Albany Quail Project officially joins Game Bird Program in January

We are proud to officially welcome the Albany Quail Project (AQP) to Tall Timbers! This new partnership will strengthen a decade of successful cooperation in our bobwhite research, conservation, and education efforts. As of January 2008 the Game Bird Program team will have grown significantly with the addition of Clay Sisson and his staff. Clay and Dr. Lee Stribling have developed an award-winning bobwhite research and management program that is nationally-recognized. Clay will continue to manage this project as he has over the past 15 years and we look forward to your continued support of this effort! The AQP staff includes Jerald Sholar, a biologist that currently leads the efforts on the Wade Plantation project and is developing our new quail initiative in South Carolina. We also welcome AQP field techs Josh Davison and Sherwin Smith to Tall Timbers, as well as Auburn graduate student Tyson Crouch who is currently handling the field duties for the Alabama Project. We look forward to a long and productive relationship. Beginning with this issue, our newsletters are now combined into the Tall Timbers Quail Call and beginning in 2008 bimonthly electronic reports will be sent to our members via email.

Quail Research and Management Committee Formed

As part of the growth of the Game Bird Program we established an all new Quail Research and Management Advisory committee composed of representative quail management experts from the plantation communities in Thomasville/Tallahassee and Albany. We formed this committee to engage a broader audience of the plantation community, share ideas on management issues, and find out what issues owners and managers think are most important for us to research. The first meeting was a great success and we appreciate all those that took the time to come and get involved!

We held our first meeting in Thomasville in November. At this 2-hour meeting we briefly went over the many different research projects we have collectively conducted and their positive effect on management and policies affecting our management. This included prescribed fire use, predation management, supplemental feeding, translocation of bobwhites, and many other projects. We focused the meeting in great detail on what we know of the predator-prey interactions and how they, along with other factors, affect bobwhite populations in the Florida-Georgia plantations. We also discussed how the long-term data collected since the 1970s (band data) and early...

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1990s (telemetry data) show changes in the demographics of bobwhites over time and what new challenges this presents to management. We wanted the committee to see the value of long-term data and why short-term studies may not provide as much insight. We also presented how we need to develop new long-term data sets (such as tracking local and migratory avian predators, rodent populations, which serve as alternative prey to bobwhites, and others) if we ever hope to identify the relationships between these and what effect it has on management. One focus the committee agreed to was the need to identify important indicators that predict what limiting factors will be most important to bobwhites before they occur so that managers can act to reduce their negative effects on bobwhite numbers. We also discussed a new research initiative that will refine supplemental feeding recommendations (see below). Other topics for research were raised including future burning regulations and impacts on habitat management, economic trade-offs in bobwhite and timber management, and potential alternatives for brood habitat management. We look forward to working with the advisory committee to ensure our research continues to answer the most pressing issues facing the plantation community.

Supplemental Feeding and Quail

Our long-term supplemental feeding research has demonstrated many benefits to bobwhite populations on areas of excellent habitat. The following have been observed on multiple occasions and they typically result in higher bobwhite populations:

- Increased survival during winter and spring, especially during periods of heavy avian predation and/or low native food supply.
- Higher nesting rates of hens (more double and triple clutching) especially obvious during droughts.
- Suspected improvements in chick survival (this one is not certain however).
- Reduced vulnerability to harvest (less overall probability of harvest by hunting when spreading supplemental feed is practiced).

The fourth “benefit” may make you ask why we are making quail harder to find during hunting. For example Shane Wellendorf has gathered basic statistics on feed lines from cooperating plantations this year, as we begin our new research initiative. First, the average distance of feed-line is 1.8 miles per 100 acres. So a 4,000 acre property would have approximately 70 miles of feed-line on average. About 5.7 bushels of sorghum is spread for each mile of feed-line, and from what we have measured thus far plantations are spreading 0.9 to 3.6 bushels per acre of quail habitat per year (Tall Timbers is right at 1.5 bushels per acre per year on our Kate Ireland Model Quail and Conservation Area). Now, if you were to buffer the feed-line with 30 feet on either side of the line (the approximate distance a spreader throws grain) then we would estimate that on average about 12% of the uplands on a typical plantation have supplemental feed on it! The average home range of a bobwhite would therefore include about two acres of supplemental feed area.

So, yes, when we provide that much feed it is likely we are purposely making bobwhites harder to find for us and predators. Consider the graph below (Figure 1), it shows that during a typical afternoon the bobwhites on Tall Timbers move ½ acre when they have access to our average feeding program, versus 2.5 acres when they don’t have access to supplemental feed – a five fold difference in area covered. The new research we are undertaking will provide a much more refined look at how the density of feed on the ground affects the movements of birds and how managers can adjust these rates to get, on average, the desired effect with the birds.

![Figure 1: The average daily home range of coveys monitored every 15 minutes on areas supplementally fed (blue) and those not supplementally fed (red).](image-url)

Figure 1: The average daily home range of coveys monitored every 15 minutes on areas supplementally fed (blue) and those not supplementally fed (red).

Now consider how predation changes from year to year on a property. Some years, the hawks are very prevalent and mortality can spike very quickly, especially during periods when cotton rat numbers are ebbing. Similarly consider that during drought years, feed can be limiting in several ways and nest production without supplemental feed can be very low. Under these conditions, it may be prudent to feed with the goal to minimize bobwhite movements, maximize condition to maintain survival and improve nesting. At other environmental conditions feeding has little discernable effect on quail survival or reproduction and therefore, perhaps rates could be adjusted to save money and improve hunting success. That is...
when we may want to maximize movements to increase hunting success on average (given that hunting will always be a day to day issue, we still believe we can affect trends).

While we have studied the effects of supplemental feeding on bobwhite demographics, we have done it in an “all or nothing” approach to answer some basic questions and provide policy makers with good information to guide policy. However, we currently don’t have strong information on how the actual density of feed within a home range of bobwhites affects their daily movements and behavior. Our plan is to study the movements of bobwhites in fine detail in relation to different amounts of feed to find the important thresholds managers could use to refine their feeding programs to optimize high survival (less movement) and improved hunting success (greater movement). Finally, this research will answer the basic question of how much is enough so that $5 dollar a bushel grain is not being wasted.

**Albany Quail Project 2007 Hatch Report**

The summer of 2007 was our 16th consecutive nesting season of monitoring radio-tagged quail on Albany area plantations. After drought conditions during the 2006 growing season and a disappointing hatch, we hoped 2007 would be different. This was not to be the case however, as a second consecutive drought summer was experienced in South Georgia. This resulted in reproduction below our long term average, which was not enough to allow the populations to recover from the previous year. Census work in 2007 on several local properties revealed slightly fewer coveys, but these coveys did have a few more birds in them than in 2006. The end result was a bird per acre population roughly the same or slightly lower than the previous year, ranging from 1.2 – 1.5 birds/acre. Exceptions to this trend include a scattering of local properties with a high percentage of irrigated land, including one property that stocked wild quail in the spring under GA Department of Natural Resources permit. This property experienced a 130% increase over 2006!

![A recently hatched quail nest.](image)

The included graph (Figure 2) shows our long term telemetry data, which is reveals a reduced spring-fall survival of adult birds over the last several years which, in turn, is affecting the ability to produce a strong late hatch. This declining survival is likely due to increasing numbers of Cooper’s hawks, a low point in the rodent cycle, and drought summers all working in combination. The fact that these properties are able to maintain populations in excess of one bird per acre under these circumstances is a testament to excellent habitat, supplemental feeding, and nest predator management programs in place. We are optimistic that at least some of the factors currently lined up against us will cycle back in the other direction and allow for a recovery back to the high density populations to which these properties have become accustomed. Hunting conditions so far this year have been tough due to warm and dry weather and an abundant acorn crop. This should improve as more time passes. We wish you all the best of luck this season and please let us know if there is ever any way we can help you. We would like to offer a special note of thanks to those of you who have supported the Albany Quail Project over the last 15 years and continue to support us now that we are merged with Tall Timbers Game Bird Program.

**Thomasville/Tallahassee/Monticello Area Hatch Report**

We predicted significant increases in the quail population in 2007 based on continued high survival of adults over the winter and through the summer in the Red Hills. However, the most severe drought since 1895 affected the bobwhite hatch in the Red Hills. The parameter most affected by the drought this year was chick survival. We experienced modest to high...
survival during the breeding season (0.45) on Tall Timbers. High survival typically translates into high nest production, and despite the dry weather, nesting rates per hen were at or over one on our study areas. Nesting success also was high (50-75%) on all our areas ranging from native ground cover to old field lands. However, chick survival did not follow these positive trends. On Tall Timbers, we capture broods at 9-12 days of age to wing-band them. During 2007 breeding season, only 34% of bobwhites that hatched a nest had chicks at nine days later, which was the lowest percentage measured since we began in 1999. Poor chick survival during the first two weeks likely stemmed from a combination of lower than normal insect availability, poor cover conditions made worse by late extensive thinning, and high predation. Chick survival is still one of the most difficult to study aspects of bobwhite productivity. Rainfall returned to the Red Hills during July and we experienced good hatching in August, September and into October. Thankfully, high survival of adults permitted a strong late hatch on many properties, which helped to stem some of the declines in bobwhite populations. In fact, aging wings we found that as high as 25% of harvested juveniles were hatched in September and October! Collectively, our covey call counts across the Red Hills indicated that population declines were typically 10-30%, however some managers are reporting up to 50% declines. On the Kate Ireland Quail & Conservation Area, our population declined 26% from 1.65 birds per acre to 1.22 birds per acre (the cover was also hampered by thinning timber during spring). Those precious few properties that received some rainfall during May – June likely had outstanding production similar to 2002 (in line with our predictions prior to the drought!) and have experienced population increases this year. In fact, we measured over three bobwhites per acre this year on one such plantation and their hunting is over seven coveys per hour this year on those areas.

At this writing, extremely dry and hot weather continues to make hunting difficult. Populations are down in some areas, but the decline in hunting success is also a function of poor scenting conditions in our area. We expect hunting to improve if and when we get cooler weather and some rainfall.

**Predation Project Update**

The complexities of bobwhite predator-prey relationships have been a focus of game bird research for decades and more specifically a focus of research by Tall Timbers and the Albany Quail Project (AQP). This cooperative research project includes the University of Georgia, AQP, Tall Timbers, and USDA-Wildlife Services; it has been the most complete predation research project on bobwhites ever. During this study, we measured bobwhite abundance and demographics, predator abundance through indices, and alternative prey such as cotton rats. This data continues to be analyzed, but some of the big picture items have been finalized. To refresh your memory, we monitored bobwhites and their demographics year-round on four sites, two in Albany and two in Thomasville, over seven years. The first year was a baseline year and then we removed predators during three years on one area of each pair in successive fashion to achieve a “cross-over.”

One of the first questions we had was, do bobwhites demonstrate higher productivity on the
study areas during periods when nest predators were reduced? The statistical analyses conducted by Ph.D. student Susan Ellis-Felege demonstrated that chick production was increased by an average of about two (statistically 1.92) chicks per hen entering the breeding season and this result is both biologically and statistically significant. To put that increase in chick production into perspective, the overall mean number of chicks produced by each hen entering the nesting season averages from about one to five chicks each year; so predation management added nearly two chicks on average to the productivity of each hen entering the nesting season. This is a significant increase in productivity for a bobwhite population. The results also show that when nest predation is managed chick production and quail populations are less variable from year to year, so that chick production is more predictable each year.

Does this mean that managing nest predation will always result in dramatic increases in fall and spring populations? The overall effect of predation management on fall populations was positive and biologically significant, but not statistically significant overall. This is not surprising given that bobwhite populations fluctuate tremendously from year to year for many documented reasons. However, if you look at the following graph, (Figure 3), it indicates that the population growth percentage is greater on trapped areas during the years when environmental factors were most favorable for quail production (2000 – 2003). Similarly, declines on areas trapped were not as severe when environmental conditions were less favorable (2004 – 2006). Therefore, predation management helps to accelerate growth during periods of growth, and decelerate declines during periods of decline, but in general will not insulate bobwhite populations from more important factors that can have a greater impact on bobwhite populations.

For instance, we continue to document how bobwhite survival is linked to the abundance of cotton rats and how this affects bobwhite populations, (Figure 4) on Tall Timbers. During years of naturally low bobwhite survival, such as

in 2003 and 2004, bobwhite numbers decline because of a direct loss of adults and a loss of potential production of young. Survival of bobwhites has an obvious effect on bobwhite nest production, (Figure 5). Managing nest predators where scent station indices show high predator abundance increases chick production and dampens the negative effect of avian predation on bobwhites, but cannot erase the effect on low survival of adults on bobwhite populations. Therefore
decline. Predation management is no silver bullet. The results show how it is a tool to increase productivity. But habitat management is still the most important aspect of bobwhite population management.

The key point is how these long term studies are beginning to unveil the mysteries of the cyclic nature of quail populations and the factors responsible for them. Increasing our understanding of how such things as rodent population cycles and weather extremes effect quail populations; as well as how intensive management practices such as supplemental feeding and nest predator management may act to buffer these fluctuations will continue to be a focus of our combined programs. It is only through the long term studies already in place that we can hope to understand these phenomenons and learn how to adapt management practices to address them.

**Fall Field Day at Aberfeldy**

On October 29, 2007, Tall Timbers held its 21st Annual Fall Field Day on Aberfeldy Plantation in Grady County, GA. We would like to sincerely thank the owners, the Wolsfelt family, and property manager, Michael Redfearn, for hosting the event.

Aberfeldy’s beautiful longleaf forest is a perfect example of balancing sustainable timber production with high density wild quail populations. The Wolsfelt family have been wonderful stewards of their land and we thank them for sharing it with our members. The 257 people in attendance were eager to begin the field tour, even though the wind howled and the temperature dropped as the day progressed. Dave Perkins, the new Board Chairman of Tall Timbers, greeted the crowd and discussed the role of the organization in the Red Hills community.

The morning tour began with a literal bang as Michael Redfearn and Ed Epp, manager of Horseshoe Plantation, demonstrated the water and land retrieving abilities of a few English cocker spaniels from their respective kennels. The breed has become popular in the Red Hills in recent years, and there was much interest in seeing how they would perform in a “field” setting.
The wagons meandered through the property and passed excellent examples of pine timber and quail successfully managed together. Jamie Michaels, the consulting forester from Earl H. Bennett Forestry Inc., gave a detailed description of the timber plan for Aberfeldy Plantation. He pointed out examples of timber stands before and after thinning and detailed the potential revenue associated with those harvests. Additionally, Jamie discussed Aberfeldy’s goals for longleaf pine recruitment for the future forest.

Other discussions on the tour included Bill Palmer and Clay Sisson covering the effects of the summer drought on the quail hatch. Tall Timbers would like to thank all who attended the field day for making it such an enjoyable event.

Finally, we hope you will plan to be with us for the 2008 Fall Field Day, which will be held October 24, 2008 at Tall Timbers. This year we are planning an extended all-day game bird event as part of our 50th anniversary celebration. We will have seminars, discuss our quail research over the last 10 years and then lead a wagon tour on Tall Timbers. See you there!
Quail Management Research

Tall Timbers has a long and rich tradition of leadership in quail research. Beginning with Herbert Stoddard’s first study of quail life history nearly 80 years ago, Tall Timbers has led the charge to gain new knowledge that can be used to improve quail management. The Game Bird Program continues to be an innovative leader in the 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 at Tall Timbers now encompasses both the Tall Timbers Quail Management Research (QMR) which conducts research on Tall Timbers and surrounding quail properties and the Albany Quail Program (AQP) which conducts research on quail properties around Albany Georgia.

We hope you will consider making a contribution to the Game Bird Program in 2008. Our fundraising goal is $500,000 in 2008 to support both the QMR and AQP projects. If you have supported these programs in the past please continue to do so as both programs depend greatly on your annual donations. Please earmark contributions for the appropriate program, either AQP or QMR.

If you love these birds as much as we do, please take a moment to fill out the enclosed envelope and mail it today, or visit our website at www.talltimbers.org and make your gift online.

Thank you for your continued support of Tall Timbers and quail research!

Above is a photo of Herbert Stoddard in the 1920s banding quail caught in a funnel trap he designed. The Tall Timbers Game Bird Program is using many of the same methodologies today that Mr. Stoddard developed to conduct his quail life history research from which he wrote, The Bobwhite Quail: Its Habits, Preservation, and Increase.