and herbicide to renovate tall fescue fields to northern bobwhite habitat.*

## QUAIL PRODUCTION IN SEMIARID LANDS: THERE'S MORE TO IT THAN RAIN

Collaborative research between the Texas Parks and Wildlife Department and Department of Forestry, Oklahoma State University, indicates those who bet on high bobwhite populations in rainy years should be prepared to hedge their bets. Rainfall and temperature interact in a complex manner as mediators of quail production in semiarid environments.

The researchers analyzed production of bobwhites in South Texas as indexed by juvenile:adult ratios in the hunting bag. Higher ratios (more juveniles) tend to indicate better production in a particular breeding season. The records for production started in 1940 and continued through 1997 with data from some years missing. The data were analyzed with artificial neural network models. Some of the findings:

- Production was least sensitive to autumn precipitation in the year before a breeding season and

most sensitive to spring precipitation in the immediate breeding season. Thus, the key period of rainfall is the months of March, April and May.

- After seasonal precipitation reached certain levels, production was insensitive to additional precipitation. Thus, the notion that more rains results in more quail no longer holds after total rainfall reaches a certain level.
- Production tended to increase with the mean of daily temperature maxima in June.
- Production was insensitive to the mean of daily temperature maxima in July up to a threshold value of 96.8 F. When temperatures exceed this threshold, production collapsed.
- Production was insensitive to the mean of daily temperature maxima in August, possibly because the breeding season generally is over by this time, especially in the western Rio Grande Plains.
- Low temperatures in July can reverse the negative effects of drought on production, and high temperatures in July can reverse the positive effects of rainfall.

The research results from South Texas were generally similar to results on Gambel's quail production from Arizona. Gambel's quail also respond best to rainfall during early portions of the breeding season. Also, higher temperatures can reverse the positive effects of rainfall, and lower temperatures can reverse the negative effects of drought. Gambel's quail in desert environments breed earlier than bobwhites in the southern Midwest,

probably in response to the searing summer temperatures in the desert.

Results of the research summarized above will be presented at the **Fifth National Quail Symposium** to be held in Corpus Christi, TX, during 23–27 January 2002. Contact the Caesar Kleberg Institute, Texas A&M University-Kingsville, for information on the conference.

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*Quail Questions.....*

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*I have some rancher friends who I believe would participate with me on a project if you would outline to me exactly what we should be doing. These ranches would be 3–4–5,000 acres so they have room to do anything they would like. If you would send me an outline of how usable space is set up and maintained on a ranch, I would appreciate it very much. —J. M. Haggar, Jr., Addison, TX.*

Usable space is simply the amount of permanent cover (woody and herbaceous) on an area that provides suitable habitat for bobwhites. In the history of research (so far), the best way to create more quail on an area is to create more usable space. The altering of space (area) that is already usable does not seem to help. The metaphor I use is this: It is better to build new houses for bobwhites than to remodel the ones they occupy.

Another way to look at the issue: manage habitat such that coveys can use

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each and every square foot of a ranch each and every day of the year.

In a ranch setting, space may become unusable if there is too much brush, too little brush, too much ground cover, or too little ground cover. Within the “too extremes” I have just listed, there is a good deal of flexibility.

Woody cover probably is the key issue. A good guideline to follow is the J. Grant Huggins 50:50 Rule: “A bobwhite should never be more than 50 yards from a clump of brush 50 feet in diameter.”

If a ranch is saturated with usable space, then there is not much one can do from a habitat management standpoint. The quail population will go up and down with the weather but it will be as high as possible given weather variation.

I’ve enclosed a (somewhat boring) reprint of the paper in which I formalized the usable space concept. The concept itself has been around for 70 years or so. See also Chapter 27 in *On Bobwhites*.

[Write Fred S. Guthery, Department of Forestry, 008C Ag Hall, Oklahoma State University, Stillwater, OK 74078 for a reprint of *A philosophy of habitat management for northern bobwhites*, the paper that formalized the usable-space concept. *On Bobwhites* (Texas A&M University Press, 2000) is available from

the Department of Forestry for \$25.00, including shipping and handling.]

*We observe a covey of quail that sometimes crosses our back yard (we live on the edge of a small town—Medicine Lodge, KS—and they are a delight to watch). My question is: why do quail ... walk with bobbing heads?—*

**Mrs. Alan Probst**

Head-bobbing in walking birds is a method of “paralactic localization.” Prey birds don’t have binocular vision; rather, they see to the left and right. This is a general trait of prey animals, whereas predatory animals (dogs, cats, owls, people) have binocular vision. The vision in prey-type birds is good for scanning a large area for potential predators, but coincident with this type of vision is a loss of the ability to locate (fix in space) potential threats. Head-bobbing gives different angles from an eye and, therefore, provides at least the opportunity for localization using the same “methods” as animals with binocular vision. [Tip o’ the hat to **Dr. Terry Maxwell**, Angelo State University, San Angelo, TX, for the information on paralactic localization.]

## BITS AND PIECES.....

- The sandgrouse of Africa are the mothers of all belly-dippers. These gamebirds are not grouse. For a time, biologists thought they were more closely related to pigeons than grouse, but DNA analysis suggests they are most closely related to killdeers and other wading birds. Male sandgrouse soak their belly feathers in water and return to the nest, where chicks then “suckle” the

water to quench their thirst. The adults may fly 50 miles from waterhole to nest.

- Steven Smith, a graduate student at Oklahoma State University, placed video cameras at bobwhite nests during the summer of 2001. His research took place on the Mesa Vista Ranch in Roberts County of the Texas Panhandle. Smith observed incubation by male and female bobwhites. On one occasion, a pair came to the nest of an incubating hen and ousted her. Both members of the pair entered the nest before leaving. The original occupant later returned to the nest. Smith observed that incubating hens routinely show heat stress, as evidenced by a fluttering of the gular or throat region. This behavior is a means of body cooling and works like the panting of a dog.
- Nancy G. Andrew and associates, California Department of Fish and Game, set out to determine whether guzzlers might be causing mortality of desert tortoises and other wildlife. Guzzlers are rain catchments put out to provide water for wildlife in dry environments. The authors observed drowning of mourning doves, bats, house sparrows and kangaroo rats at guzzlers. They also found bone fragments thought to be associated with predation by mammals and owls. For further information, contact Andrews at P.O. Box 1347, Brawley, CA 92227. Ask for a reprint of *Wildlife mortalities associated with artificial water sources*.
- Proceedings of the first (\$10), second (\$10), third (\$15), and fourth (\$20) national quail symposiums are available from the Tall Timbers

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Research Station, 13093 Henry Beadel Drive, Tallahassee, Florida 32312. The proceedings are collections of technical papers.

- **Dr. Leonard A. Brennan**, formerly Director of Research for the Tall Timbers Research Station in Tallahassee, FL, has accepted an endowed chair in quail ecology at the Caesar Kleberg Wildlife Research Institute, Kingsville, TX. **Brennan** brings a wealth of experience, management moxie and research know-how to the position.
- **Stephen J. DeMaso**, formerly with the Oklahoma Department of Wildlife Conservation and now with the Texas Parks and Wildlife Department, and associates have completed a study of the effects of quail feeders on bobwhites in western Oklahoma (Packsaddle Wildlife Management Area, Ellis County). The study took place during 1991–1996. Feeders containing milo were set out at 1/20 acres and run during fall and winter. A like area without feeders served as an experimental control in estimating the effects of feeders. Feeders had no effect on covey size or density of bobwhites. These results were consistent with most other studies of the effects of supplementation on bobwhite abundance.
- **Kirby D. Bristow** and **Richard A. Ockenfels**, Arizona Game and Fish Department, recently completed a study of Mearns' quail in Arizona. This species is also called the Montezuma quail or the harlequin quail. The study dealt with habitat

preferences, effects of grazing and effects of harvest. For further information, contact **Bristow** at 2221 West Greenway Road, Phoenix, AZ 85023. Ask for a reprint of *Effects of human activity and habitat conditions on Mearns' quail populations*.

- Southern Africa has 3 species of quail: common, harlequin and blue. These are called Old World quail and each is a member of the genus *Coturnix*. The coturnix quail may be migratory. Accordingly, they have dark meat on the breast, like a dove, rather than light meat, like a bobwhite. In biblical times, human varmints scooped them up by the wickerbasketful when, after flying over the Red Sea, the birds fell exhausted on the beach. The Old World blue weighs about one-fourth as much as the New World blue (scaled quail).

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 Forestry, 008C Ag Hall, Stillwater, OK 74078. Contributors receive *Quail News* and *Quail Flash*.