

QUAIL NEWS

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

TWO OLDIE GOLDIES: EDGES AND DOOMED SURPLUSES

Three quarters of a century before present, Aldo Leopold (1887–1948) and Paul L. Errington (1902–1962) left applied and theoretical quailologists with concepts that remain fresh in human minds as we enter the Twenty-first Century.

Leopold published *Game Management* in 1933, which contained what has come to be known as the Principle of Edge. He called it the Law of Interspersion.

In Leopold's words...*The potential density of game of low radius requiring two or more types is, within ordinary*

limits, proportional to the sum of the type peripheries.

"I am not sure that scientific ecologists know this law as well as woodsmen do," Leopold wrote.

The curious thing about the law is its inevitable truth. Paraphrasing Leopold, "edge-requiring animals require edge." This one can't miss, folks.

Errington was a prolific author who wrote classic books such as *Of Predation and Life*. He is perhaps best known to quailologists as the originator of the phrase, "doomed surplus," in the 1930s.

Errington started studying quail in the vicinity of Prairie du Sac, Wisconsin. Leopold and Herbert L. Stoddard handpicked him, and he did field research on a farm owned by Stoddard's relatives.

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It looked to me as though some sort of threshold of security existed. As long as the wintering population remained below a certain level, predation losses uncomplicated by weather emergencies were rather low and uniform, representing about the rate expected if a hawk, owl, or fox managed to pick off one or two unlucky or 'uneducated' birds from a covey in the course of a winter.—Paul L. Errington, Of Predation and Life, Iowa State University Press 1967:78

It turns out Errington was unlucky and brilliant at the same time. During the first few years of his study, bobwhite populations returned to about the same number of breeding birds each spring, regardless of how many started in the fall. That was bad luck.

How do you explain variable fall populations and constant spring populations? Errington reasoned there must be a *threshold of security* (see box) that governs spring abundance, and that all birds in excess of the threshold in fall were a *doomed surplus*. The threshold and the surplus are imaginary constructs that help explain nature. Brilliant scientists posit such constructs.

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Under the doomed surplus model, harvesting quail doesn't ordinarily affect population abundance.

Subsequently, Errington observed variable spring populations, which theoretically destroyed the threshold concept. Nonetheless, the concept is still with us, even though false. We hear it in phrases such as "harvest is compensatory" and "80% of them are going to die anyway."

He had a stimulating personality, and in conversation he was able to draw out the thoughts of others, as well as freely sharing the depths of his own brilliant mind. He would think deeply and quietly a few moments, marshaling his thoughts in logical sequence, and then express them clearly, forcefully, and eloquently.—Herbert L. Stoddard on Aldo Leopold, Memoirs of a Naturalist, University of Oklahoma Press, 1969:218

ROLLING PLAINS QUAIL RESEARCH RANCH

Landowners and quail hunters have watched as bobwhite populations have declined over the past 30 years over much of Texas. In 2007, The Conservation Fund purchased a 4,700-acre ranch west of Roby (Fisher County) to serve as a research and demonstration facility to address declining quail numbers. A year later the property was donated to the newly formed

501(c)(3) Rolling Plains Quail Research Foundation.

The RPQRR's mission is "to sustain Texas' quail hunting heritage for this, and future, generations." In order to accomplish this mission, the Ranch seeks to design, test and implement new technologies for improving quail habitat, and promote outreach activities that will result in rapid adoption of such technologies.

The Ranch received its initial gift of \$1 million from Ft. Worth oilman W. A. "Tex" Moncrief, Jr. in October 2007 and seeks to build an endowment of \$6 million. Other gifts have come from various sources, most notably the Park Cities Chapter of Quail Unlimited, which donated \$550,000 in 2008.

The Ranch is a case study in "usable space" for bobwhites. The eastern half of the Ranch is dotted with "quail houses" (i.e., loafing coverts) spaced about a softball-throw apart. The western half is more open and contains more pricklypear (in many places ad nauseum).

Research efforts began in spring of 2007 and continue to pick up speed. In 2008, over 1,100 bobwhites were trapped and leg-banded—125 of these were fitted with radio transmitters to study their nesting ecology. Banding and radiomarking will be annual efforts, and promise to reveal insight to little-studied behaviors (at least on the western edge of the bobwhite's range) like spring dispersal and the "fall shuffle." Bobwhites account for about 97% of the quail with a token number of scaled ("blue") quail present (about four coveys in 2008).

The Ranch has coyotes and northern harriers galore, a lesser number of raccoons, and a handful of deer and feral hogs. At this time, there are no turkeys on the property.

Several ongoing studies are seeking to define a better "yardstick" (i.e., census techniques) which will allow us to more accurately define how quail abundance responds to various habitat management schemes. Currently, we have 25 listening posts situated along a 16-mile transect where we count spring cock-calls ("bob-white") in the summer and fall covey calls ("koil-ee") during October and November. We're also evaluating the use of helicopters as a tool for determining quail density (in conjunction with CKWRI). We use the same 16-mile route to monitor abundance of hawks and various mammalian predators (via "scent station" surveys).

We seek to use prescribed fire and "patch-burn-grazing" as a quail-friendly approach to managing prickly pear. We have GPS-collared cows that permit us to monitor how cattle graze a patch-burned pasture, and we are monitoring how plants, insects, and quail respond to such disturbances. We're excited about several new studies set to begin this year, including studies on Cooper's hawks, northern harriers, and GPS-collared coyotes. For a peak at our results to date, see the 2008 Field Day report at <http://teamquail.tamu.edu/Flyers/Field%20day%202008.pdf>.

Collaborations with other partners are actively sought. Tours of the Ranch are available by appointment—the 2nd annual field day is slated for September

25, 2009. For more information, contact Dale Rollins (d-rollins@tamu.edu) or call him at 325-653-4576.

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***Editorial: Global warming or whatever it ain't***

"The northern bobwhite [photo], which now spends its winters about 80 miles further north than it did in 1966." FOX News article, 10 Feb. 2009

Bad science? You betcha.

If we had an experimental control earth, maybe we could come to some kind of consensus on global warming. The experimental control would have concentrations of greenhouse gasses similar to those of antiquity. If we had that earth, we could compare its temperatures with our earth's temperatures and get a clearer idea of global warming or global pipedream.

(I have often wished for an experimental control self to find out what affects me and what doesn't.)

Of course, we learn without experimental controls. We don't have experimental control wars and yet we learn how to efficiently wage war.

The classic example of learning without experimental controls is the effects of smoking on health. We didn't need formal experiments to come to understand that smoking causes problems ranging from heart attacks to lung cancer. We can

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.

observe, generalize, and understand process (e.g., carcinogens).

We know greenhouse gasses warm the earth. Without them, life as we know it would not be possible on this planet.

We know the concentration of greenhouse gasses in the atmosphere is increasing.

We know a good deal about how bobwhite populations respond to weather and climate in Texas and Oklahoma.

Jeff Lusk, while a Ph.D. student at Oklahoma State University, analyzed how bobwhite populations respond to weather variables such as monthly rainfall and temperature and climate variables such as deviations from long-term means in weather variables. He then generated predictions of weather from 2 global change models and ran the predictions in quail response models.

Lusk's analysis indicated that if the global change models accurately predicted future weather, then bobwhite populations in Texas and Oklahoma would decline. Quail production falters with higher temperatures. Remember the summer of 1998?

He also noted unknown future effects of catastrophic weather events such as thunderstorms, tornados, blizzards and ice storms. Global warming might exacerbate the frequency and severity of these events, which would be locally damaging to quail populations.

Lusk observed there undoubtedly will be unforeseen effects of climate change because of the complexity of the system.

Also, his models are stringing “ifs” together like pop beads and every “if” adds uncertainty.

But whatever the future holds, the Fox News quote at the start of this essay is, er, er, er, balderdash. Bobwhites aren’t migratory—at least not yet.

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



## IS THERE A NEED TO MANAGE SCENT CONDITIONS FOR GAME BIRDS?

“Grouse should seek loafing sites hidden from predators; however, good hiding sites from predators that use vision to locate prey differ from good hiding sites from predators that use odor to locate prey,” report Michael R. Conover

and Jennifer S. Borgo, Department of Wildland Resources, Utah State University.

These authors studied the nature of loafing cover used by sharp-tailed grouse in Franklin County, Idaho.

(“Loafing cover” is an unfortunate choice of words because game birds don’t “loaf” in the sense that humans do. Rather, they rest in safe havens between morning and evening feeding bouts.)

The authors measured conditions at points where grouse loafed and compared them with conditions at randomly selected points. Such comparisons are a standard way of analyzing the factors that might be responsible for wild animal behaviors.

Variables such as lateral visibility, visual obstruction and cover height were similar between used and random points. These results suggest, but do not confirm, that sharp-tails were not responding to predators that use vision to locate their prey.

On the other hand, vertical wind velocity, horizontal wind velocity and turbulence were higher at loafing sites than at random points. Thus, sharp-tails selected points that would more rapidly dissipate scent than random points; moreover, owing to turbulence, the points would be ambiguous as to the direction of the source of scent.

“If our results are confirmed by future studies, then efforts to improve grouse habitat should consider the habitat’s olfactory characteristics,” the authors concluded.

For further information, contact Michael R. Conover, Department of Wildland Resources, Utah State University, Logan 84322-5230. Ask for a reprint of *Do Sharp-Tailed Grouse Select Loafing Sites to Avoid Visual or Olfactory Predators?*

*[Editors note: Some of the factors affecting scenting conditions in the Utah State study were topographic. It's unlikely we'll be managing topography any time soon. Nevertheless, the results of this study are intriguing in that they provide a mechanism of better understanding game bird behavior. The nature and role of scent in the behavior of prey and predators is virtually untouched as a topic of research in wildlife ecology and management. Ergo, we operate on myth, supposition, and, for the most part, old husband's tales.]*

## BITS AND PIECES.....

- The Wildlife Society is the professional organization for wildlife biologists. The Texas Chapter of The Wildlife Society met in Lubbock, TX, on 26–28 February 2009. The first 3 items that follow are recent research findings presented at the Texas Chapter meeting.
- Stephen J. DeMaso and associates from the Caesar Kleberg Institute, Texas A&M University-Kingsville, constructed a computer simulation model of bobwhite population dynamics in South Texas. The model was based on telemetry data collected during 2000–2005. Simulation results indicated bobwhites in South Texas have a greater than 90% probability of persisting for the next 100 years.
- Fidel Hernández and associates from the Caesar Kleberg Institute estimated the value of re-nesting by bobwhites in counteracting predation losses in South Texas. First and second nesting attempts made up >80% of the nesting effort. Third and fourth attempts contributed little to the fall population. These results were consistent with an earlier theoretical analysis of bobwhite reproduction.
- Andrew Tri and associates from the Caesar Kleberg Institute evaluated the efficacy of feeding protein-rich pellets to bobwhites to simulate survival and production. The South Texas study area had 1,000 acres protein supplemented and 1,000 corn and milo supplemented. Nest success was 60% with protein supplementation and 67% without supplementation. Clutch initiation dates and home ranges sizes were similar between supplementation treatments. Based on results from 1 laying season, there was no gain in supplementing with protein in comparison with corn and milo.
- **Smoke Management for Prescribed Burning** by John R. Weir and J. D. Carlson (2009, 13pp.) is available for free from the Department of Natural Resource Ecology and Management, 8C Ag Hall, Oklahoma State University, Stillwater, OK 74078.
- The Department of Natural Resource Ecology and Management publishes a quarterly, electronic newsletter with information on the ecology and

management of fish, forests, rangeland, and wildlife. To subscribe, send an e-mail to [LISTSERV@LISTSERV.OKSTATE.EDU](mailto:LISTSERV@LISTSERV.OKSTATE.EDU) with the following command in the body of the e-mail: SUBSCRIBE NREMNEWS-L. You should then get an e-mail response with a web link. Once you select that web link, you will be added. If you do not get a return e-mail within a day, e-mail [dwayne.elmore@okstate.edu](mailto:dwayne.elmore@okstate.edu).

- ***A Primer on Natural Resource Science*** by Fred S. Guthery (Texas A&M University Press, April 2008) is available from the Department of Natural Resource Ecology and Management, 008C Ag Hall, Stillwater, OK 74078 for \$20 (soft cover) or \$40 (hard cover). Prices include shipping and handling. “Guthery has written a tour de force in depth that will shape the field of wildlife science for many years to come.”—Steven W. Buskirk, Department of Zoology and Physiology, University of Wyoming. Winner of the Outstanding Book Award, Texas Chapter—The Wildlife Society, 2009.
- ***On Bobwhites*** by Fred S. Guthery (Texas A&M University Press, 2000) is available from the Department of Natural Resource Ecology and Management (address above). The book is in its second printing and available only in paperback.
- ***Bobwhites on Oklahoma Farms Patch Burning: Integrating Fire and Grazing to Promote Heterogeneity*** by John R. Weir

and co-authors is available for free from the Department of Natural Resource Ecology and Management (address above). The rotational burning of small plots causes grazing cattle to follow and results in more different types of plant communities and plant species (heterogeneity) in a pasture. Visit OSU’s **prescribed fire website** at <http://fireecology.okstate.edu>.

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*.