Quail-News

The Quail-Tech Alliance Newsletter
Fall 2013

Quail-News: Issue 11.0

What's Been Going On?

By Brad Dabbert

I want to take the first paragraph of this article to thank the many people who really have allowed the Quail-Tech Alliance to get things done. Financially, we have been blessed with record funding of over $1.5 million in grants and donations during 2013. These funds have come from the Burnett Foundation, The Park Cities Chapter of the Quail Coalition, The Hill Country Chapter of the Quail Coalition, The Cross Timbers Chapter of the Quail Coalition, Texas Parks and Wildlife, Quail First, and The Bromberg Foundation. Additionally, credit goes to our anchor ranches and landowners who make this work possible with their generous participation in the program. We specifically honored the efforts of Mr. George Allen of the Circle A and Duckworth Ranches this year with our Quail Patriot Award. Finally, much credit goes to our graduate and undergraduate students who work tirelessly during many hours of the clock and in all types of temperatures to complete all of the projects you are about to read about. I want to express my sincere gratitude and appreciation to all of the groups and people who make this work.

As usual, Fall 2013 has been extremely busy. We have completed about 90% of our fall covey call counts and have been continuing our multi-pronged efforts to benefit quail. There is a wide range (0.2 to 10) of means among Anchor Ranches with a mean of the 24 Anchor Ranches surveyed thus far of 3 coveys per point. You can use Figure 1 to put these numbers into the context of birds per acre. Dr. Bill Palmer and his research group at the Tall Timbers Research Station developed this tool. It contains some assumptions regarding covey size and calling rate, but you will see that given these assumptions 10 coveys per point is over a bird per acre. (continued)

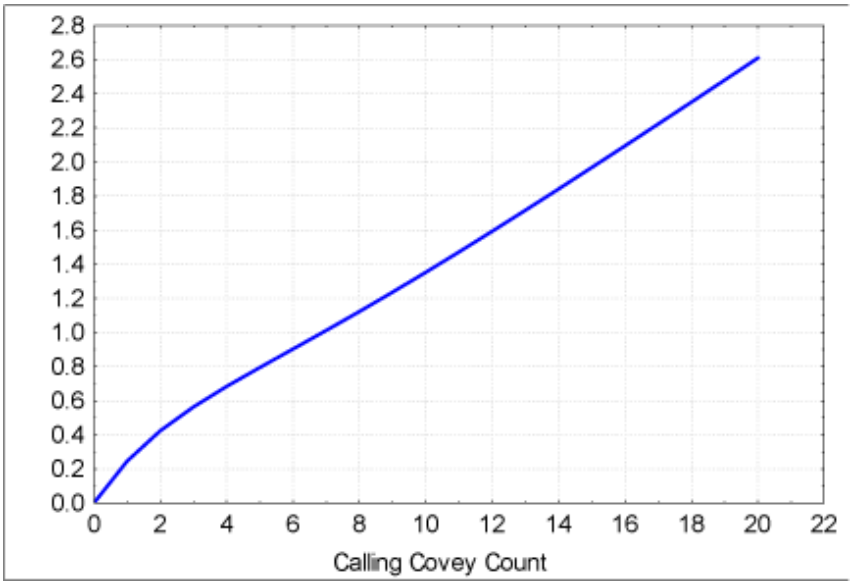


Figure 1. This graph represents the approximate density of quail using early morning covey call point counts using a 194 acre listening area (500 meter listening radius). Used with permission from Dr. Bill Palmer.
See http://www.talltimbers.org/gb-fall_densities.html

In this Issue:

Fortunately covey counts on anchor ranches this year are a 30% increase from our Fall 2012 numbers of 2.3 coveys per point and a 100% increase from our 2011 value of 1.5 coveys per point. However, we are still short of our 2010 average of 3.5 coveys per point. It appears that rains during the reproductive season were sufficient to allow reproduction, chick growth, and recruitment into the fall population on most of our anchor ranches. For instance there was very high recruitment on our supplemental feeding study sites on the 6666 Ranch, with birds hatched in August successfully entering the fall population (See article in this issue). It is terrific to see population growth in some areas. However, as I have said before, it is extremely important to shepherd as many birds as possible through the winter and spring. And, not all areas have experienced growth. Consequently, we suggest landowners use supplemental feeding with milo broadcast into the habitat as we have shown this method increases survival of northern bobwhites in the Rolling Plains. Additionally, we recommend landowners be conservative shooting birds again this year.

There are updates in this issue on many ongoing efforts including our wild bird translocation project, wild-strain parent-reared bird release project, immune function project, genetics project, sympatric bobwhite and scaled quail project, and the restart of our supplemental feeding study. Additionally Dr. Ron Sosebee has a timely article concerning grazing management decisions that landowners are currently facing.

Finally, I do have a new project to announce. We have been awarded funding from Texas Parks and Wildlife to put habitat management on the ground in the Rolling Plains. This work will involve burning, disking, and brush management. Dr. Robin Verble-Pearson, the relatively new Fire Ecologist and prescribed burning expert in the Department of Natural Resources Management, is a co-investigator with me on this project. I look forward to working with her to improve quail habitat on our anchor ranches.

Dr. Robin Verble-Pearson on a recent prescribed burn.

I hope you enjoy this issue of the newsletter and have a wonderful Thanksgiving!

Project Update

Comparing Demographics of *Sympatric Northern Bobwhite* and *Scaled Quail*

By Thomas Warren and Brad Dabbert

We presented a new study in the last newsletter whose purpose was to examine the influences of management and the environment on the demographics of sympatric northern bobwhite and scaled quail on the XL and Kritser Ranches. Since we published our scaled quail work in the Journal of Wildlife Management in 2006, we have wanted to continue work on this fascinating species. Though some evidence in the scientific literature suggests scaled quail should be more resilient to the influence of drought, they appear to be faring worse than Northern Bobwhite. It is extremely important that we learn all we can about differences between these species.

We described the initial trapping efforts for this project in our last article but will provide this information again. Trapping for this project commenced in mid-February 2013 on the XL and Kritser Ranches and concluded in early April. The final count totaled an impressive 217 quail captured - 105 scaled and 112 bobwhites. Seventy-five percent of the 105 scaled quail captured were juveniles while 61% of the 112 bobwhites were juveniles. This large proportion of the population composed of first season birds suggests strong recruitment into the population from the previous breeding season. Certainly surprising numbers considering the summer range conditions – the August U.S Drought Monitor map released by the USDA (see the attached USDA figure) indicated the west-central Texas panhandle remained under severe to exceptional drought.

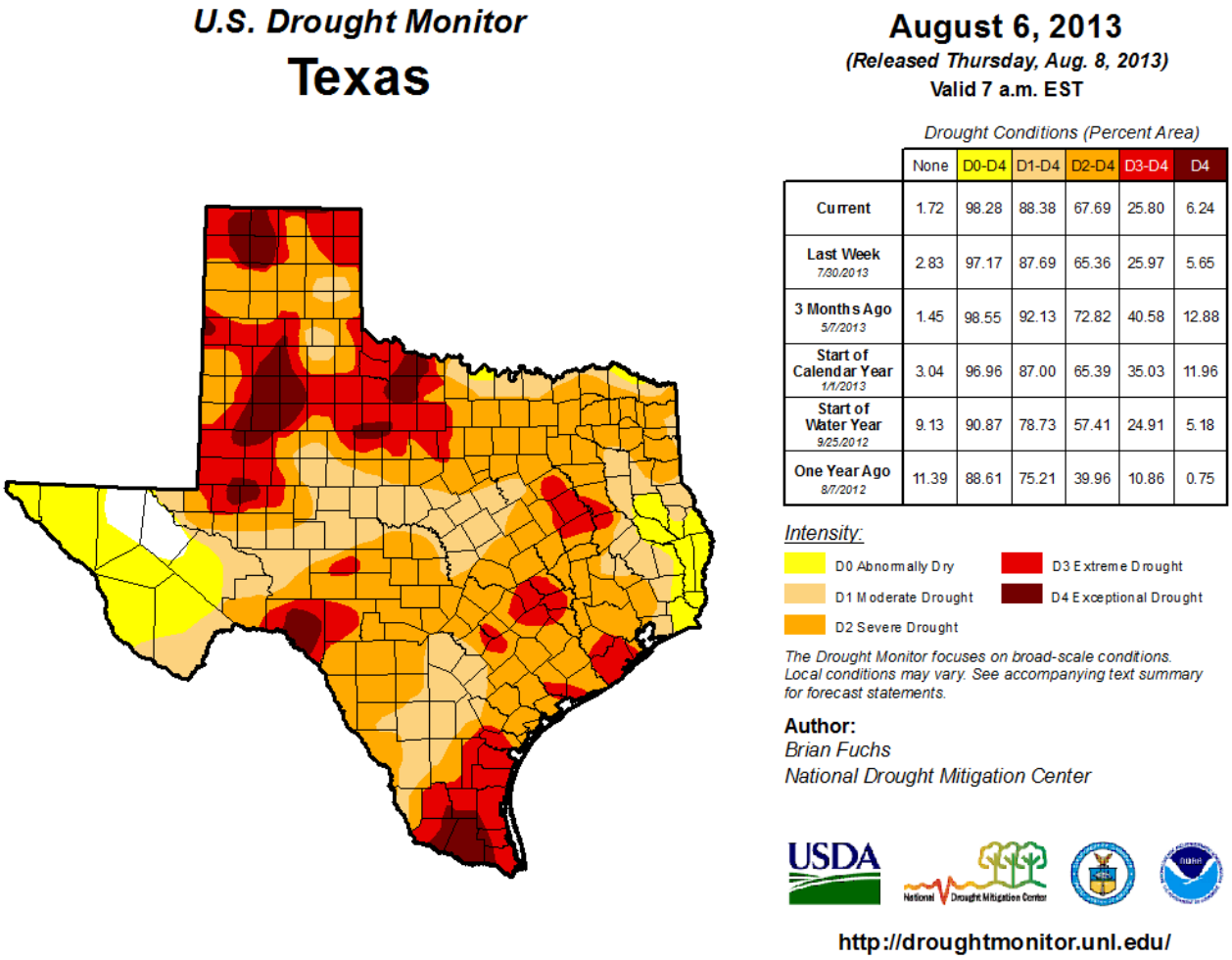
A young (<7 days) scaled quail chick hatched from a 2nd nest attempt in late July attempts to hide. The first nest was depredated.

How many chicks can you count? These young were taking a mid-day siesta under the shade of a aromatic sumac bush. They are combined broods from two separate nesting bobwhite hens.

Forty-nine scaled quail hens and 62 bobwhite hens were fitted with radio transmitters to allow us to monitor their survival, movements and reproductive efforts. Demographic and habitat analysis are still underway, as this project is not yet a year old. However, we can present some preliminary data. Despite the generally poor range conditions from drought as well as late freezing temperatures extending into early May, survival of both species was relatively high throughout the spring and summer 2013. As of early August, 77% of bobwhite hens and 60% of scaled quail hens survived through the hardship of breeding season. Sixty-five total nest attempts were discovered this year – 30 bobwhite, 35 scaled quail. The great news is an amazing 86% of bobwhite nests successfully hatched while scaled quail successfully hatched 59% of attempts! Comparing these success rates to a range-wide average of about 35% nest success for bobwhites shows you just how high the nest success values are on the XL and Kritser.

(continued)

Given the habitat conditions from multiple years of severe drought the high numbers on the XL and Kritser are truly surprising and welcome numbers. While no bobwhites were found to initiate a second nest following a successful first hatch, two scaled quail hens did initiate second attempts to nest. It is certainly interesting that estimates of bobwhite survival and nest success are greater than those of scaled quail on the same ranches, given general observations that bobwhite populations are currently faring better than scaled quail populations. Look to future issues for details concerning habitat use and reports about more monitoring during 2014.



Texas drought conditions circa August 6, 2013. Note the severe to extreme conditions persisting across the Panhandle and Rolling Plains.

Range Management Perspective

Where do we go now?

By Ronald E. Sosebee

Is the drought over? Only time will tell. However, every climatologist that I have heard or read during the past year indicates that we are still in a drought and will continue to be in one, at least, for the next few years. This doesn't mean, however, that it is time to throw in the towel and give up on the management of our rangelands.

Abundance of "basal" leaves of sideoats grama following reproduction in 2013.

Some areas within the Rolling Plains have received very timely rains during the past six months and other areas remain in extreme drought conditions. If you are one of the fortunate landowners who has received timely rains and have some grass, now is the time to protect those grasses (i.e., defer some of your pastures) so they can be productive next year. Now is the time to evaluate the residual (reserve or stockpiled) forage that you have and adjust your stocking rates according to the amount of forage that you have in your pastures now that the grasses are becoming dormant. The amount of forage that you have now will determine the amount of production that you will have next year. As discussed in previous issues of the Quail-Tech Newsletter, it is the new basal leaves that are produced following reproduction that recruit tillers and store carbohydrates from which next year's growth will come.

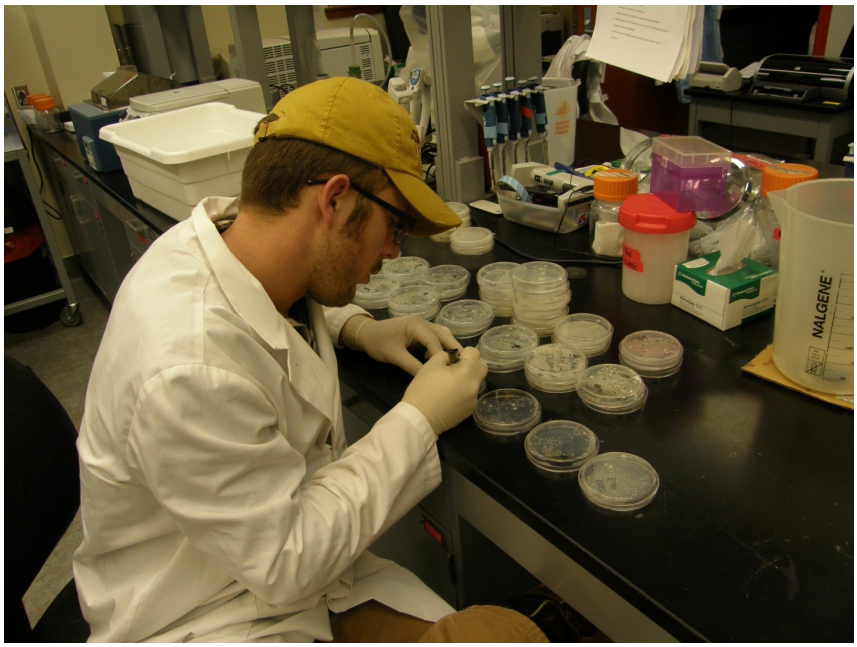
From the standpoint of the range resources, if you have grass in your pastures, now is the time to rest your pastures and not the time to start rebuilding your livestock herd. An option to rebuilding a cow-calf operation, stockers allow one the opportunity to "put and take" animals as the forage base permits. If, on the other hand, you are in an area that is still under extreme drought conditions and your grass production is very limited, now is the time to consider culling your livestock or destocking, if you have not already done so. As someone once said, "we cannot feed our way out of a drought". Therefore, feeding hay to survive the drought is not a prudent option. Livestock fed hay during a drought still "graze"' in the pastures (unless they are "dry-lotted") picking any new green growth that pops up through the soil further damaging the grass resource. Denuded rangelands do not provide adequate habitat for either quail or livestock.

Project Update

Measuring Immune Function in Quail

Drew Arnold and Brad Dabbert

In our last newsletter we told you about a new effort to increase our understanding of the influence of environmental factors (e.g. weather, nutrition, etc.) and life history factors (e.g. molt, reproductive cycle) on the quail immune system. If disease processes play a role in limiting quail population growth, it is also likely that environmental factors reduce the ability of the quail immune system to function properly making them more susceptible to infection with disease agents that they encounter or carry. We mentioned a common statement that we hear from landowners in the last newsletter. That is, "We saw significant quail populations present in August and September, but few to no quail in November." This apparent rapid reduction in bird numbers has led to a lot of discussion concerning the hypothesis that diseases can limit the growth of quail populations. There are currently several good investigations of disease exposure in quail; including our own screening for West Nile Virus that has been mentioned in previous newsletters. However, identification alone will not be sufficient to advance our knowledge of the disease hypothesis, or to most effectively develop strategies for dealing with potential problems.



Drew Arnold counts bacterial colonies on agar plates to evaluate quail immune func-

In the last newsletter we described how Drew was busy optimizing some new assays that we have started using to evaluate immune function of quail in both the laboratory and field. The first assay was a bacterial killing assay that measures the ability of antimicrobial components of quail blood (plasma samples) to kill a specific bacterial load. Optimizing this assay is a matter of determining the correct ratio of plasma sample and bacteria in the assay and the optimal incubation period to reach about 70% bacterial killing. The relative amount of bacterial killing of other samples (other wild birds) can then be compared to a standard to see if they are high or low. As usually happens in science, the optimization process itself provided new data and new questions. In order to conserve the sometimes modest amounts of plasma taken from wild birds in the field, we used plasma collected from pen-strain bobwhites to optimize the assay. When wild quail plasma was used in the assays after optimization, we observed little bacterial killing. The assays had to be re-optimized for wild quail plasma. The assays optimized using pen-strain quail plasma were producing a killing capacity of around 70% while the wild quail serum produced a killing capacity of only 1-5%, or even allowed increased bacterial growth for the same optimization time. This large difference in the bacterial killing capacity of plasma samples between pen-strain and wild quail immune systems could be explained by many factors including nutrition, genetics, and stress. Those observations generate new hypotheses and new experiments. Ultimately, we successfully optimized the assay for wild quail plasma samples and a steady stream of samples from several ranches is currently being processed. Numerous samples have been run through the assays and we will continue to run more as new samples are obtained and the trapping season progresses. We look forward to providing more information as this project progresses.

Project Update

Survival and Movement of Parent-Reared Northern Bobwhite Released into the Rolling Plains of Texas

By Mark Thomas and Brad Dabbert

Wild-strain, parent-reared chicks released into habitat on an anchor ranch.

You might recall that we are collaborating with investigators at the Tall Timbers Research Station in Tallahassee Florida who have developed a parent-reared process in which wild-strain bobwhite chicks imprint on captive bobwhite parents and are then reared by these parents in outdoor enclosures that mimic native habitat (see newsletter issues 6.0 and 7.0 for more explanation). Data from Florida and Georgia indicate parent-reared birds survive well and successfully reproduce better than quail raised communally in flight pens. The parent-rearing and release process has been so successful that it is being commercially used to jump start populations in many southern states. For instance, a recent article in a popular hunting magazine documents a success story in South Carolina. The Douglas family, with the guidance of Tall Timbers biologists, used pine thinning and prescribed burning to change an overgrown lowland tract back into quail habitat with few quail present. When the habitat was ready, they released wild-strain, parent-reared chicks onto the property. Two years later they had a growing population of wild bobwhites and were hunting on a limited basis (Nickens 2012). The wild-strain, parent-reared chick program in Texas is being evaluated as a way to safeguard genetic stock and to increase reproductive success on ranches in the Quail-Tech Alliance Research Program.

This wild-strain parent-reared chick is about to be fitted with a 3 gram radiotransmittter.

As Thanksgiving quickly approaches we are hard at work monitoring our parent-reared quail that were released on anchor ranches this fall and summer. We released the last of the 2013 cohort out in the field during the 2nd weekend in November. To date, we have released over 450 parent-reared birds on 10 Quail-Tech Alliance anchor ranches. It has been a long journey from February 2013 when we first started increasing the photoperiod for our wild-strain breeding colony birds to begin egg production. As May came and went we were busy completing adoptions of newly hatched chicks with parent quail. We have seen many challenges this year, mainly in the form of inclement weather in the early to mid summer. Several strong storms moved through the Lubbock area bringing very heavy wind and rain. During these storms, we lost many chicks in our wild-habitat pens reducing the total number of chicks we could release this year. Considering the preliminary data, things look excellent on the Clark Ranch in Nolan County where we have 50% survival of birds in the field for over 10 weeks. Similar to our pilot study (see newsletter 9.0), we lost all birds within the first few weeks on some ranches. Survival on other ranches has ranged from 10 to 30%, with our release birds joining wild coveys or being joined by wild birds in some instances. As we continue to collect data in the coming months, we will be examining the differences in habitat conditions and predator populations among release sites so that we can fully understand the conditions that lead to success, or failure.

Nickens, T. E. [*internet*] 2012. Tall Timbers: in search of the wild flush. Garden and Gun *[cited Apr 29, 2013]. Available from:* http://gardenandgun.com/article/quail-population-restoration

New Supplemental Feeding Study Started

By John McLaughlin, Byron Buckley, and Brad Dabbert

A beautiful sunset on the 6666 Ranch. The life of a biologist is not bad.

Over the past three years the Quail-Tech Alliance has been working hand in hand with the proactive 6666 Ranch in Guthrie, TX to try and answer a simple, yet sophisticated question: does supplemental feeding work? And while one might think the answers can be gleaned easily, our quest to solve the riddle has taken time, patience, and hard work, both from our biologists and ranchers alike.

One of our biologists, Byron Buckley, recently finished his master's degree at Tech investigating this very question. Innovating and working from previous research, Byron evaluated the efficacy of broadcast feeding milo (sorghum) into roadside vegetation, bucking the trend of stationary feeders and food plots. He found that providing feed in this manner, throughout the winter, produced a variety of benefits including increased survival (10.6% and 21.9% higher in 2010-11 and 2011-12, respectively) and improved physical condition of the birds heading into the breeding season; in essence, allowing hens to nest earlier and longer and increasing the likelihood of hens attempting to re-nest[2].

As a body of work, this research continues to bolster the argument that supplemental feed supplied in this way is working and adds to a larger landscape of studies. However, while quail have experienced positive results at the 6666 Ranch, one of the limiting factors for any rancher, private landowner or wildlife agency, is implementing a management program that not only arrests the decline of northern bobwhites, but one that is also economically viable for the parties involved. While buoying quail populations is a noble and worthy cause, the financial end of the program must be reasonable for the manager, otherwise it cannot sustain itself.

During the past few seasons the 6666's Ranch had been feeding milo at a rate of ~155 lbs/0.5 mile, twice per month, to obtain the aforementioned results. The subsequent question to ask now is, can we cut the feed rate in half and still yield positive survival results, thus continuing to benefit quail and equally importantly, our rancher's wallets? This is where the new project begins and what we hope to answer over the impending two years.

A juvenile male fitted with a radiotransmitter that is being aged before his release. He is growing his 8th primary (shorter primary feather marked by the arrow), approximating age at 119 days.

Working with the wildlife managers and 6666's Ranch owners we have begun another round of radio telemetry on the ranch, hoping to track survival throughout the winter and evaluate nesting in the spring. Our study site will expand Byron's initial research, adding on to the existing 8,000 acre study site with an additional 1,000 acres and selecting another 3,000 acre pasture to the north, allowing us to compare survival and nesting between sites. Of the 12,000 acres we will have 12 different sub-units, each a thousand acres in size. In total we will have four (4) units provided with the full feed rate described above, four (4) units fed at half the 155 pound rate, and four (4) units that will serve as our controls (no feed). (continued)

All birds receive a band so that we can track their movements and survival for years to come.

In summary, we restarted the project this fall, beginning our trapping in early October. So far we have caught a total of 168 birds, 84 males and 83 females. Of those, 128 have been fitted with radio telemetry collars from American Wildlife Enterprises, 54 males and 74 females, and we are currently in the process of monitoring those birds on a weekly basis. A positive sign during this initial trapping period has been the sheer number of birds on the ground with covey sizes ranging well up to 20 birds. And of our 168 birds captured, 136 have been juveniles. With proven aging techniques we know that birds were being hatched well into August of this year; an indication of strong fall recruitment.

Moving forward we look to our continued partnership with the 6666 Ranch as a vital piece for understanding and managing quail populations. Their generosity and commitment to ensuring the continued success of northern bobwhite quail populations in west Texas ushers in hope for the species. This year we have a new partner in this project, The Park Cities Chapter of The Quail Coalition. We certainly appreciate their willingness to join this project with a generous donation. We are excited to delve into these new projects and advance science, common sense, and practical on-the-ground wildlife management in the region.

[1]Nesting season length was 17 and 39 days longer in 2011 and 2012, respectively.
[2]For more information on the project site and previous results, please see our “Winter 2012” newsletter.

Project Update

Bobwhite and Scale Quail Genetics w/ Additional Sample Collection

Byron R. Buckley, Peter Schlichting, and Brad Dabbert

As we move in to the winter months, quail have been reforming their coveys, which indicates to us that "trapping season" is upon us once more. We trap quail to obtain biological samples and to band them before releasing them back into the wild. We are organizing our equipment and training new personnel to maximize our efforts on our anchor ranches. Our goal is to visit as many ranches as possible this winter to increase our sample size for current and future analyses. We will also be attaching radiotransmitters to some individuals on different ranches so we can keep tabs on them throughout the year.

We mentioned in the last newsletter that we were starting a study to evaluate the genetic diversity of quail in the Rolling Plains of Texas. Genetic diversity can be an important telling sign for survival and adaptability of a species. High genetic diversity in quail will reduce the chances of inbreeding and ensure reproductive vigor. As natural habitats undergo drastic changes and weather patterns fluctuate widely, the ability for a species to adapt is paramount. As habitats change and grow more fragmented across Texas, bobwhite populations have potentially become isolated from one another. This isolation could lead to a reduction in genetic diversity, which could compromise future generations of bobwhite and scaled quail.

An early morning covey rise during the 2012-2013 trapping season.

We have been diligently working on the blood samples we have collected during the past 3 years of trapping. This summer/fall Peter Schlichting spent 4 months at the University of Wyoming working with Dr. Melanie Murphy analyzing Quail-Tech's 2010-2013 genetic samples. Over 750 blood samples were analyzed at 13 neutral loci. Results are very preliminary but it appears that quail in the Rolling Plains, as a whole, have high levels of genetic diversity. Smaller scale genetic diversity analyses are ongoing, but local adaptation appears to be present with several ranches having novel genes.

Bobwhite hen awaiting banding before being released back into the wild.

Future analyses to be completed this spring will identify landscape variables that prevent or facilitate movement of quail across the landscape at varying spatial scales. This information can be used to inform managers about strategies for connecting quail populations. High levels of connectivity decrease the risk of inbreeding and other negative impacts of small population size. Low genetic diversity is a warning sign that more drastic management might be necessary, such as translocation of new birds into an area. Additional results will be revealed in our newsletters as the results become available. This project will be on going for the next 3-4 years as we collect more and more samples from the Rolling Plains of west Texas to better understand various factors that are potentially influencing bobwhite and scaled quail populations.

Project Update

Bobwhite and Scaled quail Translocation Study

By Sean Yancey and Brad Dabbert

You might recall that we described the pilot effort of a new project in the last newsletter. The purpose of this new project is to examine the feasibility of relocating quail from a relatively dense, stable population to an area where they are absent, but where suitable habitat is available and timely recolonization is not expected because of factors such as isolation. Translocation of wild quail from donor populations to newly managed lands has been a successful technique in the Southeastern United States. Mountain quail have also been relocated in Oregon with similar success. This translocation technique might also be successful in the Rolling Plains of Texas. However, properties in the Rolling Plains might not harbor sufficient numbers of northern bobwhites to be a source population to attempt translocation, and scaled quail are not readily available. Populations in South Texas appear to be more stable because of more frequent precipitation and related plant growth. Properties where northern bobwhites and scaled quail are abundant in South Texas might be donors for properties trying to re-establish populations following drought or habitat improvement. It is yet unclear if quail locally adapted to South Texas conditions can survive and reproduce in the Rolling Plains. A successful protocol for translocating quail from South Texas to the Rolling Plains would provide many management benefits. Knowledge of the feasibility of relocating wild northern bobwhites in Texas is very limited. If relocation is successful in Texas then it might help to restart wild populations in areas where habitat has been restored but recolonization by wild birds is unlikely.

A scaled quail captured on the Jacalon Ranch in South Texas.

Scaled Quail captured in South Texas in a trap baited with grain.

We started the pilot study (See Newsletter 10.0) to test initial responses of northern bobwhites and scaled quail in March 2013. A sample of quail (27 bobwhites and 25 scaled quail) were captured in Webb and Zapata counties in South Texas and transported 582 miles to Collingsworth County. Every precaution was taken to reduce stress and minimize contact with humans. Birds were also treated with an intramuscular injection of vitamin E and selenium to mitigate potential transport myopathy conditions. Individual quail were placed into groups (by species) from 10-13 individuals and released at various locations on the Mill Iron Ranch in Collingsworth County in the Eastern panhandle of Texas. Fourteen bobwhite hens and 17 scaled quail hens were radiomarked to monitor survival and behavior. Initial losses in the first 2 weeks were minimal, but severe winter weather events during late spring 2013 and predation drastically reduced survival. All scaled quail translocated succumbed to weather, predation, or could not be relocated by the start of summer 2013. Two bobwhite hens (14% survival) were recorded alive through the 2013 nesting season and through the duration of battery life of the radio collar. One hen was on adjacent property which we could not access, but was recorded alive through August. The other hen was observed paired with a male and attempting to nest, however, no successful nest was recorded due to one nest predation. (continued)

Captured scaled quail on the Jacalon Ranch in South Texas.

We are now in the midst of trying a fall release. Trapping in South Texas (Webb and Zapata counties) commenced on November 9, 2013 in which 75 quail (27 bobwhites and 48 scaled quail) were captured and treated with vitamin E and selenium and transported to the Mill Iron Ranch in Collingsworth County for release on November 20th. Of the 75 captured quail, all 39 hens were equipped with a radio transmitter to allow monitoring of movement and survival. Supplemental feed will periodically be provided in their release areas in an attempt to curb high mortality rates. Another round of trapping is set for late February or March of 2014 to translocate more quail to the Mill Iron Ranch. We look forward to providing data from this release in a future newsletter. We hope that this study will yield data that will allow development of an effective translocation protocol to the Rolling Plains of Texas.

A Northern Bobwhite male fitted with a radio transmitter being released at the Mill Iron Ranch in Collingsworth County, Texas.

Congratulations again to the Quail-Tech *2013 Quail Patriot of the Year* **George Allen!**