

Quail Call



Tall Timbers Quail Research Report | 2022

Game Bird Program Update

The Tall Timbers' Game Bird Program has a long history of pushing the needle forward in bobwhite research and management. Working with a talented group of land managers and our University partners, this model of modern quail management has proven successful both locally and across the region where applied at the proper scale and intensity. This effort has helped shape policy, legislation, expand populations, and improve our understanding of bobwhite ecology, management, and hunting. As interest and awareness of successful bobwhite management has grown, so has the Game Bird Program. Over the past few years, the Game Bird Program has expanded to include five regional programs, ranging from Texas to the Carolinas, with projects stemming from Arkansas to Pennsylvania. In this year alone, three new biologists have joined the program. While this growth has increased the capacity of Tall Timbers to advance our mission across the region, we recognize the critical importance of maintaining a high level of engagement with our local partners in the Red Hills and Albany Regions.

While research and monitoring are fundamental components of the Game Bird Program, the application of these research results by landowners and land managers is what truly defines the value of our work. The Tall Timbers' Game Bird Program recognizes the importance of building relationships with our constituents to ensure that the direction of our research is applicable and implemented. We have dedicated ourselves to building an extension network to expand and organize our outreach and technical guidance capabilities. The structure of our program has provided us the opportunity to conduct 175 site visits on more than 75 properties in just the first 6 months of this year. As we move forward, we will continue to emphasize the importance of meeting the needs of landowners and land managers through applicable research and a structured approach to disseminating this information. Along with site visits, the outlets for this dissemination include various gatherings and field days, professional meetings, scientific publications, and publications such as our *Quail Call*. This summer, a contingent of about a dozen of our staff and students will be attending the 9th National Quail Symposium to present the results of some of our work—ranging from habitat management to variability in demographic rates, and habitat use by owls.

In this issue of the *Quail Call*, we highlight several of our ongoing research projects, including a thorough investigation of bobwhite crippling loss and the effects of quail management on various other wildlife species and ecosystem services. A primary objective of this issue of *Quail Call* is to demonstrate the breadth of our program and the many biologists, students, technicians and interns who play a vital role in the success of our work. We hope you enjoy this issue and would like to thank you for your dedicated support of the work we do in the Tall Timbers' Game Bird Program!



Inside

TALL TIMBERS AND ALBANY QUAIL

Mid-summer Hatch Report	2
The Multiple Benefits of Quail Management.....	5

RESEARCH PROJECT UPDATES

"Industry Standards" for Dog Training on Quail Hunting Courses	6
Examining Crippling Loss Rates Across the Bobwhite Range	8
Mourning Doves: The Other Highly Prized Bird!.....	9
Are Bobwhites Becoming More Wary?	10
Male Contribution to Reproduction: A Random Occurrence or Indicator of Population Status?	11

Quail Management Provides Many Ecosystem Services	12
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BEYOND THE RED HILLS

Central Florida Rangeland Quail Program	13
Western Pineywoods Quail Program	16
New Project at Ichauway	17

UPCOMING EVENTS

SUPPORT

Quail Research	18
Game Bird Team.....	19

Mid-Summer Hatch Report 2022

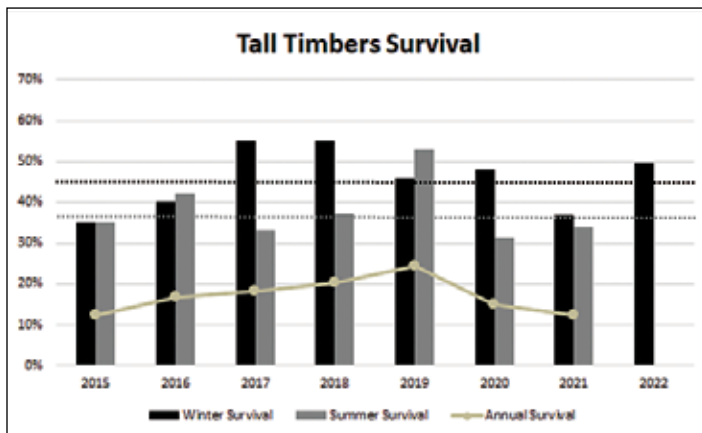
By Alex Jackson, Clay Sisson, and Amanda Schmidt



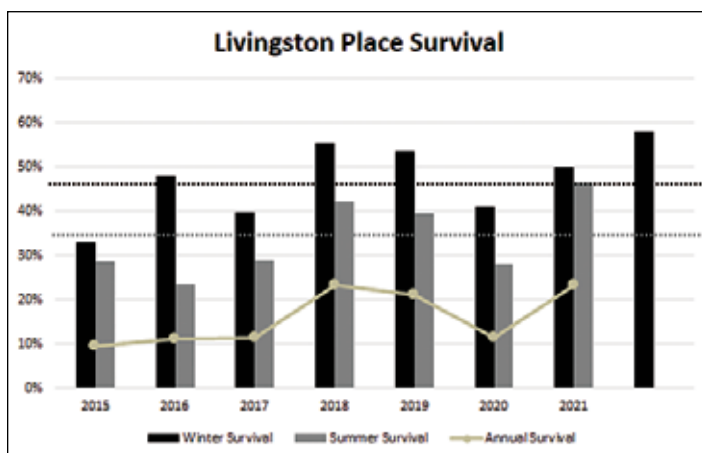
As quail hunters, we like to think about watching good dog work and covey rises on a cold winter day. What we often don't consider are the many factors that lead up to these moments. In the heart of quail country, land owners, land managers, and quail biologists spend nearly every day thinking about these "behind-the-scenes" factors and are constantly looking for ways to predict the prevalence of these winter covey rises. The long-term data sets we have collected across Tall Timbers' study sites provide us some power in which to make such predictions. While cold days quail hunting may be months away, the bobwhite breeding season is in full-swing. Fortunately, the first half of the 2022 breeding season has brought reason for optimism.

RED HILLS

As we have said before, the breeding season truly begins with what birds have "carried-over" from the fall population. In the Red Hills, Tall Timbers and Livingston Place both experienced above average over-winter survival (Figure 1a, b). In fact, Livingston Place had record high over-winter survival since population monitoring first began in 2014.



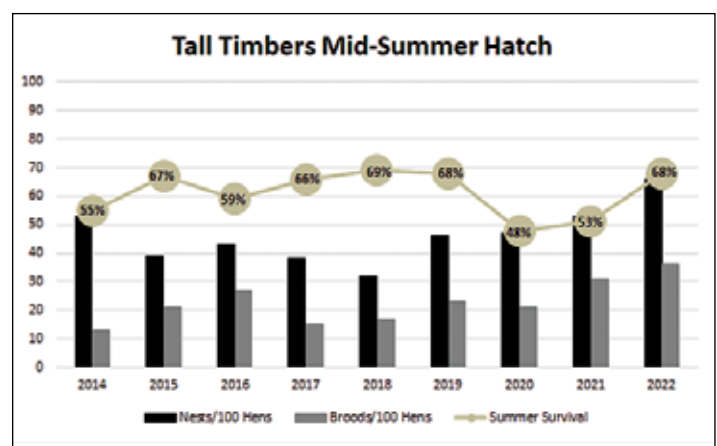
1a. Seasonal and Annual Survival of radio-tagged quail on Tall Timbers near Tallahassee, FL from 2015-2022 compared to the average for the same time period.



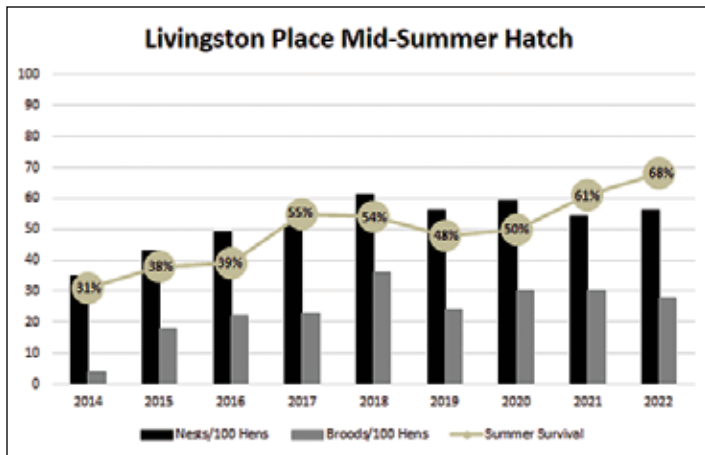
1b. Seasonal and Annual survival of radio-tagged quail on Livingston Place near Monticello, FL from 2015-2022 compared to the average for the same time period.

The excellent carry-over across the Red Hills set the region up for a promising start to the 2022 breeding season. The Red Hills experienced good rains shortly after burn season, helping to quickly restore cover conditions. The rains subsided and dry weather blanketed the region throughout the first hatch, resulting in excellent chick survival. Reports of early brood sightings were coming in from properties across the Red Hills, and our radio-tagged samples on Tall Timbers and Livingston Place supported these findings.

At the mid-point of the breeding season, our radio-tagged samples on both properties are demonstrating above average per-capita nest and brood production (Figure 2a, b). In fact, nest and brood production on Tall Timbers is 43% and 56% above average, respectively, when dating back to 2014. Additionally, adult summer survival has been excellent on both Tall Timbers and Livingston Place, providing optimism for the second half of the breeding season. However, as we learned from last year, weather can play a big role in dictating the hatch. If conditions remain favorable and survival continues its current trend, the 2022 breeding season is shaping up to be a good one in the Red Hills.



2a. Tall Timbers mid-summer adult survival and nests and broods/100 hens on July 15, 2014-2022.

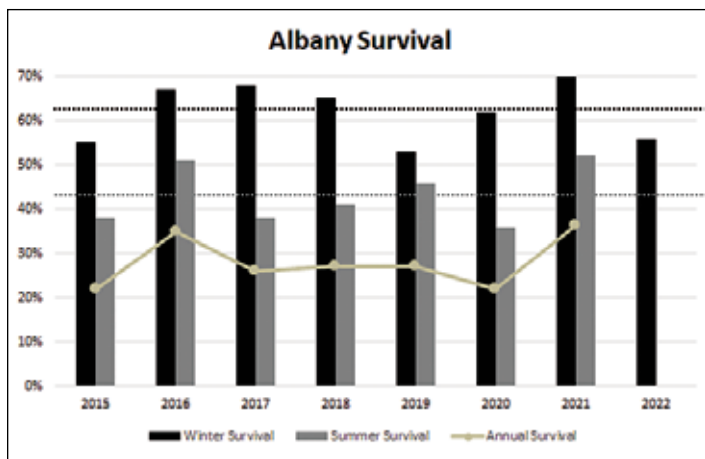


2b. Livingston Place mid-summer adult survival and nests and broods/100 hens on July 15, 2014-2022.

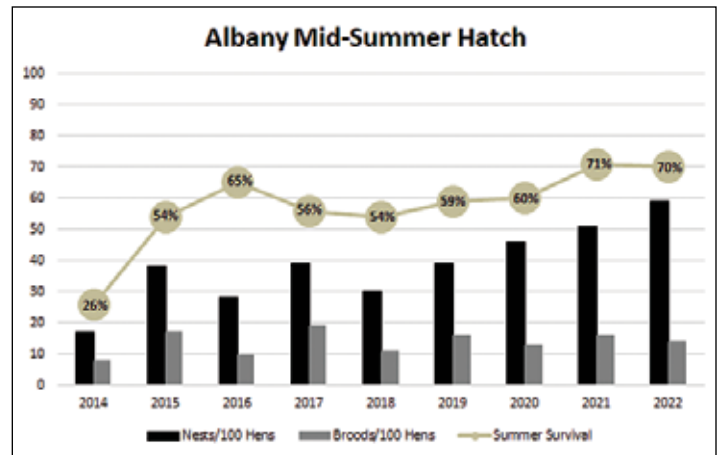
ALBANY

This year’s Albany population is also being built on carry-over from what was a record fall density in 2021, and a record hunting season in 2021-2022. This is a continuation of the pattern of high survival we have seen in Albany going back to 2016. Average annual survival during that time period has been nearly 30%. Even though the percentage of the fall population surviving to this spring (56%) was slightly below average (Figure 1c), this still resulted in very high spring breeding numbers due to last fall’s density. At the midpoint of the 2022 nesting season in Albany, female per capita nest production is high, but brood production is only about average (Figure 2c).

An interesting occurrence was the roughly two week earlier start to the nesting season this year, as our first brood hatched on May 15, with several more hatching before the end of May. This turned out to be a good thing, as the same dry conditions that helped the Red Hills were more extreme in Albany during mid to late June, which made conditions tough for any broods hatched during that time. Much of our early hatch already had a little age on them by then, so they



1c. Seasonal and Annual survival in Albany, Ga from 2015–2022 compared to the average for the same time period.



2c. Albany mid-summer adult survival and nests and broods/100 hens on July 15, 2014-2022.

fared pretty well and were old enough to take advantage of supplemental feed.

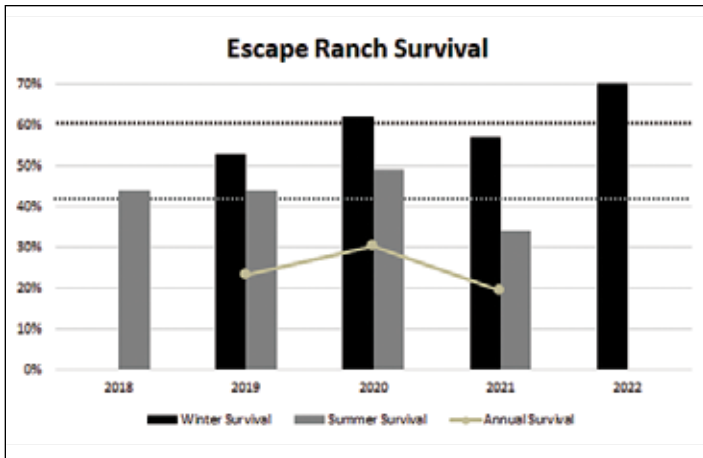
High nest loss is a concern at this point, with most of the loss being from snakes. We suspect the dry spell may have contributed to a decline in rat numbers and magnified the playing out of the “new ground effect” following clean up from storms in 2017-2018, both of which may be impacting the hatch. We will know more about this when we do our cotton rat counts in August. The good news is that adult summer survival is still very good and July has brought rains. This is positive news for the second half of the nesting season and reason for cautious optimism. As we have seen before on this sandy land in Albany, a little rain can wash away a lot of problems.

CENTRAL FLORIDA

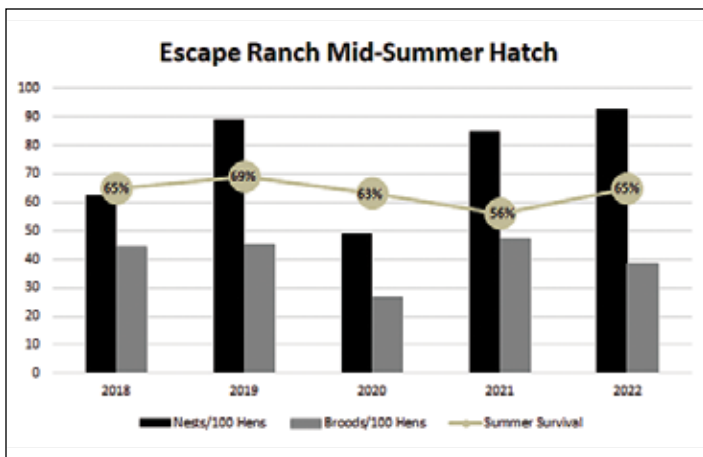
This year marks the fifth breeding season that we have monitored wild birds on Escape Ranch in central Florida. Management on the site has dramatically increased during these five years. Consequently, we continue to observe demographics indicative of an increasing population. Each successive year since 2018, we have recorded a higher spring breeding density than the previous year. This is especially encouraging now, because we are following a year with below average annual survival. Above average per capita nest production in 2021 and greater than 70% overwinter survival combatted the potentially negative effects of poor survival in 2021, and resulted in good numbers of potential breeders heading into spring 2022. (Figure 1d)

Bobwhites in central Florida begin breeding about a month earlier than in Albany and the Red Hills. We detected the first nest on Escape Ranch on March 13 this year and have observed a significant decrease in the number of initiated nests by July 15. At this point, Escape Ranch has documented

MID-SUMMER HATCH REPORT CONTINUED—



1d. Seasonal and Annual survival on Escape Ranch from 2018–2022 compared to the average for the same time period.



2d. Escape Ranch mid-summer adult survival and nests and broods/100 hens on July 15, 2018-2022.

a site-record high for female per capita nest production and just above average male per capita nest production (~20% of males have initiated a nest). Female per capita brood production is slightly below average, but we partially attribute this to the loss of early nests from prescribed burns. The onset of the central Florida breeding season coincides with optimal burning times, but fortunately, the birds that lost an early nest to burning were quick to re-nest. (Figure 2d)

Mid-summer adult survival is currently on par with average. The characteristic late summer rains will likely improve cover conditions and maintain late season productivity. We have also focused and increased predator trapping in areas where cover management (i.e., mulching) is likely to displace nest predators, so we are optimistic about the end-of-season brood production. We will continue to monitor this population throughout the remainder of the breeding season.



QUAIL LANDS JOB BOARD

Hunting for help?

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TallTimbers.org/Jobs

Photo by Bill McDavid

The Multiple Benefits of Quail Management

By Jim Cox

It's not much of a stretch to suggest that the *Quail Call* and all the other great information that Tall Timbers provides on quail management, has strong links to another bird that is as plump and fast flying as quail, and also fares well on quail-managed properties.

Herbert Stoddard, the founder of Tall Timbers and the wildlife management profession, arrived in Florida in the 1890s with a family hoping to improve their condition by making a living on their farm growing citrus. Then just six years old, Stoddard spent countless hours exploring the lakes and pine forests surrounding his home just east of Orlando. He describes the surroundings in idyllic terms, but one of the most memorable moments he recounted in his memoirs is the discovery of the nest of a Common Ground-dove. "The discovery launched me on my career as a student of birds," he says. "How that little creature ever managed to hatch her eggs and rear her young is a mystery to me, for I made many visits to the spot, each time disturbing her in her duties."

Now more than 100 years after the spark that ground-dove ignited, we are still working on the many questions that Stoddard had, most of which led to the establishment of Tall Timbers Research Station in 1958.

The Common Ground-dove is the smallest dove in North America and weighs in at about ¼ the weight of a typical bobwhite quail. Its repetitive "woot, woot" calls are a common feature on quail properties and evoke the colloquial names of "moaning dove" or "tobacco dove" given the bird's habit of occurring near agricultural fields.

Although the Common Ground-dove thrives in the presence of quail management, this little bird has not been faring well across most of its range. Annual roadside bird counts conducted in May and June suggest we have about a quarter of the ground-doves we had 50 years ago. Losses are especially high in Florida, which, along with Texas, supports some of the largest populations anywhere.

Although still common, there are many questions about why the losses have occurred and whether the populations that remain are stable. A recent comprehensive evaluation concluded that major studies of the dove are few and incomplete.

Given the many unknowns, Tall Timbers began banding the scores of ground-doves that are incidentally captured each year as part of quail research. Between Tall Timbers and Livingston Place, over 370 individuals have been banded since the Fall of 2020. By simply banding the doves captured and logging individuals when they are recaptured, we are starting to put together some of the first information available on survival, movements, and population stability for this species.

The project is spearheaded by Destinee Story, who got her start through a quail internship at Tall Timbers in 2019, and is now enrolled as a graduate student at the University of Georgia. "I went into the ground-dove project only expecting the unexpected," she says, "and that is exactly what we've been learning." Destinee has led the banding initiative from the start and has also been tracking a handful of ground-doves on Livingston Place using radio telemetry. "We've recorded huge movements for tagged doves," she notes, "including one individual that moved about a mile over an 8-hour period. All the published information says doves are sedentary, but we're finding many inconsistencies."

"They also use bottomland areas quite often, such as wetlands and drains, even though they are believed to be an upland obligate species," she adds. Ground doves and quail have subtly different needs, but the area of overlap is much greater than the differences and helps to support large dove populations on quail-managed properties.

Quail management often has the misguided reputation as "single-species" management. The reality is, bobwhite management is conducive to many other game and non-game species, including the Common Ground-dove. Ensuring this message is spread far and wide is critically important to the future of the bobwhite, as well as the many others species that thrive alongside.

Thanks to quail management, the future looks safe for the dove. We are grateful to the landowners and land managers who have helped to secure this future and, much like Stoddard, look forward to continued "ground-breaking" research.



Destinee Story

RESEARCH UPDATES

“Industry Standards” for Dog Training on Quail Hunting Courses

Project Investigators: Kyle Magdziuk, Justin Rectenwald, Alex Jackson, Clay Sisson, Bill Palmer, and James Martin

Tall Timbers recently conducted a survey to determine the “industry standard” for dog training regimes on managed properties in the Albany and Red Hills regions. We recognize the importance of dog training to the success of quail hunting operations as one respondent from the survey emphasized by stating, “Quality quail hunts require quality bird dogs, which requires quality dog work.” We agree! However, the consequences of dog work on quail demographics have not yet been adequately quantified; this lack of clarity may be causing undue restrictions on training. This survey has improved our understanding of the level and timing of the training being conducted and considerations taken to limit its effect on bobwhite behavior and demographics. Using these results as a guide, we aim to produce practical and reliable information, so that land managers can implement this essential component of the quail hunting tradition, and maximize the use of the property with complete confidence.

The survey was generously completed by the dog-handler and/or land manager on 34 properties: 21 from the Albany region and 13 from the Red Hills, covering approximately 196,740 and 80,100 acres, respectively. Across all properties, respondents reported training 0-12 (6 on average) new or young dogs each year. The average years of experience for respondents was approximately 29 years, one of them being a fourth-generation dog-handler! In addition to asking general questions about each property, we asked each property specifically about its pre, during, and post hunting season dog training regimes. These responses revealed some variation in dog training practices. We break it down for you by season as follows.

One of the busiest times of the season for land managers is right before the start of hunting season; this busy season is no different for the dog-handlers. Virtually every property that responded indicated they worked dogs during this time period. Most properties started training between October 10 and 15 (Figure 1). The start dates were dependent on weather, with many properties specifying they waited to start training until nighttime temperatures did not exceed 50° or until after the first frost. Pre-season training averaged 3 days per week, with 68% of respondents indicating they used *all* the property’s half-day hunt courses for training purposes. Most (65–70%) of the respondents indicated they trained no more than twice on any course prior to the season (Figure 2, left of vertical dotted line). Many respondents reported they used

the pre-season to locate coveys, however many also suggested that this is not the highest of priorities. Generally, pre-season training is used to prepare and condition the dogs for the upcoming hunting season (Figure 3).

During the hunting season, dog training is practiced by 26 of the 34 survey respondents. Similar to the pre-season, 65–70% of properties trained no more than twice on any course during the hunting season (Figure 2, left of the vertical dotted line). Interestingly, almost all of these properties trained dogs on hunt courses that were very recently hunted. A lot of the respondents indicated that they like to keep these courses on a rotating schedule of about 10–14 days, and avoided training on courses that are scheduled to be hunted soon. This makes

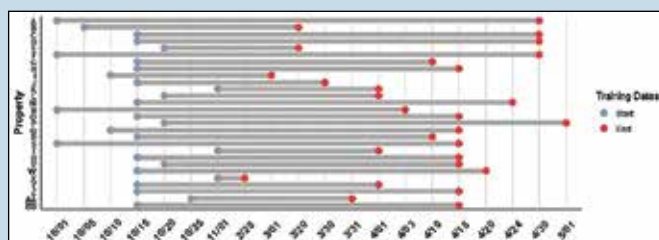


Figure 1: Pre-season training start dates and post-season training cessation dates for each survey respondent that specified both in the survey (28 of 34 respondents). Start and end dates are indicated by the blue and red dots, respectively.

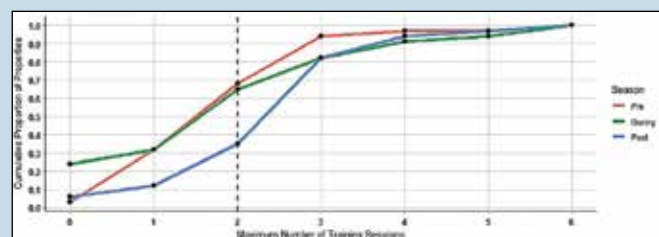


Figure 2: The maximum number of training sessions on any given half-day hunt course during the pre (red), during (green), and post (blue) seasons, represented by a cumulative proportion of 34 properties.

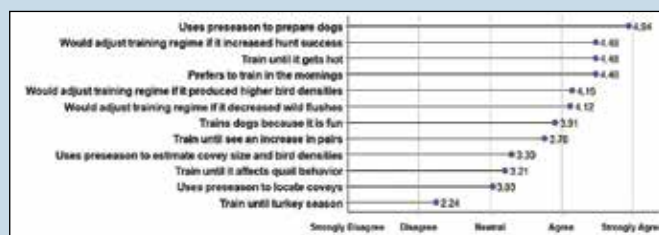


Figure 3: The summary of the agree/disagree table at the end of the dog training survey. Each statement was weighted on a scale of 1 (strongly disagree) to 5 (strongly agree).



English Pointer putting in work near Albany, Georgia. Photo by David Sisson


sense as it maximizes the amount of time in between hunts in order to keep courses “fresh.”

Practically all (97%) of the survey respondents indicated they used the post-season to train dogs. By and large, this period is used to start preparing younger or new dogs for the following hunting season. Post-season training averaged 3 days per week, with most (65%) properties designating all hunt courses on the property for training purposes, which helps to reduce the pressure on any single course. Unlike pre and during season training, however, approximately 65% of respondents used a hunt course more than twice for post-season training purposes, with the average being 3 (Figure 2, right of the vertical dotted line).

So when does training cease on these properties? Many properties specified they quit when they began seeing an increase in the amount of breeding pairs, but much like the pre-season it mostly depended on the weather (Figure 3). Most of the cessation dates during post-season training were between April 10 and April 15, but some properties trained all the way to the end of April (Figure 1). Due to the highest intensity of training during this time period, and the potential to impact survival and/or reproductive output, our initial research focused on post-season training. We took these survey results into careful consideration when we developed the methods for our field studies.

In Albany, we are in the second year of field work using 4 total hunt courses where 2 of them are being used for post-season training purposes 3 times each (the industry standard) in year 1 and in the second year, the treatments are reversed. The encounter rates during trials, survival, and reproduction of all radio-collared birds in those hunt courses are being monitored. From 140 interactions during 2 seasons, our preliminary observations indicate low encounter rates with only 40% resulting in flushes, 20% being passed by, and 40% never being encountered at all.

Using the results from the survey, we started a field experiment this past spring to simulate the potential implications of post-season dog work. We took a sub-set of all radio-collared hens on Tall Timbers and Livingston Place and assigned them to 3 experimental groups: control, moderate, and intensive. The hens in the control group received no pressure from dogs, while hens in the moderate and intensive groups were pressured with dogs at the average (3) and maximum (6) frequency that a hunt course would be used during post-season training. We used the cooler morning hours (preferred by managers, Figure 3), to intentionally disturb these hens to the point where an evasive response was elicited, such as run or flush. Given the low encounter rates determined in Albany, by design these methods are on the extreme side of disturbance to see if a physiological response can be elicited. If there isn't, then that shows the “industry standard” in dog training practices are indeed sustainable! Beginning on March 8, we spent 33 days, recorded 323 total contacts, and monitored the survival of 154 total birds between Tall Timbers and Livingston Place. All disturbances finished between April 18 (a few days after average cessation), and April 28 (a few days before the latest date a property will train). We accomplished 3 rounds of fecal collection, a noninvasive technique to analyze stress hormones. These samples will be used to measure differences in chronic stress levels, since elevated stress levels have been shown to affect reproduction and the survival of offspring in other avian species. Currently, we monitor nesting behavior and collect a single egg from the clutch of any female bird used during post-season training simulations. The eggs will be used to analyze any differences in maternal stress concentrations within the egg yolks.

We greatly appreciate and thank all of the properties that took the time to participate in this survey. Please stay tuned as we will report more detailed results, including our findings on survival and reproduction as they become available, in a later issue of *Quail Call!* 



The end result of intensive dog training. Photo by Alex Jackson

Examining Crippling Loss Rates Across the Bobwhite Range

By Justin Rectenwald

Project Collaborators: Albany Quail Project, Livingston Place, Central Florida Rangeland Quail Program, Tall Timbers, Ichauway, Rolling Plains Quail Research Ranch, University of Georgia-GAME Lab

Over the last several years, there have been many discussions between quail managers, property owners, and biologists about how harvest rates may affect wild quail populations. As wise stewards of the resource, our goal should be to maximize hunting opportunity, while minimizing any potential negative impacts on the population. Historically, the idea of over-hunting or pressuring bobwhites has not been an issue, because they have relatively high densities and low harvest pressure. While populations on large private properties remain high and stable, ownership demographics and the economics of quail hunting have changed slightly in recent years. It has become more common for quail properties to have multiple owners that all want their fair share of hunting days, or they are looking for ways to offset the operating costs by leasing days to other hunters. Both of these situations can lead to an increase in the number of days hunting, which could equate to higher harvest pressure.

Tall Timbers and others in the past have developed the industry standard for harvest rates, which sits at 15% of the fall population. However, the kicker is that the recommendation of 15% is supposed to include birds that are crippled and not recovered as well. While it is easy to figure out how many birds you bring back to the wagon, we do not have a firm grasp on how many birds are actually crippled, and end up dying days or weeks later. Many believe, based on observations, that the current ratio of harvested to crippled birds could be anywhere from 3:1 to 1:1 depending on hunter experience and or a variety of other factors. While a higher than perceived harvest rate may not be a cause of concern on most properties, it may be a limiting factor on properties that are already pushing the 15% recommendation.

To determine the true crippling loss rate, Tall Timbers and the GAME Lab at the University of Georgia began a collaborative study that takes place on our primary study site in Albany, the Jones Center at Ichauway, Livingston Place, Tall Timbers, Escape Ranch in Central Florida, and the Rolling Plains Quail Research Ranch in Texas. Our staff of biologists and technicians tracked radio-tagged coveys during the hunts throughout this past season and recorded

data on which coveys were shot into, the number of shots fired at each covey rise, the number of birds that were shot down and recovered, the number wounded that kept flying, and the number shot down and not recovered. On the day after the hunt and 3–5 days later, we rechecked those same coveys in hopes of recovering whole, un-scavenged birds that were initially wounded during the hunt and later died as a result of their injuries. Our staff recovered whole birds on multiple occasions following hunts, and these birds were x-rayed and sent to have official necropsies performed to determine their actual cause of death. Figure 1 depicts several of these birds that were confirmed to have had lead shot in them by x-ray. We will continue this study for the next few hunting seasons in hopes of providing a true estimate of crippling loss. We expect to see variations in the crippling loss rate, but we should eventually be able to determine how many birds are recovered, wounded, and lost for every 10 shots fired at the end of this study. While it will take multiple years of data collection to complete the study, our **preliminary** results indicate that for about every 2 or 3 birds picked up, there is another 1 that is crippled and not recovered. We will continue this study for the next several hunting seasons and will expand on the results and conclusions once we have a full understanding of the true crippling loss rate. 🐦

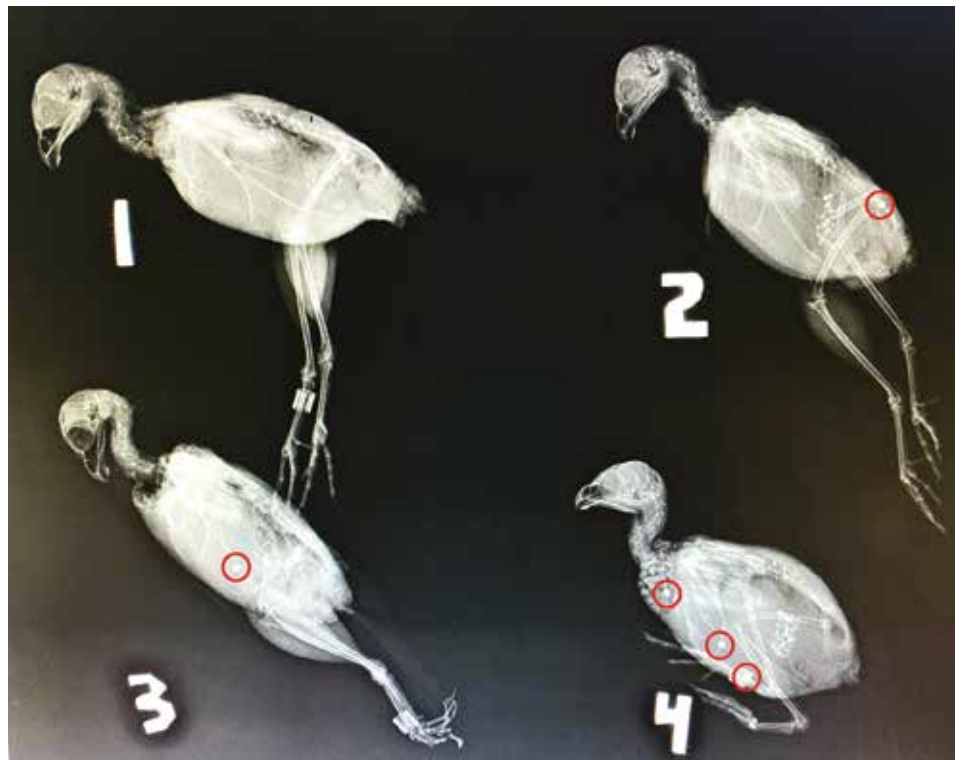


Figure 1.

Mourning Doves: The Other Highly Prized Bird!

By Nicolas Lusson, Lead Game Bird Technician

Dove hunting is an important cultural and economic activity in the Red Hills, with some fields in existence for over a hundred years. However, over the past decade dove use of properties has varied dramatically. Some properties now have so few doves at their managed fields that hunting no longer occurs, whereas other properties harvest several hundred to thousands of doves in a single season. In addition to high variability of field use, there has been an overall observed decline in dove harvest across many properties in the region.

Most hunting and harvest in the Red Hills and Albany regions occur during the early phase of the dove season, which raises concern about the effect of harvest on local populations. There is also concern that the amount of dove fields in the area is causing the local population to disperse more widely across the landscape, reducing the apparent dove population. Several property managers and our research group have instigated a study, along with Florida Fish and Wildlife Conservation Commission and Georgia Department of Natural Resources, to begin to explore these potential issues.

We are interested in examining the movement patterns of mourning doves within and among the properties of the Red Hills and Albany regions of Georgia and Florida. Also, we aim to calculate the harvest rates to compare with state-wide rates in Georgia and Florida. Our primary approach for measuring these processes is banding a lot of doves relying on you dead-eye shooters to “capture” some of them! All we ask is that you report the band numbers to us!

Banding provides data on the geographical and temporal distribution of the dove harvest, origins of birds harvested, mortality, survival, longevity, differential vulnerability of age and sex classes to shooting, and other information useful to managing the species. To monitor harvest rates, many states, such as Georgia and Florida, collaborate with the United States Fish and Wildlife Service (USFWS) to band doves every year. Breeding Bird



Survey (BBS) data reflects that dove populations have been growing in the region. However, recent anecdotal evidence based on banding data suggests a decline in dove populations or an increase in recovery rates. Finer scale information about the relationship between hunter harvest rates and dove populations would inform larger scale population processes and management. In addition to information about the harvest rates, banding can be used to study movements. Finally, we can explore landscape features and management actions that lead to greater success in dove hunting.

I look forward to answering these questions as I transition from my role as a lead game bird technician here at Tall Timbers to a graduate student at the University of Georgia. For the last year I have worked in the Game Bird program at Tall Timbers, and have aided in the research and management of Northern Bobwhite. My focus will now shift to trapping and banding mourning doves throughout the Red Hills region; I look forward to hear from you on any banded birds you harvest. 🐦



Nicolas Lusson

Are Bobwhites Becoming More Wary?

By: Justin Rectenwald

Project Collaborators: Albany Quail Project, Livingston Place, Central Florida Rangeland Quail Program, Tall Timbers, Ichauway, Rolling Plains Quail Research Ranch



Since the early days of quail hunting at the turn of the 20th century, there has been debate about whether quail are getting better every year at avoiding detection and harder to hunt.

In 1931, Herbert Stoddard posed the question, “Are bobwhites becoming more wary?” in his classic book *The Bobwhite Quail*. He described how veteran quail hunters of that era with 30 or 40 years’ experience agreed that birds were getting more educated and more difficult to kill. He expounded on the fact that the birds had become quite unruly as they were becoming hard to mark down and shoot singles after the initial covey rise. Stoddard further explained that on grounds that were becoming “heavily stocked” (at >1 bird per acre), that it was a new experience “to see the majority of coveys habitually flush out of shooting distance.” Even then, Stoddard asked, “How far will the process of education be carried?” The words written by Stoddard nearly 100 years ago sound eerily similar those we hear today. Unfortunately, this process of education has not seemed to slow down.

To address this question, the Albany Quail Project began a study nearly 30 years ago on several Albany area plantations that lasted for eight hunting seasons, and was aimed at understanding how radio-tagged coveys were interacting with the hunting party. The general consensus was that the hunting party only saw about half of the coveys that were available (most of which were pointed), and the other half that were not seen mostly held tight to avoid being detected.

Since the early 1990s, bird densities have at least doubled on many places and we have recently seen a string of years with above average adult survival that have resulted in an older and perhaps wiser age structure along with high fall densities. Both of these factors have likely played a large part in explaining why the birds have been much wilder and harder to get shots at. Because of this unruly behavior that has been observed over the last few years, there is a renewed interest in revisiting this study from the 1990s, to determine if birds are becoming even warier than they were in the past.

WARY BOBWHITES CONTINUED ON NEXT PAGE

We restarted our covey-hunter interaction study this past season on several sites across the bobwhite range, including the primary study site of the Albany Quail Project, Livingston Place, Escape Ranch, Tall Timbers, Ichauway, and the Rolling Plains Quail Research Ranch in Texas. Our aim is to see how bobwhite behave compared to the original study in the 1990s, and to see how this varies between study sites.

We believe that the way coveys interact with hunters will vary between sites based on a variety of factors: bird density, age structure, cover conditions, and hunting style. We expect that on sites with higher densities and age structures that favor older, wiser birds, that the hunting party will see a higher percentage of coveys flushing wild, and fewer that are holding tight.

Beginning last fall, our staff of biologists and technicians rode along with the hunting parties on these six properties and tracked radio-tagged coveys to record what percentage are seen and how they are evading detection. After over 500 encounters in the first hunting season, preliminary results indicate that modern coveys seem much less likely to “hold” to avoid detection and are flushing wild about 30% more often than they did in the 1990s. It is unclear how much of these behaviors is being learned and how much is the result of being in a high-density population with high adult survival.

We will continue this study for several more years to fully understand how far this process of education can be carried, and how much warier the birds have become. 🐦

Male Contribution to Reproduction: A Random Occurrence or Indicator of Population Status?

By Garrett Roberts, AQP Research Technician/Graduate Student

Male contribution to reproductive output and its importance to population recovery and persistence in bobwhite quail is an understudied topic commonly overlooked in research. We know already that males tend to contribute more to total reproductive output in lower density/recovering populations, but what we don't understand as well, is how much and when they contribute under other circumstances. Bobwhite quail exhibit a form of mating strategy known as ambisexual polygamy. This is where both the male and female will contribute to parental care, both during incubation and after hatching. Both sexes will also have multiple mates throughout the summer breeding season. Females are generally the targeted sex studied during this time, resulting in minimal return data for the male bobwhites throughout the season.

The aim for this study is to analyze the variability of male contribution over time and between bobwhite populations on the primary study site of the Albany Quail Project, Tall Timbers, Livingston Place, The Jones Center at Ichauway, and Central Florida. All of these study sites have varying spring breeding densities, possibly resulting in varying levels of male contribution. Starting this year, we have begun increasing our sample size of radio-tagged males on all study areas to gain a better understanding of their relative contribution to reproductive output. This data is being used for a master's project for the current research technician and new graduate student of the Albany Quail Project, Garrett Roberts. Garrett is a North Alabama transplant, graduate of Auburn University, and has been with AQP for the past year.

This project will be ongoing for the next several years with the intent of determining how male contribution varies on sites with different densities and varying seasonal survivals. This valuable insight should show just how big of a role males play in the success of reproduction and the overall growth of the population. 🐦



Garrett Roberts

Quail Management Provides Many Ecosystem Services

By Kevin Robertson, PhD and Cinnamon Dixon, Fire Ecology Lab

The term "ecosystem services" has gotten a lot of buzz in recent years. They are basically products or processes provided by natural lands that benefit humans. It follows that hunting itself is an ecosystem service. However, management for northern bobwhite, especially the use of frequent prescribed fire, can provide many more benefits than just good hunting, which is important for us and our community to appreciate.

The Tall Timbers Fire Ecology Program recently published a paper measuring various ecosystem services provided by different land uses in the Red Hills Region. Given that much of the region is covered with old-field pinelands managed for northern bobwhite, we were particularly interested in how time since abandonment of agriculture followed by application of frequent prescribed fire would influence various ecosystem services. We chose locations with different times since fields were abandoned and burning started using old aerial photographs and maps, categorizing locations into age groups ranging from 5-10 years up to 75-100 years post-agriculture, and then measured many aspects of the plants, soil, and soil fungi and bacteria. We were also interested in how these old-field pinelands compared to native longleaf pine-wiregrass communities as well as current row-crop agriculture, pine plantations, and unmanaged (long unburned) pine-hardwood forests. The study was replicated in four different areas—in and around Tall Timbers, Livingston Place, Pebble Hill Plantation, and Avalon Plantation—thanks to the hospitality of these and many other private landowners.

Our results showed that with increasing time since agriculture there is an increase in perennial grass cover, native plant biodiversity, soil carbon, total ecosystem carbon, and mycorrhizal soil fungi, and a decrease in soil plant pathogens, water runoff, and soil erosion. Soil mineral nutrients including phosphorus, calcium, magnesium, and potassium also decreased toward levels closer to native pine communities, which is helpful for minimizing off-site and weedy plants and decreasing pollution from runoff.

Frequently burned old-field and native pinelands also fared well compared to other common land uses. Naturally, row-crop agriculture produces the most food and fodder, pasture produces the most forage, and pine plantations produce the most timber. However, frequently burned pinelands showed lower losses of water to transpiration, higher water infiltration, and higher bee pollinator diversity than pine plantations and unmanaged forests. They also had higher total ecosystem carbon and less runoff and sedimentation than pastures and row crops. Older old-fields and native pinelands had the overall highest native plant diversity,

which translates to diversity of insects and the vertebrate animals that depend on them. They also had the healthiest soil in terms of C:N ratio, lowest bulk density, most natural levels of mineral nutrients and nitrogen, and symbiotic fungi that help plants grow.

These results highlight the many benefits provided by quail management, especially use of frequent prescribed fire and timber management to maintain an open canopy, on mostly post-agricultural landscapes like the Red Hills. However, it also follows that many of the benefits accumulated over time are lost by intensive soil disturbance that more or less returns the soil and vegetation to agricultural conditions and resets the successional clock. Given that native pine savannas generally had the highest levels of most ecosystem services, prioritizing them for protection from intensive soil disturbance is a good idea. In summary, frequent fire on old-field and native pinelands provides a wide range of services helpful to both landowners and the broader community, although some diversity of land use is necessary for providing all the benefits we humans need to thrive. 🐔

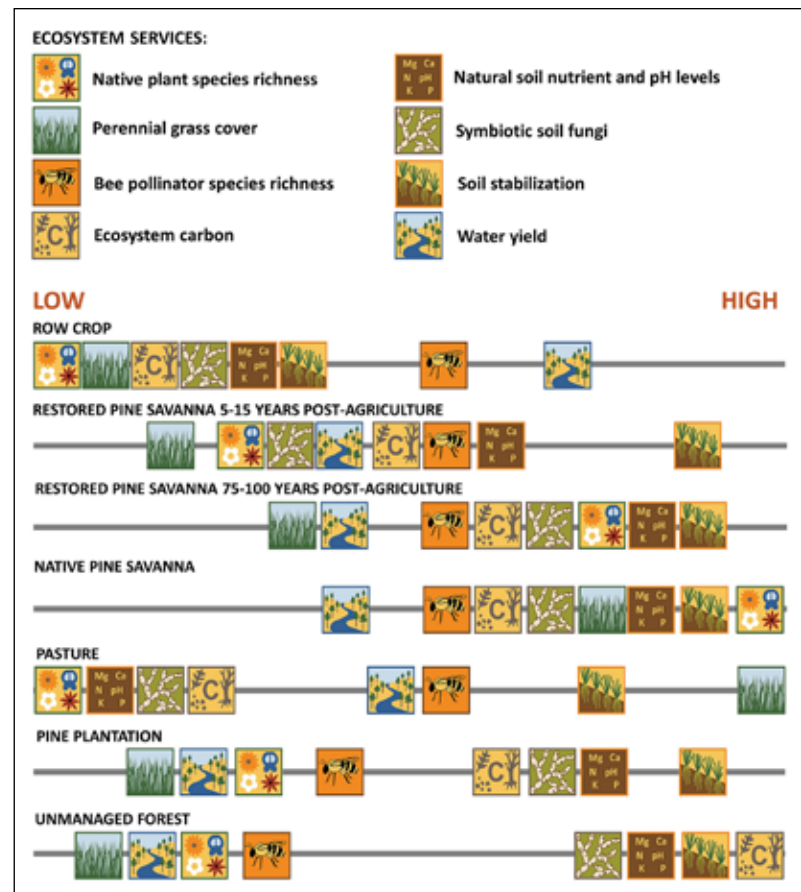
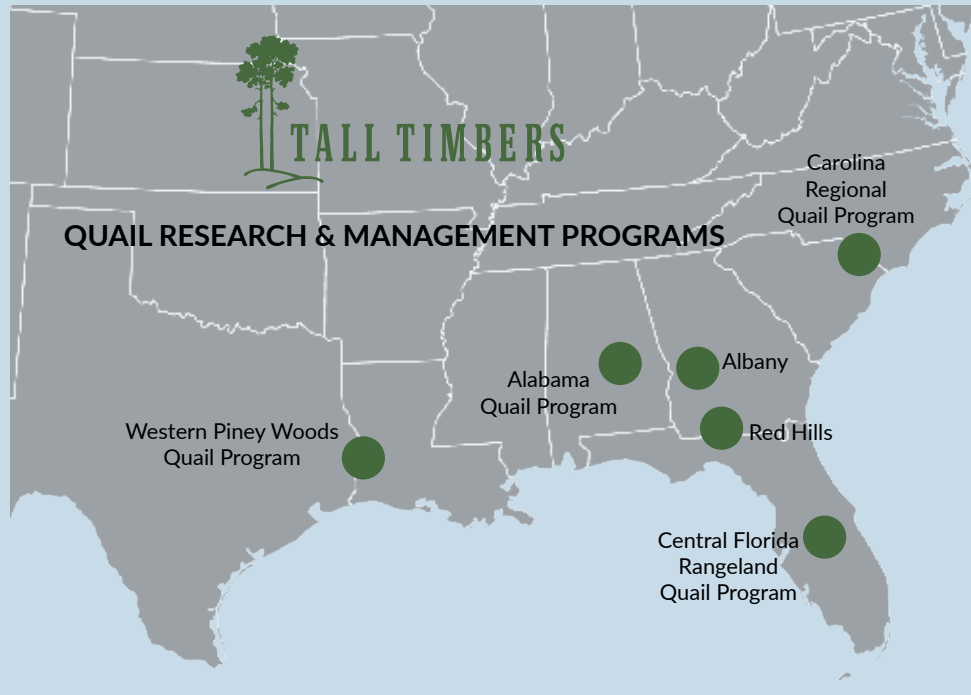


Figure 1. Relative levels of ecosystem services provided by different land uses. As symbols move toward the right, higher levels of service are provided by that land use.

BEYOND THE RED HILLS



Central Florida Rangeland Quail Program

WELCOME AMANDA SCHMIDT

Amanda is the new regional game bird biologist for the Central Florida Rangeland Quail Project (CFRQP). Amanda grew up in eastern New Mexico where she also received a bachelor of science in both conservation ecology and biology at New Mexico State University. Amanda's motivations for pursuing a career in wildlife science and management were cultivated through her time spent in nature during her youth, and during her ecological education when she learned to appreciate the value and intricacy of wild places.

Amanda started at Tall Timbers as an intern in the Game Bird program and was inspired by the culture of southeastern land stewardship, the productivity of the pine flatwoods, and the pint-sized bobwhite that echoes through the woods. In fact, she liked it so much in rural central Florida that she kept coming back; the quail woods are captivating. Amanda returned to the team as a research technician, and from there pursued a master's of science (MS) degree. She started her MS project working on bobwhite translocations. Amanda recently completed her MS in wildlife science and management from Texas Tech University, and was hired as the game bird biologist for the central Florida project. Amanda's professional goals are to seek solutions for adaptive land management, contribute to long-term bobwhite research and restoration efforts, and cultivate relationships with conservation-minded landowners who are working to see as many quail on the landscape as she is. 🐔



-CFRQP CONTINUED ON NEXT PAGE

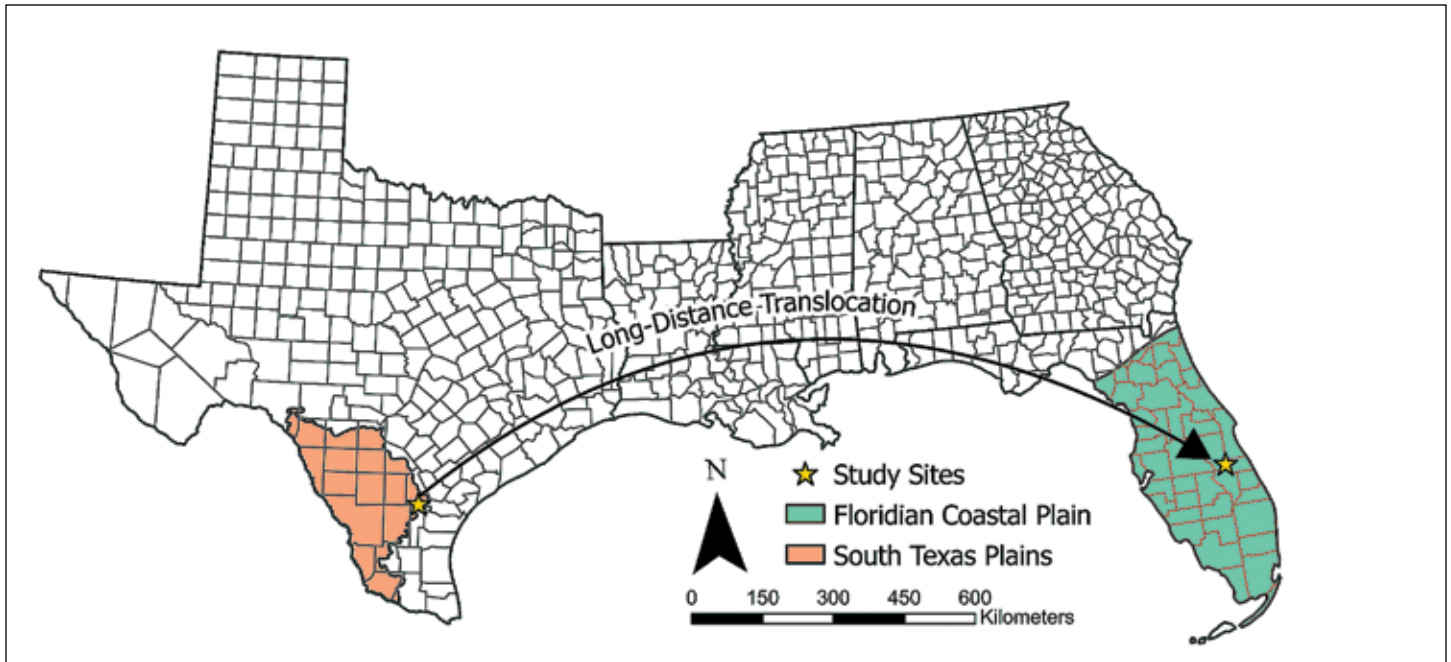


Figure 1. Study site map depicting the long-distance translocation of bobwhites from south Texas to central Florida.

DON'T HOLD BOB BACK!

By Amanda Schmidt, James Martin, and Geoff Beane

Tall Timbers continues to explore ways to expand wild bobwhite populations across the country. We focus on habitat and predation management to meet landowner objectives, but sometimes translocation is warranted to assure population restoration. Translocation can serve as a human-assisted dispersal—via an F-150—to connect populations, because ongoing habitat fragmentation reduces the connectivity among remnant bobwhite populations. Bobwhite translocations for population restoration have been largely successful in the Southeast and have occurred between relatively close sites (<250 miles). When sites are close, the time from capture at the source to release at the recipient site can be less than 12 hours. Short-distance translocations often demonstrate that the demographic success of the resident and translocated bobwhites does not differ, and properties supplemented with wild bobwhites often experience an increase in population densities over time. However, longer distance translocations are less understood.

Given range-wide population declines and increasing habitat fragmentation, source populations with bobwhite densities high enough to support translocations are dwindling. Thus, long-distance translocations are becoming increasingly necessary to access a source population with densities high enough to support translocation. As translocation distances increase, it becomes difficult to limit time spent in captivity, because the travel alone via automobile can last an entire day. During long-distance translocations, wild bobwhites can experience high levels of stress, caused by multiple acute stressors (like capture and handling), that can ultimately have

a negative impact on demographic success. The effects of stress include reproductive suppression, alterations in flight responses, and metabolic disruption. Holding times of previous long-distance translocations efforts are highly varied; bobwhites have been held in captivity from a range of 24 hours to two weeks with mixed results.

We translocated wild bobwhites from south Texas to a recipient site in central Florida (Figure 1) to evaluate the effects of the stress response that occurs when individuals are held in captivity for long periods during the translocation process. We varied holding times for three groups of bobwhites during the translocation process and monitored pre- and post-release survival and reproductive output of the translocated bobwhites. We held translocated bobwhites in captivity for < 48 hours, 6–8 days, or 12–14 days before we released them onto the recipient site.

We documented a negative response from holding translocated bobwhites in captivity for prolonged periods. Breeding season survival was lower for the group held for 12–14 days (Figure 2a). We detected no difference in levels of productivity between the three translocated groups (Figure 2b), but this may be because all translocated individuals had poor nest site selection or stress levels recovered for all individuals after post-release acclimation. To improve the probability of translocation success, best practices should proactively limit the time bobwhites are held during the translocation process. We are currently evaluating how choice of source population affects translocation success with a similar project. These research efforts will continue to inform best translocation practices to improve ongoing bobwhite restoration efforts.

- DON'T HOLD BOB BACK CONTINUED ON NEXT PAGE

DON'T HOLD BOB BACK CONTINUED -

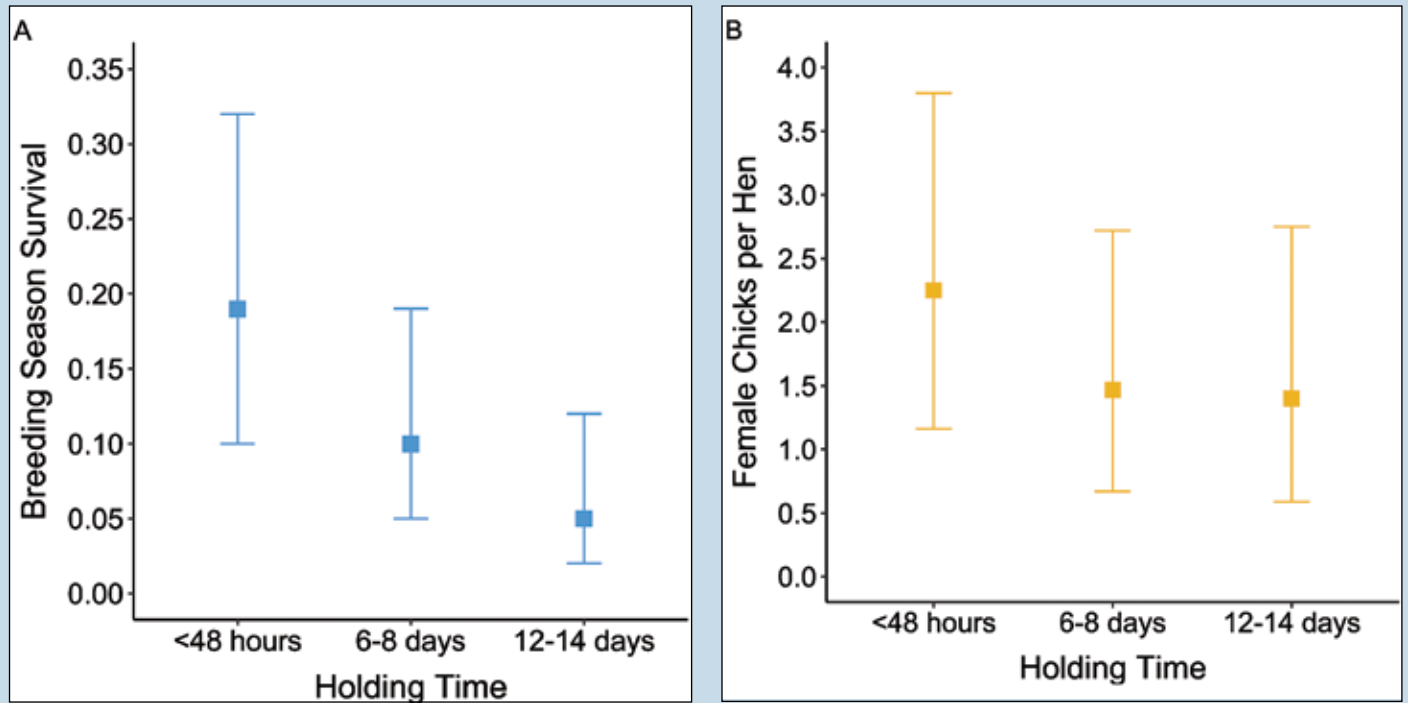


Figure 2a–Breeding season survival and 2b–fecundity (female chicks per individual female) of three groups of bobwhites translocated from south Texas to central Florida.



A group of bobwhites translocated from south Texas disperse from the transport box at the central Florida release site, March, 2021. Photo by Amanda Schmidt

Western Pineywoods Quail Program

By John Palarski, WPQP Biologist and Brad Kubečka, PhD, WPQP Director

Thanks to collaboration between Tall Timbers and Texas Parks and Wildlife Department, the Western Pineywoods Quail Program (WPQP) was able to add a new biologist to the team. John Palarski joined WPQP in January 2022 to help provide additional support throughout the region for landowners interested in quail management. John, who is originally from Wisconsin, completed his Bachelor's degree in Fisheries and Wildlife Biology at the University of North Dakota before moving to Texas to complete his Master's degree at Tarleton State University. At Tarleton, John studied the effects of source populations on bobwhite translocation. John's unique background and experience with bobwhite management and translocation is a great asset to WPQP and Tall Timbers, especially for upcoming projects.



Biologist John Palarski joined the WPQP in January 2022.

WPQP's inaugural project in Polk County, Texas is moving forward as extensive habitat management has been implemented. The property has undergone timber thinning on well over 3,000 acres, with more slated for summer and fall of 2022. Additionally, prescribed fire and hardwood removal are being implemented to promote a diverse understory and mitigate predator habitat.

Call counts (spring whistle and fall covey) have been conducted on the site and indicate there is no resident bobwhite population. As expected, the lack of a resident population in the area has stifled any natural recolonization that may have occurred from habitat restoration. As a result, translocation of wild bobwhite is planned for the site in 2023, marking the first east Texas bobwhite research project in three decades. Tall Timbers' WPQP PhD student, Trey Johnson, is currently collecting data to study the effects of habitat restoration and translocation on the Polk County property. We are looking forward to sharing the results of this project in the near future.

In addition to research and restoration efforts in Polk County, WPQP has expanded across east Texas and southwest Arkansas to meet with private and public stakeholders interested in bobwhite management. WPQP staff have met with numerous landowners and provided management plans and recommendations designed to increase bobwhite populations. Since last year, WPQP personnel have visited and written management plans for 23,000 acres of private lands.

East Texas is home to over half a million acres of forest managed by the United States Forest Service (USFS). These forests provide some of the only public land hunting opportunities in Texas and have tremendous opportunity to support robust populations of game species, like bobwhite. WPQP recognizes the opportunity that exists on these public lands and hopes to collaborate with USFS to implement more intensive management for bobwhite. Current discussions are underway to identify opportunities for quail management on public lands, which would be a massive gain for the quail hunting community in the region. Current and future programmatic efforts conducted by WPQP will continue to promote bobwhite management on both public and private lands throughout the "Western Pineywoods."


For more information about the Western Pineywoods Quail Program and our efforts, or to support the WPQP endowment campaign, please contact Dr. Brad Kubečka at bkubecka@talltimbers.org.

WPQP CONTINUED -

TREY JOHNSON



JOHN PALARSKI


Commercial timber thinning on a property in Polk County, Texas that is being intensively managed ahead of translocation planned for 2023. The photo on the left was taken in April 2021 and the photo on the right was taken in April 2022 at the same location. 

New Collaborative Project with the



In the last few years, the Jones Center at Ichauway (a historic 29,000-acre wildlife and forest ecology research facility in Baker County, Ga.) has renewed its emphasis on their quail management and hunting program. The conservation and research staff at Ichauway reached out to the staff at the Albany Quail Project (AQP) and Mississippi State University (MSU) to establish a collaborative study group to get a better grasp on their baseline demographics.

Last fall, the AQP helped to deploy radios on quail for the first time ever on Ichauway to assist a MSU graduate student who is studying quail behavior around prescribed fire. The project also aims to determine if any bottlenecks in survival or reproduction exist. Ichauway is also serving as a replicate study site for our on-going crippling loss, hunting interaction, and male contribution to reproduction studies.

We look forward to working with the staff of Ichauway and MSU in the future to help make more informed decisions on management that will further bolster their quail population. 

MARK YOUR CALENDAR TALL TIMBERS FALL EVENTS

RED HILLS FALL FIELD DAY

Hosted by Southlands

Friday, September 30, 2022

Bainbridge, GA

—

25TH ANNUAL KATE IRELAND AUCTION

Thursday, October 20, 2022

Tallahassee, FL

—

KEVIN'S ANNUAL GAME FAIR

Benefits the Tall Timbers Game Bird Program

November 10 & 11, 2022

Thomasville, GA

New Addition at Livingston Place

My name is Holly Lott and I am from Ellaville, a small town in southwest Georgia. Growing up, I spent most of my time outdoors and have always loved wildlife. I graduated from the University of Georgia in 2018 with a bachelor's degree in fisheries and wildlife. During my undergraduate degree, I developed a love for all game birds and have been working with them ever since.

After graduating, I spent a year working different game bird technician positions across the country, and worked with a variety of different game birds including waterfowl, wild turkeys, mourning doves, and northern bobwhite. I then attended graduate school at the University of Missouri and conducted my master's research on male wild turkeys in a nonhunted population in South Carolina. I graduated with a master's degree in fisheries and wildlife in May 2022, and am very excited to begin my new position as the game bird research biologist at Livingston Place!

When I am not working, I enjoy hiking, hunting, kayaking, and spending time outdoors with my husband, Daniel, my black lab, Kiwi, and my golden retriever, Maisy. 🐾



QUAIL RESEARCH NEEDS YOUR SUPPORT

Tall Timbers has a long and rich tradition of leadership in quail research. Beginning with Herbert Stoddard's study of quail life history over 80 years ago, Tall Timbers has led the charge to gain new knowledge that can be used to improve quail management.

Today, novel research is greatly needed to better understand bobwhites among new challenges and economic constraints. The Game Bird Program continues to be an innovative leader in research and management of bobwhites, and serves as an important resource for those who value the future of sustainable populations of wild birds.

The Game Bird Program now encompasses the Tall Timbers Quail Management Research (QMR), which conducts research on Tall Timbers, Livingston Place and surrounding quail properties; the Albany Quail Project, which conducts research on quail lands around the Albany, Ga. area; the Carolina Regional Quail Program; the Central Florida Rangeland Quail Program; the Western Pineywoods Quail Program; and the Alabama Quail Program.

We hope you will consider making a contribution to the Game Bird Program to support all our programs. If you have supported these programs in the past, please continue to do so as we greatly depend on your annual donations. You can make your donation online at our website here:

<https://talltimbers.org/support-tall-timbers-program-specific-giving/>, or mail your check payable to Tall Timbers, memo Game Bird Program.

2021-2022 Game Bird Research Team



Some members of the 2021-2022 Game Bird research team. From left to right: Michael Hazelbaker, Shane Wellendorf, Josh Webb, Justin Rectenwald, Clay Sisson, Mark Sasser, Amanda Schmidt, Alex Jackson, Holly Lott, Paul Grimes, John Palarski, Brad Kubečka.

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 Alex Jackson, Red Hills Game Bird Research and Extension Biologist
 Michael Hazelbaker, Game Bird Research Biologist
 Nicholas Lusson, Lead Game Bird Technician
 Eric Staller, Director of Land Management and Fire Operations
 Andrew Chase, Assistant Land Manager
 Shane Wellendorf, Conservation Coordinator
 Josh Webb, Conservation Stewardship Coordinator

Albany Quail Project

Clay Sisson, Director
 Justin Rectenwald, Game Bird Biologist
 Garrett Roberts, Game Bird Technician

Livingston Place Research

Holly Lott, Game Bird Research Biologist
 Thomas Rogers, Game Bird Technician
 Randy Floyd, Land Manager
 John Michael McCormick, Assistant Land Manager

Central Florida Rangeland Quail Program

Geoff Beane, Director
 Amanda Schmidt, Regional Game Bird Biologist
 Matt Kunkle, Land Manager at Rollins Ranch Yeehaw Plantation
 Bill Lutz, Research Technician
 Nicole Itzkowitz, Research Technician
 Alicia Arsenault, Research Technician
 Mitchell Harris, Research Technician
 Bianca Marcelletti, Research Technician
 Kayleen Larose, Research Technician

Western Pineywoods Quail Program

Bradley W. Kubečka, PhD, Director
 John Palarski, Game Bird Biologist

Carolina Regional Quail Program

Paul Grimes, Carolina Regional Game Bird Biologist

Alabama Quail Program

Mark Sasser, Alabama Regional Game Bird Biologist

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 Greg Hagan, Florida Fish and Wildlife Commission
 The Jones Center at Ichauway
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 Steven Mitchell, Alabama Department of Conservation and Natural Resources

Upland Ecosystem Restoration Project

Greg Hagan, Upland Ecosystem Restoration Project Coordinator
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*indicates student graduated and/or recently completed their thesis

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Tall Timbers' Bobwhite Quail Management Handbook

EDITED BY WILLIAM E. PALMER AND D. CLAY SISSON

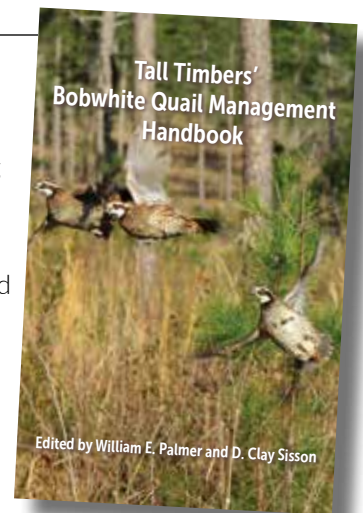
"The Tall Timbers' Bobwhite Quail Management Handbook is an essential tool for anyone wanting to understand the ecology and management of bobwhites in their eastern range. The authors have done an excellent job of distilling years of scientific investigation, involving thousands of bobwhites, into an easy to understand, but comprehensive guide of best practices for bobwhite management. ... Novices and seasoned managers will both benefit from reading this handbook and find themselves referring back to it as they make management decisions throughout the year."

- C. Brad Dabbert, Ph.D., Burnett Foundation Endowed Professor of Quail Ecology,
Department of Natural Resources Management, Texas Tech University



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