



# TALL TIMBERS Quail Call

Quail Research Report

Winter 2006-2007

## Quail population ups and downs

Across the Red Hills, from the Aucilla to the Ochlocknee we measured higher than normal production of chicks this year. This year was a classic recovery year for the bobwhite populations in the Red Hills. Above normal production was a function of a good carry-over of birds from last year, excellent weather during the nesting season, and relatively high breeding season survival (see graph). We predicted in January this was going to be a good production year because of the increase in rodent numbers we have been measuring. While our weather was dry we had enough rainfall to grow adequate amounts of cover during July.

Call counts conducted on properties in the Red Hills indicated most populations were up 15 to 50% over the previous year. Despite the warm weather most managers interviewed are finding good numbers of coveys and report being “well up” over last year. Thus far this fall, bobwhite survival has continued to be strong. Therefore, it is possible that 2007

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will be another increasing year in the Red Hills if our rodent prey base holds on for one more year.

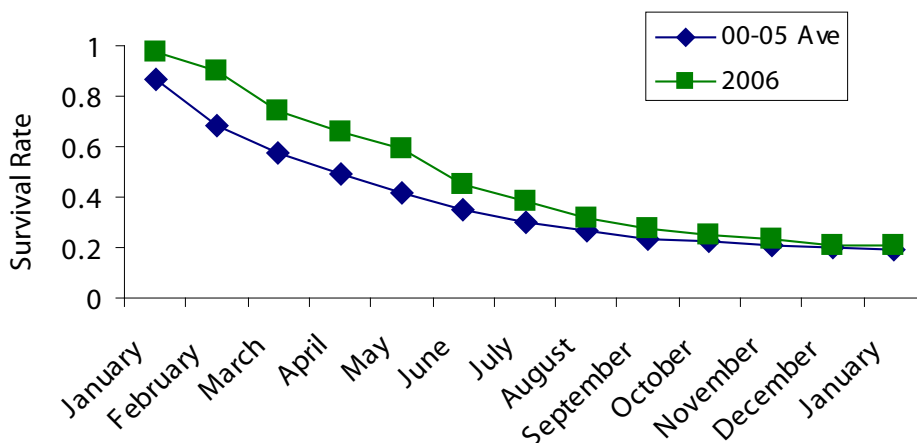
While the Red Hills benefited from dry weather and a good hatch the drought had a negative effect on many Albany Area Plantations this year. According to Clay Sisson, director of the Albany Quail Project, “the effects of summer drought are being felt now that quail season is underway. Much of the land here is sandy and vulnerable to dry conditions, which we had in the extreme from late May through July. Cover growth was stunted as was fruit, insect, and other summer food production. This led to high mortality of breeding birds as well as young birds raised during this time. An additional factor that hurt us was unusually high loss of nests at hatching due to fire ants during the drought. The rains came back in August which gave us some late production but it was not enough to offset what we missed out on earlier. The end result are population densities 20-30% below what they have been

the last couple of years but still over one bird/acre. Currently we are concerned about the light cover and its effect on hunting quality as well as carryover birds for next years breeding season.”



*Survival of bobwhites during 2006 was higher during January through August, which helped to boost production this year over the 5-year average.*

Adult Bobwhite Survival on Tall Timbers



## Future of the Albany Quail Project

By Bill Palmer, Tall Timbers Research Station and Clay Sisson, Albany Quail Project



We first officially announced the combination of the **Albany Quail Project (AQP)** with the Game Bird Program at **Tall Timbers Research Station (TTRS)** at the Fall Field Day at Wildfair Plantation in 2005. This merger of programs is scheduled to be completed by the end of 2007. Essentially, we are recreating Herbert Stoddard's Cooperative Quail Project that worked with plantations across the Red Hills and Albany area and beyond! There are many questions about why this merger is occurring. Here we try to answer some of these.

**Why now?** The upcoming retirement of Dr. Lee Stribling in a few years from Auburn University was the impetus for considering the AQP's future. Dr. Stribling, who successfully managed this project for 15 years at Auburn University, and Clay Sisson, the Project Coordinator for about 13 years, met with major contributors of the AQP and they collectively decided that the Albany Quail Project needs to continue after Dr. Stribling leaves Auburn University. They also decided that the best chance of long-term success and continuation would be to combine it with an established organization with similar priorities in bobwhite quail research and management – Tall Timbers, was the obvious choice.

**Why Tall Timbers?** The supporters and staff of AQP chose to become part of the Game Bird Program at TTRS because we are a local non-profit institution that shares their interest in game bird management and protection of the plantation community. This was a logical decision because our programs have a proven track record of working successfully together on important management and research issues. We co-planned and implemented the Predation Management Project (with colleagues at UGA), conducted significant research on supplemental feeding, and spearheaded research on translocation of bobwhites to establish new populations. These cooperative projects have made a difference by providing landowners with best management practices and providing wildlife agencies the information needed to develop quail-friendly management regulations. By officially combining programs it will be easier to plan and conduct future projects, such as understanding how and why populations are influenced by regional factors that are too big to study by just one group.

**Who will run the programs?** Clay Sisson will remain the Coordinator of the AQP. Bill Palmer will continue to direct the Game Bird Program at TTRS and will work with Clay to incorporate AQP into the Game Bird Program at Tall Timbers.

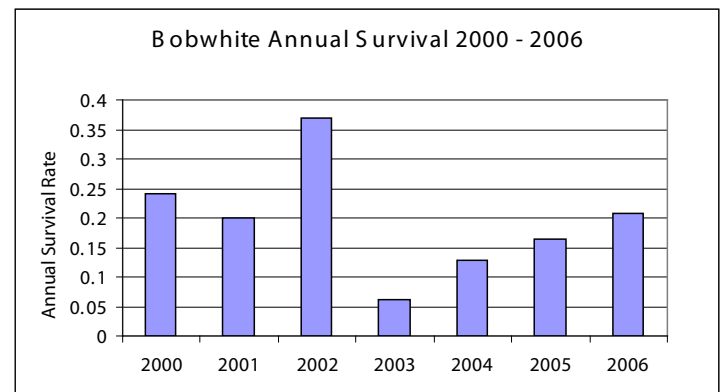
**What about funding?** Essentially, funding for both programs will remain the same. Donations to the Tall Timbers Game Bird Program will be used exclusively to support research in the Red Hills area, while contributions earmarked for the Albany Quail Project will be used solely for work in that region. We hope that past supporters of both programs will continue to fund the two programs at their current levels or even upgrade if possible.

## The next Quail Call: predation synopsis

In our first combined issue of the *Quail Call*, Fall 2007, we will do an in-depth report on the hatch in both areas as well as on the cooperative work we have already been involved in. The biggest of these is our cooperative 8-year predation management research project. In this project we have collected quail demographic data for eight years on four areas during periods of predator removal and periods when no predators were removed. Two study areas were in the Albany area and two were in the Thomasville-Tallahassee area. This long-term project includes many graduate students through University of Georgia and reams of data that we are still analyzing but we are confident that you will find the results interesting and useful.

## Pieces of the puzzle: understanding quail population dynamics

Over the past nine years the Game Bird Program has focused on the effects of predators on bobwhite populations in the Red Hills. With good habitat management, we wished to understand *why* quail populations tend to increase over two or three years then decline over two or three years. Thus far we have some pieces of the puzzle well understood, or at least theories that can be further tested. Only by understanding what causes the ups and downs will we be better able to effect change in this long-term trend.



*Annual survival peaked in 2002, declined precipitously in 2003, but has since steadily increased. The cycling in survival rates drives our bobwhite populations.*



*We know predation of bobwhites by Cooper's hawks varies over time in the Red Hills. However, why predation varies over time is not well understood.*

## To recap

**Increasing phase:** During the increasing phase of the cycle bobwhite survival rates are high. We believe this is a function of high alternative prey (rats, rabbits and mice) in the Red Hills and reduced hawk predation on bobwhites, however this is not proven at this time. Peak years occur after two or more years of good bobwhite survival, approximately greater than 20% annual

survival. The catch is as bobwhites increase in density on an area, their nesting rate declines and the population basically rides on high survival and modest production of young. On several properties, at peak densities where we monitored radioed birds, less than half of the hens actually incubated a nest! Typically nearly all hens attempt to nest.

**Declining phase:** We believe as rats and mice decline, then bobwhites become a more important diet item for the hawks, owls, and some mammal predators. Survival is low so few bobwhites live to breed and those bobwhites that survive the breeding season don't nest as frequently because of relatively high quail densities. Almost "overnight" quail populations decline dramatically. Oddly, even after populations decline, nesting effort remains low. Eventually survival and nesting rates of bobwhites increase and this produces years like 2002 or 2006 when populations go way up.

**Not all Highs are Created Equal:** We believe weather at multiple scales plays a role in how high the peak years are. Dry weather can be beneficial to chick survival which increases a peak, but too dry of weather can do the opposite, especially on light soils. A wet cool summer seems to cause low survival of chicks as well. Cold winter weather up north can push down lots of migratory birds which are followed by the migratory hawks. Once hawks are here, additional mortality on bobwhites can be a problem even when rats and mice are relatively high. So, other factors moderate the peaks and valleys for bobwhites.

**What we don't really know:** A major missing link in this puzzle is what is happening in the avian predator community to cause the switch to bobwhites and most importantly what can be done about it from a management stand point.

Currently we have limited information on the numbers of these predators through time, how their diet shifts through time, and if the reduction in rats causes the shift in predation. It is also possible that some larger hawks reduce numbers of smaller hawks that prey on bobwhites. The ups and downs of bobwhite survival we have measured over time is powerful evidence that predators drive the ups and downs of quail, but by itself it does not prove cause and effect. Quail and rats may just co-cycle for some other reason. A final missing link is why the rodent population cycles in the first place.

What is occurring to quail populations is occurring at the scale of the Red Hills or Albany, not just a single property. Differences among properties tend to relate to habitat management, but while "good" and "bad" quail numbers are relative to a property, the ups and downs are shared among us. There are exciting new possibilities for understanding the dynamics of bobwhite populations in this region with the future collaboration among Tall Timbers and the Albany Quail Project. As we analyze our data collected from many studies over the past 6-8 years, we will be formulating new projects that will deal directly with these issues.

## Project updates

### Upland Ecosystem Restoration Project (UERP)

Tall Timbers is proud to house the UERP. The primary goal of this project is to create 100,000 acres of habitat for bobwhites and other declining species dependent on frequent fire and appropriate timber management on public lands in Florida. This project will create tremendous quail hunting and bird watching opportunities for citizens of Florida as well as enhance conservation of these areas. The coordinator of this project, Greg Hagan, has worked with public land agency personnel and committees of agency leaders and expert biologists to identify the first 5 focal areas totaling over 70,000 acres! Management plans are being developed and implementation begun. The cooperation of agencies has been outstanding! See [www.talltimbers.org/research/gamebirdUERP](http://www.talltimbers.org/research/gamebirdUERP).

### Barbwire and bobwhites: ranchlands

We have conducted two years of point counts for bobwhites and songbirds on the ranchlands of south Florida. These great properties have some of the last remaining native quail habitats left in south Florida. Our graduate students James Martin and Adam Butler and their crews have collected over 1500 spring counts and 150 fall covey counts. Our covey call counts indicate that on unmanaged lands bobwhites declined from 2005 to 2006 principally due to drought, but on managed sites there was a slight increase. A clear and important

discovery from this project is that bobwhites and important wintering songbirds decline dramatically when saw palmetto exceeds 30% coverage. Saw palmetto has encroached on many native prairie sites from a lack of roller drum chopping and low fire frequency. In the past, use of drum choppers and annual fire maintained a grassland condition conducive to bobwhites.

We also have conducted one year of telemetry on the Escape Ranch, a premiere property managed principally for bobwhites. We are finding some important differences in bobwhite habitat use on the Escape from what we see here. Broods on the Escape selected wetlands for early brooding and utilized summer burn areas within five days of burning. Wiregrass sprouts quickly after fire and broods are using areas five days post-burn under 4-6 inches of wiregrass. Our scale and season of burn study on the Escape will provide new information on how burning on the dry prairies affects bobwhites and other birds.

## Novel Rearing and Release Project

This project, led by graduate student Randy Cass, is assessing the importance of wild strain genetics and rearing techniques on the reproductive success of released bobwhites. Our studies and practices show that translocation of wild bobwhites into areas of new habitat can successfully create a population of bobwhites. However, the demand for birds will always exceed the supply. Therefore, the purpose of this project was to determine if a novel approach to releasing bobwhites could be used in place of translocation of wild birds from a source population to new habitats.

In 2005, we released 153 chicks reared under parents in three releases over the summer. Each of these chicks were raised outdoors with a parent and released from 35 days of age to mix with wild broods at the release site. Unfortunately, many of these chicks were released during July at a time when repeated heavy rainfalls occurred. Despite the rains, we recaptured 14 parent-reared chicks in October. We estimate from this that approximately 40 survived through the summer (FYI, survival of wild chicks was poor this year as well). During March 2006 we captured and radio-tagged five chicks. Two parent-reared bobwhites were alive at the beginning of the nesting season and both incubated a nest. One successfully hatched a brood and had 7 out of 12 chicks when a brood capture was conducted at 12 days of age. The other bird was killed while foraging off the nest.

This past summer, we released 442 parent-reared chicks. Again, we released these chicks at 35 days of age to mix with wild broods and/or adults. The weather was very good throughout the summer. We recaptured 57 parent-reared

chicks during November of 2006 and estimated 124-160 survived through the summer. Therefore, we hope to capture and radio-tag a larger sample of parent-reared bobwhites next March (2007) to bolster our findings from 2006.

Each year, we released the same number of "brooder-reared" chicks as imprinted chicks. These brooder-reared chicks were not imprinted on parents. In 2005 none of the 153 chicks released were recaptured, but we did capture and radio-tag three chicks in March of 2006. None of these bobwhites survived until nesting season. We recaptured only one of the 442 brooder-reared chicks released in October and November of 2006. So brooder-reared chicks have been a complete bust thus far.

Therefore, parent rearing and imprinting improves survival of chicks to fall relative to brooder reared and released wild-strain chicks. The chicks mixed with wild broods and the few thus far to make it to breeding season reproduced normally. With improved chick survival of wild and parent-reared chicks in 2006, we should have a higher sample size of radiotagged bobwhites in 2007 to better assess the reproductive potential of released, wild-strain and parent reared chicks.

## Rosemary Plantation hosts a near record crowd at 2006 Fall Field Day

Despite the threat of bad weather, over 280 people attended Tall Timbers Fall Field Day (FFD) at Rosemary Plantation located on the Ochlocknee River in Beachton, Georgia. We thank the owner, Mr. Mason Hawkins, manager Tim Miles, and their staff, for their hospitality and for taking the time to show Rosemary to our members. The main point of the field day was that in the Red Hills, bobwhites respond quickly to large-scale, focused, and state-of-the-art management. The turn around of bobwhites at Rosemary has been spectacular.



From beginning management in August of Fall Field Day continued p. 5

*At left, Rosemary Plantation owner, Mason Hawkins, discusses some of the finer points of game management with Miss Kate Ireland, Chairman of Tall Timbers Board of Trustees and owner of Foshalee Plantation at Fall Field Day. Behind Miss Kate is Jimmy Patterson, the dog handler for Foshalee.*



Fall Field Day attendees check out the John Deere tractor and roller chopper that GreenSouth Equipment demonstrated. GreenSouth donates the use of a similar tractor to Tall Timbers every year for land management support.

Fall Field Day continued from p. 4

2003 with only a handful of coveys to nearly 1.5 birds per acre in 2006 is quite an accomplishment. We are proud to list Rosemary as one of several premiere quail properties in the Red Hills under a conservation easement held by Tall Timbers, as well! FFD program topics included performance in bird dogs, planted pine thinning, predation management, demonstration of new choppers by Green South Equipment, and a innovative trapping system developed by American Wildlife Enterprises.



## 2006-2007 Game Bird Research Team

William E. Palmer, PhD, Robert C. Balfour, Jr. Game Bird Management Research Fellow

Shane Wellendorf, MS, Biologist

Ronald E. Masters, PhD, Director of Research

Eric Staller, MS, Natural Resources Coordinator

### Research Associates

L. Wes Burger, PhD, Tall Timbers Board of Trustees, Mississippi State University

John Carroll, PhD, University of Georgia

### Graduate Students

Adam Butler, MS Candidate, University of Georgia

Dave Butler, PhD Candidate, John Moores University, Liverpool, UK

Randy Cass, MS Candidate, University of Georgia

Brant Faircloth, PhD Candidate, University of Georgia

Susan Ellis-Felege, PhD Candidate, University of Georgia

Tina Hannon, MS Candidate, University of Georgia

Mike Juhan, MS Candidate, University of Georgia

James Martin, PhD Candidate, University of Georgia

Kim Sash, MS Candidate, University of Georgia

Therone Terhune, PhD Candidate, University of Georgia

Teresa Valentine, MS Candidate, University of Georgia

### Research Technicians

Jimmy Capps

David Duncan

Jennifer Good, South Florida Project

Josh Harn, South Florida Project

Robert Hoffman

Ricky Lackey, Pinion Point Project

David Martin, South Florida Project

Matthew McKinney, South Florida Project

Laura Mills, South Florida Project

Michele, Prasik, South Florida Project

Tony Roberts

Audrey Sweet, South Florida Project

Chris Yarborough, South Florida Project

### Research Interns

Josh Agee, South Florida Project

Joseph Chesier, South Florida Project

Tracy Cikanek

Nevena Crawford

Chris Felege

Alana Gaskell, South Florida Project

Josh Harn, South Florida Project

Stephen McDowell, South Florida Project

### Volunteers

Kathleen Coates



Research technician, Matthew McKinney, monitors quail with a radio telemetry antenna for the South Florida Ranchlands Project. Photo by James Martin.

At left, a caravan of trucks and wagons wind through Rosemary Plantation on the Field Tour at Fall Field Day. All Fall Field Day photos by Rose Rodriguez.

## Game Bird Program Funding – We Need Your Support!



Tall Timbers has a long and rich tradition of leadership in bobwhite research. Beginning with Herbert Stoddard's first study of quail life history over 75 years ago, Tall Timbers has led the charge to gain new knowledge that can be used to improve quail management. The future of quail research at Tall Timbers has never been brighter. With the inclusion of the Albany Quail Research Program under the Tall Timbers Game Bird Program umbrella, we now have the nation's oldest and largest research program dedicated to providing quail enthusiasts with the best information possible on how to manage for bobwhites on both private and public lands.

As a non-profit organization, Tall Timbers is dependent on the generous support of individuals, foundations, agencies and corporations to help fund our work. Contributions to the Game Bird Program represent an annual commitment to the important work done at Tall Timbers – work that is necessary if we are to ensure that huntable populations of wild quail can be maintained for future generations to enjoy.

*Bobwhite hen with brood, part of the Novel Rearing and Release project led by graduate student Randy Cass. See story page 4. Photo by Randy Cass.*

Our Game Bird Program fundraising goal for 2007 is \$240,000. We hope that you will consider making a tax-deductible contribution to Quail Research along with your annual membership gift. The Game Bird Program is able to match these annual contributions with grants and projects from outside sources, which increase the size and scope of quail research at Tall Timbers more than three-fold! If you love these birds as much as we do, please take a moment to fill out the enclosed envelope and mail it to us today with your gift – or you may visit our website at [www.talltimbers.org](http://www.talltimbers.org) and make your gift online.

Thank you for your continued support of Tall Timbers and the Game Bird Program!

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