Quail Translocation Provides Mixed Results; Study Ongoing

By Colleen Schreiber

ABILENE — Translocation of wild animals has long been a management tool used by game biologists as a way to establish, reestablish or supplement an existing population.

In Texas, the translocation of wild turkeys is perhaps one of the greatest success stories. Many have tried the technique for bobwhite quail, but the success rate has been varied at best.

Michelle Downey, a graduate student with the Caesar Kleberg Wildlife Research Institute at Texas A&M-Kingsville, originally from Connecticut, is studying bobwhite quail. Her research entails a translocation project in the Rolling Plains of Texas involving bobwhite and scaled quail. She presented her data at the recent statewide quail symposium. For the purposes of this study, Downey said, evaluation of translocation success or failure is based on survival, reproduction, site fidelity, and relative abundance before and after translocation.

The wild quail were trapped on private ranches and then released on five chosen release sites in areas where quail were historically abundant and where good quail habitat remains. Three sites received bobwhites; those sites were located in Stephens, Shackelford and Palo Pinto counties. Scaled quail were released in Fisher County on the Rolling Plains Quail Research Ranch and in Cottle County on the Matador Wildlife Management Area.

Trapping occurred in March 2013-15. Every bird captured was marked with a leg band and the age, gender and weight were recorded. Additionally, all hens were radio-collared and monitored year-round.

Two different release methods were used. The “soft” release method, Downey explained, is a method whereby the wild quail were trapped and housed in “surrogators” for 30 days and released onsite just prior to the breeding season (May 1). During the 30 days quail were “sequestered” in surrogators, they were fed a commercial layer ration. The “hard” release method meant the wild quail were released within 24 hours of capture.

Sharing the results for the scaled quail, Downey said that on the RPQRR survival was “very high” and dispersal was low. The presence of scaled quail after translocation was also higher. Only “soft” releases were involved at RPQRR.

On the MWMA, half of the birds were released using the “soft” release method and the other half the “hard” release method. Results indicated a higher survival rate and less dispersion using “soft” release compared to “hard” release. However, overall, Downey documented lower survival and more dispersal on the MWMA compared to RPQRR.

“Based on these results, we recommend using the ‘soft’ release method for scaled quail in the future,” she told listeners. Additional translocations with scaled quail are planned for 2016.

As for the bobwhite, the data indicated mixed results. One site had low survival and high dispersal. At another site, where both release methods were used, there was no difference in bobwhite performance between the release methods. In fact, survival and reproductive success were similar to resident quail on the site.

A second phase of the study was a larger translocation study involving 409 bobwhites over two years; basically 200 per year were translocated. In 2013, of the 200 bobwhites trapped, 95 were hens; all 95 were radio-collared. In 2014, 91 hens were radio-collared.

The design included two ranches — a release ranch and a control. On the 7500-acre release ranch, there were two translocation sites; R1 encompassed about 1000 acres and R2 about 600 acres. The 5000-acre control ranch was 13 miles to the south.

For this portion of the study, Downey evaluated spring/summer survival, March to September, and also annual survival, March to March. She also looked at survival between years on the two different release sites, R1 and R2.

Additionally, Downey looked at different possible factors that might affect spring/summer survival. Those included year, release site, body mass, distance translocated, and length held prior to release (eight hours versus 24 hours, depending on whether captured in the morning or at night). She also evaluated site fidelity. Site fidelity was determined by tracking the distance that the radio-collared hens moved from the release point.

They were then classified as dispersers or non-dispersers. Dispersers, Downey explained, were identified as those that moved more than 1.25 miles from the release site; non-dispersers stayed within about half a mile of the release site. For those classified as dispersers, she also determined the direction in which they dispersed and evaluated whether or not the direction in which they moved was random.

Downey also evaluated reproductive variables to get a handle on translocation success. For example, she looked at percent of females nesting, nesting rate, nesting success, and nest phenology, meaning number of nests laid per month. From that information she estimated the number of chicks produced from translocated females.

Finally, relative abundance was determined using helicopter counts as well as covey call counts one time before translocation and four times following translocation on both the release sites and the control.

Downey found no difference in spring/summer survival between the two different release sites — R1 and R2 — and no difference between years.

“When averaged across the two years, about 35 percent of the translocated radio-marked bobwhites survived the six months,” Downey told listeners.

Annual survival for translocated radio-marked bobwhites averaged 23 percent. Just under 50 percent of the mortalities, she said, were attributed to avian predation and about 33 percent to mammalian predation.

Downey said she was pleased with the survival percentage because published data suggests that at least 20 percent annual survival is needed for population persistence. Other data indicate that on average, annual survival of radio-marked bobwhites is only about five percent. Thus 23 percent survival was deemed “pretty positive.”

Downey also noted that in 2013 the furthest documented movement of a radio-collared hen was 8.1 miles. In 2014 it was 4.3 miles. However, 80 to 90 percent of the translocated bobwhites stayed within two miles of their release site. She also documented that the dispersers were dispersing away from man-made structures, which included agriculture fields, powerlines, and a homestead, and toward native rangeland.

As for the reproductive variables, Downey found no difference between years. Thus she pooled the reproductive data. The pooled data indicated that about 74 percent of the radio-collared hens tried to produce a nest. Of those that nested, the average was 1.1 nests per female and nest success averaged 46 percent. Thus the simulated annual number of chicks produced by translocated bobwhites was 236.

The one reproductive variable that did change across years, Downey said, was nesting phenology. In 2013 just under 50 percent of the nests were laid in May. Nesting dropped to 25 percent in June, and nesting percentage dropped further in July. However, in August it jumped to 18 percent.

In 2014 the nesting percentage was similar for May, June and July, averaging around 30 percent, but in August it dropped dramatically to two percent.

"We're attributing this difference to precipitation," Downey told listeners. "Rainfall was greater in 2013 during the spring and summer as compared to 2014, and we got a lot of rain in July of 2013."

As for estimated relative abundance for both covey call counts and helicopter counts, there was no difference in bobwhite relative abundance between the release sites and the control site. However, there were more bobwhites at the end of the study on all sites than at the beginning.

In summary, even though annual survival was high (23 percent) and theoretically enough for population persistence, and site fidelity was good in that 77 percent of the translocated quail stayed within half a mile of the release site, and the reproductive effort of the translocated quail was high with 74 percent nesting, there was no difference in relative abundance between the control and translocation sites.

The bottom line, Downey said, is that there was no population response due to translocation.

She offered a couple of possible reasons for the lack of a population response despite the positive demographics she observed. The first reason could be that translocation failed; another is that the relative abundance measurements were not precise enough; and/or perhaps translocation has a latent period, thus the impact of translocated birds on the overall population has not yet been detected. The sites will be monitored again in November to assess any "lag effect."

Wrapping up, Downey offered some possible techniques to consider for the future if translocations are tried again. She suggested that survival may be improved further by using the "soft" release method with the surrogator and/or prior to release injecting the birds with Vitamin E and selenium to lower capture myopathy. Another research project showed this technique lowered stress and improved survival.

Downey also told listeners that site fidelity could possibly be improved more if translocations were done before quail densities got particularly low or if quail were released into areas where resident coveys were known to exist. She also suggested possibly playing a recording of bobwhites at the time of the release or having a callback bird to "anchor" translocated bobwhites to the site.

Other improvements for evaluating translocation results, she said, should include genetic and population viability analyses.

“That way we could get a better handle on whether and/or how much translocated bobwhites are contributing to the genetic makeup of the population,” said Downey. “A population viability analysis would allow us to better predict population persistence into the future.”

Finally, Downey told listeners that the focus right now is on maximizing translocation success. The problem is that success tends to be defined in many different ways. Some researchers base translocation success on high survival rates, others on high reproductive rates, and others may actually base it on population sustainability.

“We need to decide on how to define success.”

Once that has been clearly defined, Downey suggested that policy may need to be developed to further improve on translocation success. Such policy may call for certain management techniques, habitat requirements or even density requirements of resident birds before translocation could be done.

Land managers and quail enthusiasts in Georgia, she pointed out, have had the greatest success with bobwhite translocations.

“They have documented that translocated bobwhites survive, reproduce and have similar home ranges to resident bobwhites,” said Downey. “They’ve also documented a positive population response after translocating.”

Based on these positive results there is a policy now in Georgia whereby landowners can apply for a permit from the state to have bobwhites translocated to their property.

Downey suggested that perhaps one day a similar kind of program could be developed for Texas in the hope of increasing bobwhite and scaled quail populations.