

# 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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## COVEY SIZE AND HARVEST

A long-standing tradition in the ethics of quail harvest is limit on take relative to covey size. One variously hears that coveys should not be shot down below 6 or 8 birds. Is there biological merit to this restriction? Is it too low?

The origin of the covey limit is not known, but it may owe to research by R. Gerstell published in the Transactions of the North American Wildlife Conference in 1939. In 1 experiment, Gerstell fasted bobwhites for 24 hours and then placed them in various-sized groups in a temperature-controlled chamber. Air temperature in the chamber was held near 0 F and wind speed at 5 mph.

A lone bird died within 9 hours, a covey of 3 died within 13 hours, 4 members of a 5-bird covey died in 20 hours and the fifth bird was moribund, and 2 members of a 10-bird covey died in 20 hours. These results show survival benefit of larger coveys.

“[T]hroughout the northern portion of the quail range,” wrote Gerstell, “the bobwhite coveys should not be shot down to a point where their chances of winter survival are seriously endangered simply by too great a reduction in the average size of the bebies.”

Gerstell made no comment on proper covey size, but his results suggest that 10 birds was insufficient under the extremely harsh conditions he tested.

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The bobwhites in Gerstell's study likely died of a combination of starvation and exposure. A bobwhite's body has energy reserves (primarily fats) sufficient to persist 2-3 days if fasting at freezing temperatures. Birds exposed to severe thermal insults, such as those in Gerstell's study, may be unable to generate energy at a rate sufficient to counteract energy drain due to cold. Under this condition, body temperature of the birds would decrease from the normal 108 F, leading to cold shock and death. Gerstell managed to revive 1 bobwhite whose body temperature dropped to 85 F.

Larger coveys reduce the rate of heat loss in comparison with smaller coveys because of huddling. Gerstell felt tightness of huddle increased as temperature declined. Cold-stressed birds essentially share long-wave radiation, commonly known as body heat.

However, the roost circle can be thermally disadvantageous at higher temperatures. R. M. Case observed in a 1973 paper that the roost circle provided a metabolic advantage at temperatures <41 F.

Recent work by C. K. Williams and R. S. Lutz, University of Wisconsin, and Roger Applegate, Kansas Department of Wildlife and Parks, provides additional insight on the role of covey size in

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bobwhite ecology. Their data indicated the best covey size is 11 birds—best in the sense that survival of individuals maximizes at 11 birds and declines for coveys below or above this number.

A strict interpretation of the Williams results implies that coveys should not be shot below 11 birds and that harvest pressure should focus on coveys exceeding 11 birds. Such interpretation is not necessary, though, because bobwhites have behavioral mechanisms that take them to optimum covey size. These mechanisms are simply the coalition of undersized coveys and the fracture of oversized coveys.

The outcome of coalition and fracture processes is easily seen by comparing covey size at the start and end of a hunting season. Usually the average covey is the same on these dates, or very slightly lower at the end of season. Covey size at the end of hunting season provides no information about mortality during the season.

Write C. K. Williams, Department of Zoology, University of Wisconsin, 457 Birge Hall, 430 Lincoln Drive, Madison, WI 53706 for further information. Ask for a reprint of *Optimal Group Size and Northern Bobwhite Coveys*.

"You can't reason someone out of something they were never reasoned into."—Jacky Hall

## PEERLESS PROGNOSTICATIONS FOR THE '03-'04 HUNTING SEASON

**Roger Applegate, Kansas Department of Wildlife and Parks, Emporia.** The best assessment that can be made would indicate that quail hunting in the eastern part of the state, particularly the eastern two tiers of counties bordering on Missouri, will be fair, as will the far western part of the state. The remaining eastern and central sections are looking pretty good at this time. For most folks that live in the southeastern states, our poorest areas will look pretty good. When you are used to coveyless days, 1 or 1 covey/day can be pretty darn good. When I was in southwestern Kansas 3 weeks ago [late August], there were reports of a fair number of scalies (blues), especially on the Cimarron National Grasslands. However, in that part of the world, bobs still outnumber scalies about 3:1 in terms of birds bagged. Also, scalies are restricted to the sand sage grasslands whereas bobs will be in riparian areas. Generally, if you find a clump of cholla, go look for scalies. The Cimarron NG generally has some decent quail hunting. Otherwise, head for the area of Kansas bounded on the west by the Flint Hills, south of the Kansas River, and west of US 75.

**Steve DeMaso, Texas Parks and Wildlife Department, Austin.** Things are looking good statewide. I'm getting good bobwhite reports from south Texas, eastern side of the Panhandle, and western Edwards Plateau. Habitat conditions are looking good in the Trans Pecos. Scaled quail should be up.

Statewide, quail season should be above average, if we have good hunting conditions during the season.

**Fred S. Guthery, Stillwater, OK.** Bobwhites called frenetically through mid-June at Hobbit Ranch (2.5 acres). I had up to 3 calling males on my lot at the same time. Thereafter, the weather turned hot and "bobwhites" were rare. Early production should have been good but late production is questionable.

**Boone Pickens, Jr., Mesa Vista Ranch, Pampa, TX.** We think it will be the best season since 1997. Abundant habitat and rains at the right time did it for us.

**Mike Sams, Oklahoma Department of Wildlife Conservation, Oklahoma City.** This is the 14<sup>th</sup> year of this roadside survey and the statewide quail index is up 37% from the previous 13-year average. All regions reported increases in quail over last year with the exception of the southeast region. The statewide index is up 21% over the 2002 August survey.

**Sue Selman, Selman Ranch, Buffalo, OK.** I, my family and friends are all seeing plenty of quail this year. My son works for the county and has commented several times at the number of quail and pheasants this year. We think we had an early spring hatch and a late spring hatch. Of course July was brutally hot and dry. But we had enough rain in June so it never really got burnt up out here. Then August was more pleasant than usual, milder temps and some rain. The bobs started whistling again, so I think we will have another hatch. I have had quail in the corrals, the yard and the garden and that usually means a good

season quail wise. Of course who knows what the weather will do.

**Rick Snipes, Snipes Ranch, Aspermont, TX.** The prospects for this year look excellent if my indicator species is true. Roadrunners are everywhere! We had a good May and a great June, prior to the heat and drought onslaught of July and August. We're seeing lots more birds than last year and have seen baby chicks as recently as Sept. 1<sup>st</sup>. Last year the birds rebounded to about average. We found 4.7 coveys/hr for the season and this year may be significantly better.

**Chuck Ribelin, Dallas, TX.** August 30 and 31 dumped 2 to 3 plus inches on ALL of West Texas. First rain since June 15. The only lease I visited at a time when quail are moving was a new one south of Snyder and saw young quail all over the place. Since we had a lot of quail at end of season in Albany I assume we have a good crop. The dove hunting was really good. Joe Haggard was in Coleman Sept. 1 and saw lots of quail. He was in Windthorst last Friday pm and saw nine coveys. He was in Olney Sat. am and saw 10 coveys.

**Dale Rollins, Texas Agricultural Extension Service, San Angelo.** In a word "Viagra-like." And old males everywhere are anticipating reliving good memories. Have been running my traplines for the last month for the Rolling Plains and Trans-Pecos. My "informants" are mostly nontechnical folks, but I call them because they're avid quail watchers/hunters. The Rolling Plains is poised to have the best year since 1987 (some think even better!). Most of my contacts are saying it's 20 to 50% better than last year, and

last year was the best since 1991-92 (my opinion/observation). I will be happy if it just meets last year's performance, and all but 2 have suggested it's better than last year. June was an outstanding month; July and the first two weeks of August were horrid. But amazingly we seemed to have capped off a great June hatch with additional hatches since that time, including what appears to be a sizeable hatch in early August (despite the hottest/driest weather of the summer). Weather since mid-Aug has been unseasonably cool and wet over most portions (not here in San Angelo however). I've counted a good number of 20+ bird coveys.

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*Editorial: the northern bobwhite conservation initiative*

I attended the 9<sup>th</sup> Annual Meeting of the Southeast Quail Study Group in Potosi, MO, in late August. The study group consists mainly of state agency biologists with a smattering of academics and private organization people. The group has taken the lead in resurrection of bobwhite populations in the eastern half of America through the Northern Bobwhite Conservation Initiative.

It's a daunting task. If you happened to see the satellite image of America that circulated after the Big Blackout, you might conclude that electricity is the cause of the quail decline. Areas with few lights showing from space—western Kansas, north and south Texas, most of Arizona, are where quail populations are doing OK.

We have a triage situation in bobwhite conservation, sort of. Some populations are mortally wounded and they're not going to be saved. Others will make it with little help. Others possibly can be saved with focused as opposed to piecemeal efforts. We should not be cavalier, though, about the ones that don't need help now. This is where the triage analogy breaks down.

State game departments recognize the need for focus and are concentrating efforts accordingly. On-the-ground programs are running in Georgia, North Carolina, Missouri, and Kansas. These programs focus efforts at the scale of a county or a few counties.

It seems proper, in this day and age, to think big but not too big in resurrecting bobwhite populations where they need to be resurrected (which is not everywhere).

Fred S. Guthery  
Bollenbach Chair in Wildlife Ecology  
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## RADIOTELEMETRY OR RADIOHANDICAPPING?

Once hailed as breakthrough technology in studying the behavior of bobwhites and other wildlife, radiotelemetry is coming to be viewed as a mixed blessing.

Tiny transmitters placed bib-style on bobwhites permit biologists to find radioed individuals at any time. This provides data on movements and ranges, habitat use, and population dynamics.

Most of the population data derived from radiotelemetry appear to be biased, however. Quail carrying transmitters die at a rate much too high for population persistence. The best guess is that the transmitters handicap the birds carrying them, thus rendering the quail more vulnerable to rending by talon and fang. Also, some radioed bobwhites get their appendages tangled in the collar, and sometimes the collar apparatus gets tangled in vegetation.

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## Quail

### Questions.....

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*At one time, I had a copy of an article you wrote about the best habitat to support superior quail populations was red sandy soils and red gophers. I cannot find that article anywhere. Could you tell me where I can find a copy? Are the findings set forth in that article still valid? I am considering leasing a ranch in Jim Hogg County, Texas, just south of Hebronville which has the above qualities and just want to confirm my choice. —J. Edward Pennington.*

The article was "Look for Red Gopher Mounds" in *Quail Unlimited* magazine. There is a chapter, "Red Gopher Mounds," in my book, *On Bobwhites* (Texas A&M University Press, 2000). You can get the book at amazon.com or

barnesandnoble.com or through the Department of Forestry here (\$25, postage paid, and the author will sign it at your request).

Yes, I think the notion still holds. But if you're around Hebronville, you're in pretty good shape in general, as you know.

*I consider Mearns' quail to be an island population because of the limited area and habitat in which it is found. How can biologists better monitor breeding populations to determine what management strategies will best assist in stabilizing or improving populations?—*

**Tad Pfister, Nogales, AZ.**

Here's a tough one. We (wildlife biologists and scientists) do not have good technology for monitoring populations of anything at any time. We have elaborate statistical models for this and that, quite elegant, really, but when it gets to the bottom line we remain terribly uncertain, usually, over some estimate or index of population abundance. That uncertainty becomes horrible when we extrapolate estimates over larger areas.

I have come to believe that it is impossible to stabilize quail populations in semiarid environments, if you mean year-to-year stability. The weather is just too powerful. It explains on the order of 50-75% of the variation in annual quail abundance. Then there are the demons of chance, which invoke unexplainable variation. Habitat tends to explain the remaining 5-10% of the variation.

If you're talking about reversing a downward trend over the years, I would

tend not to worry in Arizona. Weather more propitious for quail will return and their populations will go up. There was no trend in Gambel's and scaled quail populations in Arizona during 1969-1999, but there were quite dramatic ups and downs from year to year.

Not everybody agrees with me: demographically, there are 2 types of quail populations, below average and average. Below average populations are en route extinction. Average populations will persist. If you manage to make an average population above average, you will fail, because you will end up with an average population.

The best thing that can be done for Mearns' quail, I think, is to make sure grazing is compatible with their cover needs over large scales. Arizona is daunting in its scope and extent, and cattle are one of the few habitat managers we can apply at a daunting scale.

## BITS AND PIECES.....

- Contact Bill White (bill.white@mo.usda.gov) to sign up for an interesting and provocative electronic newsletter called *Covey Headquarters*.
- Contact the Department of Conservation, P.O. Box 180, Jefferson City, MO 65102 for a copy of *On the Edge: A Guide to Managing Land for Bobwhite Quail* (2003) by Tom Dailey and Tom Hutton. This attractive pamphlet (66 pp.) has practical information on the biology and management of bobwhites in Missouri. See the following quote.

- “Is there a link between the rise of turkeys and fall of quail? Yes, it’s habitat! Turkeys and quail have some similar habitat needs, for example, weedy areas for bugging by chicks and row crops for winter food; however, the trees that turkeys require for roosting spell trouble for quail. While quail require brush, briars and tangles to protect them from winter elements, natural plant succession leads to the replacement of these vegetation types by large-canopied trees. With this tree growth, quail lose their hiding places while the large trees provide handy perches for quail predators, such as hawks and owls. Lacking specific management for quail, Missouri’s landscape has slowly evolved into poorer cover for quail and better cover for turkeys and deer.”—Tom Dailey and Tom Hutton
- Coyotes for predator control? Research in northwest Texas by Texas Tech University scientists suggests coyotes reduce the abundance of swift foxes by killing them. The swift fox is numerically insecure and the coyote is a problem in this context.
- Based on research in Mississippi, male raccoons roam over areas averaging about 600 acres or less. They tend to focus activity in areas averaging less than 115 acres.
- ***On Bobwhites*** by Fred S. Guthery (Texas A&M University Press, 2000) is available from the Department of Forestry, 008C Ag Hall, Stillwater, OK 74078 for \$25, including shipping and handling.
- ***The Technology of Bobwhite Management—The Theory Behind the Practice*** by Fred S. Guthery (Iowa State University Press, 2002)

is available from the Department of Forestry for \$60. “[T]he Technology of Bobwhite Management *makes a tremendous contribution to the field of bobwhite ecology and should mark a turning point in the manner in which we approach research and management.*”—Loren W. Burger, Jr., *The Journal of Wildlife Management*.

- ***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 Forestry.
- ***A Field Guide to Oklahoma Plants*** by Ronald J. Tyrl, Terrence G. Bidwell, and Ron Masters is now available. The book (515pp.) will be useful for hunters and ranchers as far west as the Texas Panhandle. It contains hundreds of line drawings and range maps. Contact Cindy Neal (405/744-6421) to order a copy (\$25 + \$5 shipping and handling—a real bargain).

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*.