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## CKWRI Quail eNews

News from the Richard M. Kleberg, Jr. Center for Quail Research at the Caesar Kleberg Wildlife Research Institute

**Richard M. Kleberg, Jr. Center for Quail Research**

**Caesar Kleberg Wildlife Research Institute**

**CKWRI Quail eNews - Special Edition**

### **SCIENCE-BASED MANAGEMENT AND TEXAS PARKS AND WILDLIFE DEPARTMENT**

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The Texas Parks and Wildlife Department is an agency that values research as a basis for science-based management decisions. Thus, I read with great interest and satisfaction the 12 April 2012 press release from Texas Parks and Wildlife Department, “*TPW Commission Looks to Science for Solution to Quail Woes*”. The recent kerfuffle about closing quail hunting seasons as a strategy to restore dwindling quail populations in Texas has shown—yet again—that Texas Parks and Wildlife Department looks to science, rather than politics, to solve conservation issues. Hunters, anglers, and anyone who enjoys the outdoors in Texas needs to appreciate this point. In my view, this point seems to be overlooked far too often.

When it comes to quail—and quail hunting—the philosophy of Texas Parks and Wildlife Department and science-based management goes back at least half a century. The now classic quail management handbook by Dan Lay, which was first published by the agency in 1954, recognized even back then that regulations could not restore dwindling quail populations (Figure 1). Despite the clarity of Lay’s biological argument about regulations being

*Providing the science behind quail conservation and management.*

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ineffective at restoring quail numbers, the philosophy of using science as a basis for setting quail regulations took a while to develop in Texas. From the 1950s to the early 1980s, almost every imaginable configuration for quail hunting seasons and bag limits was tried in Texas, often on a county-by-county basis. Prior to 1984, there were numerous (at least 115 of 254) counties in Texas in which Texas Parks and Wildlife Commission rules were subject to county commissioners courts. Finally, in 1984 the Texas Parks and Wildlife Department was granted legislative authority to set a uniform quail season for the entire state that resulted in the season and daily bag limit we have today. Despite these well-intended and highly diverse efforts at regulations over the past six decades, quail numbers continued to erode throughout most of the state. This is because the source of the problem is the erosion of quail habitat rather than some ideal form of season length or bag limit, or season closure. These historically important points are presented in detail by Jerry Cooke in his chapter on “*Quail Regulations and the Rule-making Process in Texas*” which was published in the *Texas Quails* book (Texas A&M University Press). Jerry Cooke wrote that landmark chapter when he was employed as a biologist and administrator by the Texas Parks and Wildlife Department.

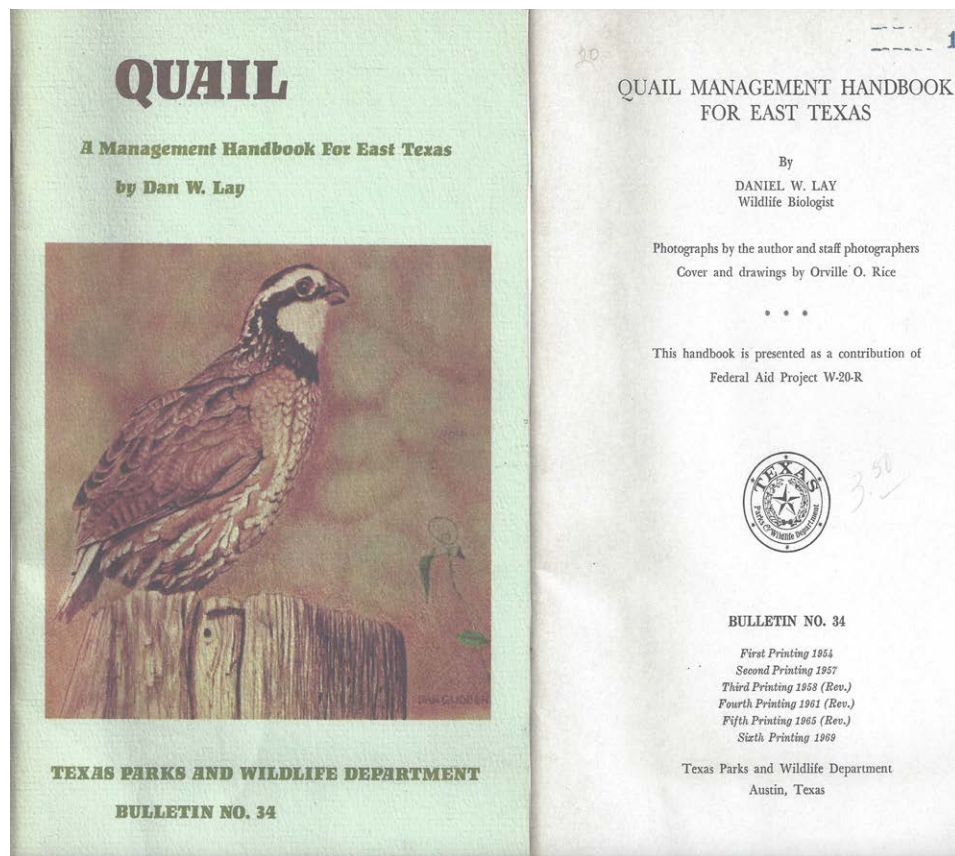


Figure 1: Cover and title page of the Quail Management Handbook by Dan Lay, first published in 1954.

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**CKWRI Quail eNews:**

**Winner of the Outstanding  
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We tried passing laws several hundred times in Texas. You can close the season for 3 or 5 years, change the dates of hunting, limit the bag to 8 or 10, or you can hunt only 3 days a week. Yet, the bobwhite populations of Texas continued to go up and down, but mostly down, with no regard whatever for transactions in the Capitol at Austin.

As for closing the season, there is no need to waste 3 years trying it. Talk to hunters in a county where it has been tried. Or, compare the birds on un hunted land with birds in a hunted area where food and cover are similar—you will find no more birds in the un hunted area.

### Why?

Because the bobwhite's life expectancy is so short. Out of every 100 birds alive in the fall, 80 will die or be killed within the next 12 months under average conditions in the wild. If their food and cover remain the same, the die-off or turnover will remain the same, and there will be approximately the same number of birds from year to year. Closing the season and posting signs do not reduce this natural loss.

Figure 2: From p. 6 of the Quail Management Handbook (Lay 1954)

During the 1990s, Dr. Markus Peterson, former Quail Program Leader for Texas Parks and Wildlife Department, conducted a masterful analysis of the potential impacts of reducing quail hunting season length and bag limits. Peterson concluded that even a drastic reduction in season length and-or bag limits would have little or no impact on quail harvest state wide. Furthermore, he showed that such a draconian policy would hurt quail hunters far more than it would benefit quail populations.

From 2000 to about 2008, Texas Parks and Wildlife Department invested a tremendous amount of money in quail research. The agency has spent more than \$200,000 on research projects designed to understand the role of invasive, exotic grasses on quail habitat and populations. Results from these studies showed that the presence of invasive exotic grasses can reduce quail abundance by up to 50%, and perhaps even more, in rangeland habitats because they usurp native plants and arthropods needed by quail for food.

The largest—to my knowledge—wildlife research project ever funded by Texas Parks and Wildlife Department was their commitment to spend more than \$550,000 to study the effects of quail hunting at the local scale. Dr. Peterson's earlier work demonstrated that quail regulations had little impact on harvest at a statewide basis, but the extent to which quail hunting could impact populations on a local scale—such as on a ranch or pastures in a ranch—remained unclear. This Sustainable Harvest Project, as it came to be known, was led by my colleague Dr. Fidel Hernández at the Caesar Kleberg Wildlife Research Institute and replicated at sites in South Texas and the Rolling Plains, in cooperation with Dr. Dale Rollins from Texas AgriLife Extension. The study involved three different, but integrated projects; 1) evaluating various survey methods for quail populations, 2) estimating overwinter mortality of quail, and 3) using the data from the survey and survival projects to evaluate how different levels of harvest would impact quail populations over time using simulation analysis and modeling.

The idea behind these three components was that in order to understand

the impacts of quail hunting on localized quail populations, you first needed to know how many birds were present on an area at the beginning of the season (helicopters turned out to be an excellent tool for doing this), and then you needed to know what proportion of the birds perished over the winter from both hunting and natural causes (about 30%, with considerable variation). These data, along with a great deal of other information about quail population dynamics in Texas, were used to analyze the extent to which different levels of hunting pressure (ranging from 0% to 40%) would impact quail numbers. These analyses indicated that a 20% harvest of the fall population resulted in the greatest long-term yield in numbers of birds bagged while also sustaining a stable population over a long (100-year) span of time. The take-home message for quail managers is that if you have 1,000 quail present on your ranch at the beginning of a hunting season, you can safely harvest 20% or 200 of those birds and not harm the population. The next fall, if you have 500 quail on the same area, you can safely harvest 100 birds, and so on. By exceeding this guideline and harvesting at a 30-40% rate, however, you run the risk of driving the population to extinction on your property.

When these research results are considered in the context of other scientific studies of quail population and habitat ecology in Texas, it becomes clear that while quail hunting can impact populations on a local scale (if hunting pressure is not managed appropriately) it is weather and habitat, rather than hunting, that are the driving forces regulating quail numbers across ecological regions and statewide in Texas. For example, year-to-year variation in precipitation from April through August is responsible for more than 90% of the year-to-year variation in quail production in South Texas. As noted earlier, the presence of invasive, exotic grasses can reduce the abundance of quail populations 50% or more in rangeland habitats. Section II on *Quail Populations in the Ecoregions of Texas*, in the *Texas Quails* book documents how the presence of Coastal Bermudagrass and other so called “improved” exotic pasture grasses is the major habitat factor that has almost completely eliminated quail populations throughout parts of the Coastal Plains and Cross Timbers as well as nearly all of the Post Oak Savanna, and Blackland Prairie Ecoregions of Texas.

Science has shown, and continues to show, that weather and habitat are the key factors when it comes to understanding what is really happening to quail populations in Texas. This is a fact that seems to be hiding in plain sight.

The Sustainable Harvest Project mentioned above resulted in Master of Science theses by Matthew Schnupp, (who now leads the quail management program at King Ranch) and Trent Teinert (who is now a biologist with Texas Parks and Wildlife Department) and a Doctoral dissertation by Dr. Joseph Sands (who is now the Game Bird Program Leader for New Mexico Game and Fish). These documents which are available on the Caesar Kleberg Wildlife Research Institute website, continue to spin-off both scientific and popular publications. The Sustainable Harvest Project was not only an example of Texas Parks and Wildlife Department looking to improve science-based management for quail, it also represented an investment in the careers of three young, and very successful, wildlife management professionals.

The examples mentioned in this brief essay are little more than the tip of the iceberg when it comes to the importance Texas Parks and Wildlife

Department places on science-based management of wildlife. The long-term work on deer population ecology at the Kerr Wildlife Management Area, the research missions of the Chaparral and Matador Wildlife Management Areas, landmark projects on wild sheep, mule deer, and so many other species of wildlife, both hunted and not hunted, are all examples of a state wildlife agency that values science and allocates funding to support a scientific basis for management. And the wildlife resources in Texas are all the better for it.

Further reading:

Quail Regulations and the Rule-making Process in Texas, by Jerry Cooke ([link](#))

Sands, J. P. 2010. Testing sustained-yield harvest theory to regulate northern bobwhite hunting. Dissertation, Texas A&M University, Kingsville, USA. ([link](#))

Schnupp, M. J. 2009. An electronic system to estimate northern bobwhite density using helicopter-based distance sampling. Thesis, Texas A&M University, Kingsville, USA. ([link](#))

Teinert, T. W. 2009. Overwinter survival of northern bobwhites in two ecoregions of Texas. Thesis, Texas A&M University, Kingsville, USA. ([link](#))

Summary of Quail Research Results at CKWRI 2000-2011; ([link](#))

Brennan, A., ed. 2007. Texas Quails: Ecology and Management. Texas A&M University Press, College Station, USA. ([link](#))

*The Caesar Kleberg Wildlife Research Institute at Texas A&M University – Kingsville is the leading wildlife research organization in Texas and one of the finest in the nation. Its mission is to provide science-based information for enhancing the conservation and management of wildlife in South Texas and related environments.*

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*The mission of the Richard M. Kleberg, Jr. Center for Quail Research is to develop a scientific basis for the sustainable*

*management and harvest of wild quail populations throughout South Texas and elsewhere.*



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