The Bobwhite Post

A Publication of the Richard M. Kleberg, Jr. Center for Quail Research

Photo by Fidel Hernández

Caesar Kleberg Wildlife Research Insitute • Texas A&M University-Kingsville Volume 17, Issue 1 • Spring-Summer 2014

From The Field: Translocation of Wild-trapped Bobwhites to Restore Quail Populations in the Rolling Plains

Photo by Larry Ditto

It is no secret that bobwhite numbers have declined across their range. The story is no different in most parts of Texas. This range-wide decline has caused many biologists, scientists, and managers to try many different approaches to restore populations including habitat management, supplemental feeding, predator control, and the translocation of wild bobwhites. Of these approaches, the one that draws the most interest from landowners is translocation of wild bobwhites. Can the release of wild bobwhites onto a property with low numbers but suitable habitat help to restore a population?

A study was initiated in 2013 by Dr. Dale Rollins to answer this question. The study is being funded by the Rolling Plains Quail Research Foundation and is being conducted in collaboration with the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville. Its objective is to evaluate the translocation of wild bobwhites into recently depopulated habitat in the eastern Rolling Plains of Texas as a method for augmenting population size in the region.

In the past, the Rolling Plains ecoregion, specifically Stephens and Shackelford counties, supported some of the best bobwhite hunting in the state. However, bobwhite numbers declined abruptly in 2006. Habitat loss and fragmentation, which are likely causes of the decline in other areas, did not appear to be limiting bobwhite populations in the Rolling Plains.

Translocations in other areas of the bobwhite's range have yielded contrasting results. For example, a study in eastern Texas reported lower survival and productivity of translocated bobwhites compared to resident bobwhites. Conversely, studies in Georgia and eastern Texas have reported similar survival and productivity rates between translocated and resident bobwhites. The study in Georgia documented site fidelity of translocated bobwhites as well as a significant population response. However, a CKWRI study in the Post Oak Savannah ecoregion of Texas, documented that bobwhite translocation was unsuccessful in restoring bobwhite populations in fragmented, low-density areas. The relative abundance of bobwhites in this study remained low post-translocation despite more than 600 bobwhites being translocated over 3 years.

Possible reasons for the varying results in translocation studies may

Continued on Page 2

include differences in the amount of habitat on the release area or varying distances over which the bobwhites were translocated. The unsuccessful translocation project in the Post Oak Savannah released bobwhites into fragmented habitat. This project also transported bobwhites over large distances (60 –140 miles). Given these findings, a successful translocation may be more likely when bobwhites are released in ample habitat and translocated over shorter distances, which decreases holding time.

Translocating bobwhites of the same subspecies also may increase the likelihood of success. A study conducted in 1997 translocated bobwhites from South Texas to East Texas, as well as from a nearby site to East Texas. This study concluded that translocated bobwhites from the nearby site and thus, of the same subspecies, had higher survival post-translocation than translocated bobwhites from South Texas. A genetic analysis of the population post-translocation revealed that the population was more similar to translocated bobwhites from East Texas than from South Texas. Therefore, using bobwhites of the same subspecies for translocation produced a more successful translocation.

Our translocation project is taking place in Stephens and Shackelford counties. We will be trapping bobwhites from several locations within the western Rolling Plains (within 50 to 150 miles) and translocating them to 2 well-managed release sites (1,000 and 650 acres) on a large (7,500 acre) ranch that recently experienced low bobwhite density. This ranch is surrounded by large acreage of contiguous habitat. The overall goal is to translocate 200 bobwhites/year for 3 years. We will be documenting seasonal survival, site fidelity, and reproduction of translocated, wild bobwhites using radiotelemetry. We also will be obtaining population counts on the release sites and a control site (13 miles away) using whistle counts and helicopter surveys conducted before, during, and after translocation to evaluate the effectiveness of translocation. The study is being conducted during March–August 2013–2015.

Here are a few preliminary findings. We translocated 202 wild bobwhites during March 2013 and 207 wild bobwhites during 2014. Ninety-five and 91 translocated females were fitted with radio collars in 2013 and 2014, respectively. In 2013, 41% of radio-marked females remained alive 6 months after translocation and 12% remained alive a year after translocation. Sixty-two females were alive at the beginning of the nesting season (1 May) in 2013, of which 77% nested resulting in a total of 72 nests with an average clutch size of 12 eggs. Nest success was 42%, and hens nested at a rate of 1.2 nests/hen. Survival and nesting currently is being monitored for the 2014 field season.

A final translocation of approximately 200 bobwhites is planned for March 2015 and monitoring will continue through the 2015 field season. This research will provide valuable insight on bobwhite population restoration techniques in the Rolling Plains of Texas. We hope our efforts will prove to be successful.

– Michelle Downey, Dale Rollins, and Fidel Hernández

Michelle is a graduate student at the Caesar Kleberg Wildlife Research Institute. She is a native of Canton, Connecticut and is working under the direction of Drs. Fidel Hernández (CKWRI) and Dale Rollins (RPQRR).

Parasites: What are they and which ones occur in bobwhites from South Texas?

A parasite is an organism that lives in or on an organism of another species (host) and derives nutrients from it. Parasites have been associated with all wildlife species for millennia and they are often perceived as benign to wildlife health, although this is not always the case. Some scientists suggest that parasites are the most successful life form on the planet. Recently, parasites have received attention in Texas because of fears that they may be playing a role in the decline of quail across the state.

We know that under certain circumstances, helminth (worm) parasites can affect individuals and populations. Population-level effects have been documented in European red grouse and sooty grouse. However, it is difficult to predict when parasites will impact individuals or regulate populations, and there is a need for in-depth studies.

Some helminth parasites have direct lifecycles. They need only one host species to complete their lifecycles and are often considered to be density dependent. That is, the more hosts that are concentrated, the more likely they will be infected with this type of parasite. As social gamebirds that spend their lives in pairs, broods, or coveys, bobwhites are theoretically more susceptible to direct lifecycle parasites than less social species.

Photo by Andrew Olsen

Cecal worms were the most prevalent and abundant helminth parasite encountered in South Texas bobwhites. Their impact on individual quail is unknown.

Parasites that use more than one host species to complete their lifecycles are known as indirect lifecycle parasites. They typically require a mollusk or insect (intermediate host) in which the larval stage develops, and are then ingested by a final (definitive) host where they develop into the reproducing adult stage. Because bobwhites are known to feed on insects, especially during the spring and summer when nutritional demands are high due to reproduction, they are theoretically susceptible to infection by indirect lifecycle parasites as well.

Unfortunately, we know very little about the parasites found in bobwhites from South Texas, a region with the largest contiguous tracts of bobwhite habitat and some of the highest bobwhite densities in Texas. In fact, the last study was conducted over 30 years ago and was limited to only 2 ranches—one in Refugio County and the other in Brooks County. Consequently, there is a need for an up-to-date landscape-scale survey of bobwhites in South Texas to determine which parasites are infecting these gamebirds.

We initiated a survey using bobwhites collected from hunters during the 2012–2013 and 2013–2014 hunting seasons. Birds came from 32 ranches in 16 counties. This surveillance effort yielded over 200 bobwhites from which 8 species of helminth parasites were identified.

By far, the most prevalent and abundant species was the cecal worm. This nematode was found in 78% of the bobwhites; the average infection was 83 worms, but as many as 585 were counted in a single bobwhite. The ceca are 2 blind sacs

that branch from the intestinal tract at the junction of the small and large intestine. These sacs are thought to serve in breaking down coarse plant material using microorganisms, after which the quail can absorb a portion of the nutrients released.

The eyeworm, which has attracted attention in the Rolling Plains as a potentially harmful parasite to bobwhites, was encountered in only 10% of the bobwhites and averaged 3 worms per infected bird (much lower than found in the Rolling Plains). This parasite uses an indirect lifecycle and it is possible that its insect intermediate hosts (likely grasshoppers or cockroaches) are less abundant in South Texas compared to the Rolling Plains.

A proventricular roundworm was found in 9% of the bobwhites and averaged 5 worms per bird. The proventriculus is a glandular stomach that begins breaking down food before it enters the gizzard. High numbers of proventricular roundworms in a quail can cause inflammation of the proventriculus and presumably impact individual quail health. However, this parasite occurred at relatively low levels in South Texas bobwhites.

The 5 other species (1 nematode, 2 cestodes, and 2 acanthocephalans) were represented by only a few individuals, which suggested they were likely of no consequence to bobwhites in South Texas.

What we have learned from our study is that all the parasites found use indirect lifecycles, demonstrating the effect of eating insects that serve as intermediate hosts. Why direct lifecycle helminths were not found remains unclear. Additionally, we found 2 species known to cause tissue damage to bobwhites (eyeworms and proventricular worms). Presently, it is unknown what impact the cecal worm has on bobwhites, but it is likely that 500+ worms in individual bobwhites cannot be inconsequential. It is important to note that the parasites found in our study also occur in bobwhites from other regions, so there are no new species found only in South Texas.

Although certain species of parasites can negatively affect bobwhite individuals, it is unknown what impact, if any, occurs at the population level. Field studies are needed to make this determination.

– Andrew Olsen and Alan Fedynich

Andrew is a graduate student at the Caesar Kleberg Wildlife Research Institute working under the direction of Alan Fedynich. He is a native of Montana.

Alan is a research scientist and associate professor at the Caesar Kleberg Wildlife Research Institute. Alan is a native of Kansas and has been a member of the Caesar Kleberg Institute for 18 years.

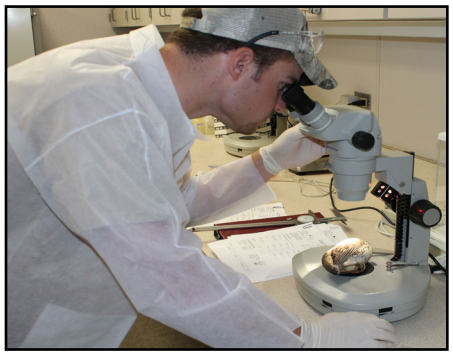

Photo of Andrew Olsen observing helminth parasites

Non-Profit Org.
U.S. Postage Paid
Kingsville, TX 78363
Permit # 172

TEXAS A&M UNIVERSITY KINGSVILLE

Caesar Kleberg Wildlife Research Institute
Texas A&M University-Kingsville
700 University Blvd, MSC 218
Kingsville, Texas 78363-8202

Editors: Eric Grahmann and Fidel Hernández