

Tall Timbers eJournal

WINTER 2017



TALL TIMBERS RESEARCH STATION & LAND CONSERVANCY

Stewards of Wildlife and Wildlands
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For almost 60 years, Tall Timbers' mission has been "to foster exemplary land stewardship through research, conservation, and education".

Tall Timbers' primary research focus is the ecology and management of fire-dependent ecosystems and bobwhite quail and other wildlife in the Southeastern Coastal Plain. Our conservation efforts are dedicated to helping protect the distinctive, rural landscape of the Red Hills Region of South Georgia and North Florida and its traditional land uses. Our education program transfers research and conservation information for resource management. We strive to educate our members and the public with science-based information through outreach programs, community involvement, and engaging publications.

Membership is important to Tall Timbers because it provides for the overhead costs necessary to fund our programs. By becoming a member of Tall Timbers, you will be doing your part to protect and preserve the wildlife and wildlands for future generations.

For more information, please visit talltimbers.org

FEATURES



Bird dog, Gerti on point. Photo by Seth Wood.



On the Cover:

Ashley's Pond, a favorite location for warm water fly fishing in the Red Hills region. **Above:** The upper Aucilla River. Read Tom Logan's biological perspective on the the variety of waters, diversity of fish species and fishing opportunities that occur during every month of the year in the region. Photos by Tom Logan

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ROSE RODRIGUEZ

eJournal

EDITOR

Rose Rodriguez

CONTRIBUTORS

Jim Cox

Tom H. Logan

Bill Palmer

Kevin Robertson

Kim Sash

Clay Sisson

Theron Terhune

Juanita Whiddon

EXECUTIVE EDITOR

Bill Palmer

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EDITOR'S LETTER

In our region, the winter hunting season is much-anticipated as the first cold fronts come through. During the Beadel era at Tall Timbers, it was a much true then as it is now. In this issue read about Henry Beadel's 1930 trip to Tallahassee from New York for the hunting season.

Beech-magnolia forests and marble salamanders, these are the features in this edition's **Flora & Fauna**. Read why the beech magnolia forest community is so special and worth conserving. The marble salamander is also special; learn how it differs from other salamander species and why it's important to conserve its wetland habitat is.

The Continental Field Trials, in its 97th year, continues at Dixie under Tall Timbers stewardship. Learn about its history and how running the field trial during hunting season has created a research opportunity.

The features in this issue are an account of training a young bird dog to scent quail; fly fishing opportunities in the lakes and streams of north Florida; and old-growth longleaf pine forests — rare, national treasures.

In the "Last Word," Bill finds parallels in two natural history monographs, Herbert Stoddard's *The Northern Bobwhite* and D. Bruce Means' *Diamonds in the Rough*, just published by Tall Timbers Press.

Because this is a digital publication, some articles include hyperlinks to websites that provide additional information or to contact the author. Click on text that is "red clay" in color, which indicates a hyperlink. You can also click on the page number in the contents pages to go directly to the article on that page.

If you frequent social media, follow our pages/feeds: Facebook, Twitter, Instagram and YouTube. Clicking on the icons below will take you to there.

I hope you enjoy the Winter 2017 issue of the *eJournal*. If you prefer to read a printed version; here is how to print one. There is a top arrow on every page that opens features that give you print options; click on the print icon to print the entire publication or just the article(s) you want to read.

Email me a note with your thoughts, or better yet, send me a letter to the editor; I will include it in our next issue.

Rose Rodriguez

rose@ttrs.org



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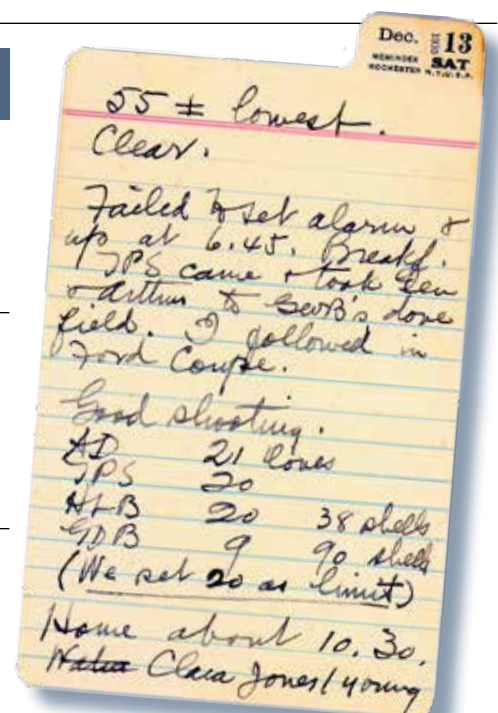
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BY BILL PALMER



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Beadels Return for the Winter Sporting Season

BY JUANITA WHIDDON

ON NOVEMBER 27TH, HENRY AND GENEVIEVE BEADEL, and Genevieve's brother, Arthur Dillon, picked up the Beadel's brand new Franklin automobile at the Franklin Garage on West 55th Street, New York City, and headed for Tallahassee, Florida. The men had mapped out a route (with the help of AAA) that avoided big towns and had garages that serviced Franklins.

Nov. 27
MEMINDEX THU
ROCHESTER N.Y.U.S.A.

Fine. Cold. Up at 7.
Breakfast. Settled things.
Jack took trunk for expressage.
I in taxi to Franklin garage
(W 55th). Their chauffeur, Beidler,
there. Had to hunt for tyre lock
key & fix short in parking light.
B. came with me & I drove car
to Seymour. Arthur on hand.
Put in bag & started about 11.
6th Ave., Hudson Tubes, & on
to Road 25. Lunched at gas
station near N. Brunswick. Kept
car to 35 m.p.h. or under.
Phoned Clara. Road avoids
all big towns. Arrd Penn's
Grove about 5 & first caught
ferret. Crossed to Wilmington
Baltimore - Airport Hotel.
Took on 11th floor. Car

Five days later, they arrived in Tallahassee, (about 1175 miles). They spent the night in town, and took the various Winthrop relatives for rides. The following day, they arrived at Tall Timbers, and manager T.P. Strickland, and the staff were all there to greet them. After all that time cooped up in the car, Henry, Genevieve (Gen) and Arthur were all anxious to be in the outdoors, but plumbing problems and bad weather kept them indoors until the afternoon of December 5, when Henry and Arthur were able to get their boats on Lake Iamonia for some duck hunting. Henry records in his diary that he shot 5, but lost 4 of them and Arthur got 1. The next morning, all three were up early and headed to GWB's dove field: Arthur—southwest, Strickland—southeast, Gen—north, and Henry—east. He notes that the birds came in spasmodically. He records that by 11:00, he had 25 and that Gen, shooting her new Greifelt for the first time, shot 9, Arthur 13, and Strickland 21. That afternoon, Henry and Gen went into Tallahassee and purchased hunting licenses. The next day was Sunday, and they had planned a drive to Carrabelle, but bad weather made them cancel their plans. The day was spent cleaning guns and writing letters; however, the day ended on a high note, when they had ducks for dinner that the men shot on Friday.

A summary of the next few days activities includes: Monday, December 8th, Henry and Arthur duck hunting for a total of seven ducks; Tuesday, the 9th, all three went quail hunting between Gay's farm and Gannet Pond, for a total of seven birds shot; Wednesday, all three went duck hunting for a total of four ducks shot;



At left is Genevieve Beadel ready for quail hunting; at right is Henry Beadel with his pointer (name?). The Beadels were avid hunters and purchased Hickory Hill Plantation, which they renamed Tall Timbers, from Edward Beadel in 1919. Edward was Henry's uncle who continued to visit until his death. Henry and Gen invited family and friends to stay at Tall Timbers during the hunting season to share in the outdoor pursuits they loved. Photos from Tall Timbers Archives.

Thursday, they took a day off, so that Henry could go into Tallahassee to see the doctor about an infection on his left hand; Friday's rain kept all inside; Saturday turned out to be an day excellent for dove shooting. Arthur shot 21, Strickland 20, Henry 20 and Gen 9.

Later in the afternoon, all went turkey hunting. The men missed their shots, but Gen got an 11½ pound gobbler. Sunday afternoon, the three motored to Wakulla Springs, where they enjoyed a glass-bottomed boat ride. They went on to Carrabelle beach, where they enjoyed picking up shells. Monday found them duck hunting in the morning, and quail shooting in the afternoon. Together they bagged 11 ducks and

5 quail. Arthur left on the 17th, and Henry and Gen spend the next few days getting her new Steinway out to the house and set up, as well as shopping for the tenant families' Christmas gifts.

The men all got overalls, and the women received piece goods. The children each got a small toy, fruit and candy. (*Appreciated, I'm sure, since this was the early part of the Great Depression.*) They also spent time getting ready for the Christmas visit of their friend, Clara Hage and her two children from New York. Having children around at Christmas was a rare experience for the Beadels, and they enjoyed getting a tree for Jack and Sis to decorate.

ABOUT THE AUTHOR – Juanita Whiddon is the archivist and historical resources coordinator for Tall Timbers.

The Primeval Beech-magnolia Forest —Where the Fire Stops

BY KEVIN ROBERTSON

IT IS NOW WELL ACCEPTED THAT THE species-rich pine-grasslands of the southeastern U.S., and the frequent fires that maintain them, have had a stable and prominent place on the Coastal Plain landscape for millennia. This understanding is a fairly recent shift from the idea that closed canopy, broad-leaved forests were the default, climax community type across the whole landscape, and that pinelands were mere aberrations of recent history caused by human influence alone. Even so, the wide reach of fire did not find every acre, and the closed canopy forest primeval had and still has its ancient sanctuaries.

From east Texas to North Carolina, forests between the line where the fire fades and the wetlands begin are usually identified with two of their most noticeable

species, American beech (*Fagus grandifolia*) and southern magnolia (*Magnolia grandiflora*), sometimes along with their common associates, spruce pine (*Pinus glabra*) and American holly (*Ilex opaca*). Within this broader community type fall wetland plant associations in narrow drainages, kept perennially moist by underground seeps or the slow drainage of surface water.

Beech is a broadleaf deciduous tree and magnolia and holly are broadleaf evergreen trees, indicating another way in which this community type is between two worlds. Tree species in this community arise from an overlap of broadleaf deciduous forests to the north, as found in the American Central Highlands and New England, and subtropical broadleaf evergreen forests to the south, as found Everglades hammocks, the Keys, and the Caribbean. This zone of overlap circles the world. In the mountains of Mexico, it arises where an American beech variety (*mexicana*) and a species of magnolia (*Magnolia schiedeana*) cohabitate. In mountain ravines of southern China are species of beech (*Fagus lucida*, *longipetiolata*, *engleriana*) growing with a member of the Magnolia family (*Manglietia chingii*), along with a list genera familiar from our own beech-magnolia and ravine forests: *Ilex* (holly), *Cornus* (dogwood), *Acer* (maple), *Illicium* (star anise), *Rhododendron* (wild azalea), *Symplocos* (horse sugar), *Viburnum* (rusty haws), and even *Torreya*.

Wherever they occur, these communities have in common relatively cool, shady, moist conditions in ravines, depressions, slopes descending to floodplains, and upper terraces of rivers and lakes. In the Southeast, they are also found on the east sides of rivers, where fires



Centuries-old beech tree (*Fagus grandifolia*) in Woodyard Hammock. Photo by Kevin Robertson.



Woodyard Hammock, Tall Timbers Research Station. Photo by Kevin Robertson

blown by prevailing west winds are blocked, leaving fire shadows to the east. These shadows may also fall on high hills of wind-blown loess or sand, also carried by west winds and deposited on the east banks during the deep freezes of the Pleistocene epoch. Streams dissect the hills and create cool ravines, as in the Tunica Hills of southern Mississippi and Louisiana. In the Florida panhandle, similar ravines have been carved into the deep sands of the Pleistocene shoreline and are fed by groundwater at the bottom of their precipitous heads, famously along the Apalachicola River and on Eglin Air Force Base.

As the cold weather of the Pleistocene began retreating northward about ten thousand years ago, these cooler, fire-free environments remained friendly to species that otherwise had to move north. Visitors to the Gulf coast from northern states are often surprised to find American beech, sourwood (*Oxydendrum arboreum*), red buckeye (*Aesculus pavia*), black walnut (*Juglans nigra*), and mountain laurel (*Kalmia latifolia*), which in April lights up the forest with its white flowers in certain shady ravines along the coast from southeast Louisiana to Florida.

In most places throughout the South, this unique community has been lost to conversion to other forest types. However, the Red Hills Region has been a refuge to the community type, largely left to persist downslope of frequently burned quail habitat. It is easy to find along the fast draining creeks that cross the region and feed the Ochlocknee and Aucilla Rivers as well as lakes Iamonia, Jackson, and others—even inside the Tallahassee city limits where the ravines are too steep to develop.

A significant example of beech-magnolia forest is on Tall Timbers Research Station, in a low area that is part of the Lake Iamonia karst depression. Once called The Devil's Woodyard it has come to be known as Woodyard Hammock, one of the few examples of true old-growth beech-magnolia forest, uncut except for a few cypress early in the 20th century. Individuals of American beech, southern magnolia, black gum, spruce pine, and tulip poplar are more than a meter (over 40 inches) in diameter, and tree cores have shown some beech and magnolia to be over 300 years old. Sweet gum, considered an offsite,



Intern Kaitlin Griffith measuring a southern magnolia tree (*Magnolia grandiflora*) in October 2016, the 38th year of the biennial Woodyard Hammock census. Fire Ecologist Monica Rother is in the background. Photo by Kevin Robertson.

weedy tree in old-field pinelands, is majestic there in its native habitat.

It was within this exemplary forest in 1978 that Dr. William Platt, then an ecologist at Tall Timbers, and now at Louisiana State University, set up a study to track the life of this community type. Within a 12-acre area, every tree 2 cm in diameter or larger was mapped, identified, measured, and tagged; trees and recruits have been measured every two years since. Staff in the Fire Ecology Program just finished the census for year 38 of the study, from which comes much of what we know about beech-magnolia forests.

As in most closed-canopy broadleaf forests, existence in Woodyard Hammock is a fight for light. Most successful regeneration occurs only in the gaps where large trees have died, usually the result of wind snapping trunks or tipping up whole trees. Platt surmised that hurricanes in particular play a key role in recruiting new trees, and if

the census continued long enough then one was bound to hit, and he would be ready to record its effects. On schedule, Hurricane Kate passed directly over and opened about 60 percent of the canopy, and the fight for light was on.

Dr. Sharon Hermann, another former ecologist at Tall Timbers, worked with Platt to learn that the regeneration of new species from gaps was not because they were dispersed to or even preferentially germinated there, but rather that seedlings emerged throughout shaded forest, ready to grow if given the chance. Most seedlings do not live long, and some years are better for some species than others. Apparently 1985 was a great year for hophornbeam (*Ostrya virginiana*) and blue beech (*Carpinus caroliniana*), as these understory species won big, and dominated all the new gaps for another two decades.

Numbers of hophornbeam went from 400 stems before the hurricane to almost 2,000 by 1998, and now



Seedling of American beech (*Fagus grandifolia*) on the floor of Woodyard Hammock. Photo by Kevin Robertson.

have thinned down to about 1,500. Since then, new gaps have given chances for other species to grow, and we will see the effects of our recent hurricane, Hermine, in the coming years. So, we have learned that maintenance of the forest is not as predictable as clockwork, but rather a matter of chance, such that relative numbers of species may change quite a bit over the course of a millennium.

Dr. Rob Peters, another Platt associate, used the post-hurricane data to show how different species have

very different ways of surviving hurricanes and taking advantage of the new gaps. Beech, holding its dominant place in the canopy, was almost untouched by Kate; it had little need of the storm's new gaps, using its horizontally-spread crown to grow slowly and steadily, whether in or outside of gaps. Holly, an understory evergreen, was similar. Magnolia had some losses in the hurricane, but it almost always resprouts from the base or lateral roots if damaged, still persisting despite little regeneration by seed in the past 100 years. On the other end of the spectrum are spruce pine and sweet gum—badly damaged by the hurricane, heavily dependent on the gaps, and built for speed in the race to the top. Consequently they do not live as long, but they grow big, contributing much to the cathedral effect of the forest.

The common enemy to most of these species is fire, especially when trees are young. While beech is king in the absence of fire, at all ages it is susceptible to even creeping flames, allowing entry of fungi that slowly work their way up the trunk. Fortunately, the forests are hardly flammable, except during the worst droughts. Poorly burning broadleaf litter that traps moisture, shade that prevents drying and convective lift, and the moister, cooler environment stop most fires before they get far.



Saplings of spruce pine (*Pinus glabra*), American beech (*Fagus grandifolia*), sweet gum (*Liquidambar styraciflua*), and other tree species growing in a light gap created by Hurricane Dennis in 2005. Photo by Kevin Robertson.

Beech-magnolia forests are not all about the trees, and harbor many special herbaceous species, mostly perennial Monocots. There are several species of toadshade or wake-robin (*Trillium*), such as *Trillium underwoodii*, endemic to southern Georgia and Alabama, and northern Florida and common in Woodyard. Hugging the ground, it flowers from January to March, taking advantage of light falling through the mostly leafless canopy, and sprouts from underground runners year after year. Though visually attractive, the flowers stink like rotting meat to attract fly pollinators, and are a flesh-like dark purple. Another resident is jack-in-the-pulpit (*Arisaema triphyllum*), named from a column-like spadix (Jack) studded with tiny male and female flowers, enclosed in hooded, green-and-brown striped spathe (the pulpit). Like *Trillium*, the spadix is dark purple and stinks to attract fly pollinators. It grows perennially from a potato-like corm, for which the species is also called bog-onion or Indian-turnip. Another hammock beauty is the spider-lily (*Hymenocallis occidentalis*), easy to spot by its sweet-smelling spider-like white flowers that bloom in summer, and at other times by its rosette of long, bright-green, fleshy leaves that grow from perennial bulbs.

Conservation of the beech-magnolia community mostly consists of leaving it alone, especially protecting it from the skidder and dozer. As mentioned above, it typically does not need firebreaks, but burning during droughts may damage fire-sensitive trees, shrubs, and herbs. Perhaps the biggest threat to remaining forests is exotic plant species, such as nandina (*Nandina domestica*) and coral ardisia (*Ardisia crenata*), as well as feral pigs, which threaten the many special plants that grow from tasty bulbs and tubers. The effects of climate change are difficult to predict in this otherwise resilient forest, which has survived the rising temperatures of the surrounding landscape for a few thousand years. With help from the long-term study at Woodyard Hammock, we'll be watching.



Toadshade, or wake-robin (*Trillium underwoodii*). Photo by Gil Nelson.



Jack-in-the-pulpit (*Arisaema triphyllum*). Photo by Gil Nelson.



Spider lily (*Hymenocallis occidentalis*). Photo by Michael Strickland.



Intern Lauren Loria standing in front of the base of a tree tipped up by Hurricane Hermine.

ABOUT THE AUTHOR

Dr. Kevin Robertson is the Fire Ecology Program Director at Tall Timbers.

Marbled Salamander

BY KIM SASH

AS THE DAYS SHORTEN AND COLD FRONTS start blowing through the southeast, most people think of wildlife huddling up for a long winters nap. But in the salamander world, this is when activity really picks up steam. As temperatures cool, it becomes increasingly safe for these creatures to emerge from underground without the fear of desiccation. They are commonly found marching across the landscape during nighttime cold front rains that push across the landscape from about October until March. These showers fill up ephemeral wetlands (also called “wet weather ponds”), which many amphibians use for breeding because they lack fish and other predators.

One of my favorite salamanders to make this annual move is the marbled salamander, an adorably chunky and beautiful species. Both males and females move to dry wetlands embedded within hardwood forests, such as those found in our local river floodplains. The male and female then seek each other out, court, and breed. The male will deliver a “sperm packet” to the female after enticing her with a bit of rubbing and dancing. This salamander is also interesting because the male and female are what biologists call “sexually dimorphic” — the male and female appear subtly different from each other. Both sexes are black with a series of whitish bands running down their backs, but the females’ bands are more silvery-gray in color and males are whiter. After the male and female breed, the female finds a safe log in a low area within the dry water body under which she can safely lay her eggs.

The marbled salamander belongs to a greater group of salamanders called the mole salamander. There are only five mole salamanders (*Ambystomatidae*) found within our region (spotted, flatwoods, tiger, mole, and marbled), and only two of them lay their eggs on dry land (flatwoods and marbled); all the others lay their eggs directly in the water. Another interesting behavior of the marbled salamander is that the female stays with her eggs until they hatch, possibly protecting them from disease by covering them in anti-fungal secretions. Once the eggs are inundated by rising water levels, they hatch into gilled larvae. The aquatic larvae (aka “salamander tadpoles”) grow quickly and are voracious predators of invertebrates and other amphibian larvae. As the weather warms in mid-spring and the water levels recede, they will lose their gills, and transform into the colorful land-dwelling adult form.



©COURTESY OF PIERSON HILL

Herpetologists (people who study reptiles and amphibians) are often known for their avid log rolling when hiking through the woods; marbled salamanders are often one of the species they are looking for when rolling logs. After the passing of a few rainy fall cold fronts, I can often go down to the swampy edges of Lake Iamonia within flooded back water areas and find female marbled salamanders guarding their eggs with some regularity.

Because amphibians spend time on both land and water, they are excellent indicators of ecosystem health and finding marbled salamanders in abundance is a sign of a healthy forest. Populations of marbled salamanders are lost when bottomland forests are timbered, when water levels are altered, and when upland areas surrounding wetlands are developed. Additional threats include invasive armadillos and feral hogs, which are likely to root up and feed on salamanders and their eggs. Conserving salamander habitats means conserving a vast array of other woodland wildlife as well as preserving the healthy ecosystems that give us clean water, fresh air, and open space!

Kim Sash is the Conservation Biologist at Tall Timbers.

Need Fire?



Fire Ecology Research Scientist Kevin Roberston, above, directs the Fire Ecology Program at Tall Timbers. Photo Rose Rodriguez

The Fire Ecology Program needs your support to help you keep fire on your land.

Prescribed fire faces many challenges that can only be met with sound science. The Fire Ecology Program conducts research to provide the public with applicable, science-based information on the appropriate use of fire for maintaining natural plant communities while protecting the health and safety of the public. Research focuses on both plant ecology and fire science, including fire behavior, emissions, remote sensing, and fire effects on soil.

Contributions made directly to the Fire Ecology Program at Tall Timbers will be used to help supplement the program with internships, supplies and capital needs.

To learn more about the work of the Fire Ecology Program and make a donation to the program, visit: <http://talltimbers.org/fireecology.html>



Dixie and the Continental Field Trial

BY CLAY SISSON

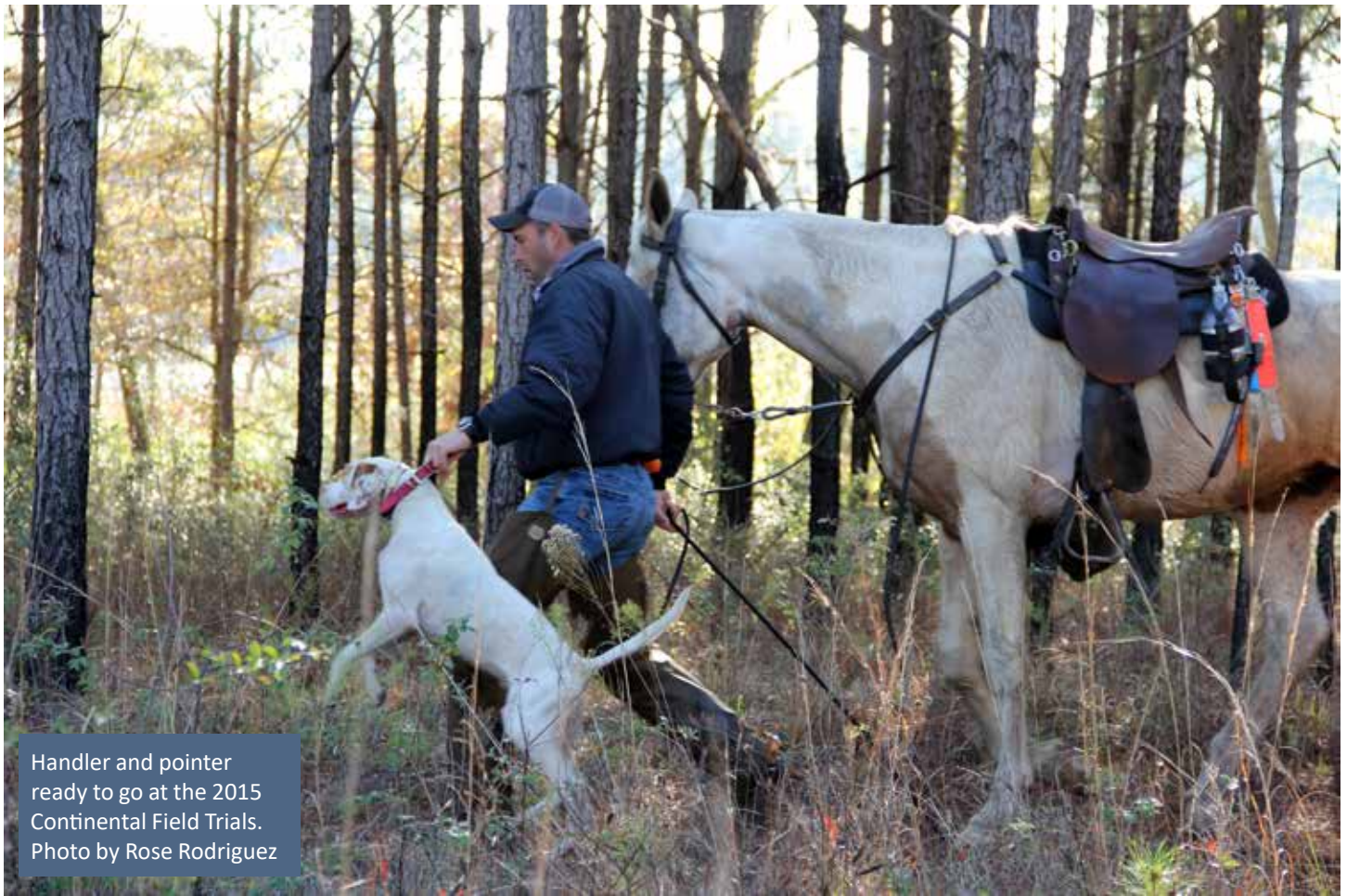
THE CONTINENTAL FIELD TRIAL IS ALMOST AS old as the sport itself with the first meeting of the Continental Field Trial Club held in Chicago in 1895. The first Continental Field Trial was held in Manitoba, Canada that same year and then was moved numerous times over the years until Gerald Livingston brought The Continental to his Dixie Plantation in 1939. The Continental has been run on Dixie every year since then beginning on the third Monday in January, with the running usually requiring two weeks or more to accomplish. The Derby and Open All-Age stake routinely draw close to 150 of the best dogs in the country as the Continental is a prestigious Championship, one of the few remaining run exclusively on wild quail, and a National Championship qualifier. The 122nd Continental Championship will be held at Dixie beginning January 16, 2017; the 79th consecutive year it has been held there.

The history of Dixie Plantation mirrors that of the entire Red Hills Region where wealthy Northern Industrialists were coming south for the winter in the early 1900s and discovered the great quail hunting the region had to offer. They began buying up the land in the Thomasville-Tallahassee area and before they were through had established 400,000 acres of privately held quail plantations there and another 300,000 in the Albany, Georgia area. Gerald Livingston was one of these men. Head of a New York stock brokerage and avid sportsman, Livingston began coming to the Region in 1910 and in 1926 purchased the first of what would become Dixie Plantation. By the mid-1930s he had assembled over 18,000 acres of land that straddled the state line in Jefferson County, Florida and Brooks County, GA near the towns of Monticello and Quitman. An avid outdoorsman, he and his wife Eleanor, along with their daughters Eleanor, Mary, and Geraldine, loved quail hunting with fine bird dogs and Tennessee walking horses. Many fine dogs and horses were bred and/or reared and trained on the place including World Grand Champion Tennessee Walking Horse Midnight Sun, whose statue resides on the main house grounds. Upon Gerald Livingston's death in 1950, his wife Eleanor took over the running of Dixie until her death in 1977, at which time the Florida half of Dixie was inherited by Geraldine and the Georgia half was sold. "Miss Geraldine" was much beloved in the community and continued to operate Dixie and run the Continental until her premature death



Dixie staff; from left: Alpha Bright, Randy Floyd, Gloria Hagan and Clay Sisson.

from cancer in 1994. Before she died, she had set up the Geraldine Livingston Foundation for the purpose of protecting her beloved Dixie Plantation and the Continental Field Trial. The trustees of the Livingston Foundation were the stewards of the property for nearly 20 years and oversaw the establishment of a conservation easement with the Suwannee River Water Management District in 1999, and eventually the transfer of Dixie to its current owner, Tall Timbers Research, Inc. in 2013. The property is now operated as Dixie Plantation Research, LLC with the stated objectives as follows: 1) maintain a high wild northern bobwhite population for hunting and field trials 2) protect and enhance the ecological, cultural, and historical values, and 3) conduct research and education on wildlife management.



Handler and pointer ready to go at the 2015 Continental Field Trials. Photo by Rose Rodriguez

The field trial community became apprehensive about the future of the Continental when Tall Timbers took ownership of Dixie, shortly before the 2014 running. We did our best to calm these concerns during the trial by letting everyone know we had no intention of discontinuing it. The history and tradition were important to us—very much a part of Dixie—and one of the reasons Miss Geraldine left it as she did.

We also made it clear that while we felt morally and ethically obligated to host the trial, we were under no legal obligation to do so, and we continue, only if we could afford it. We asked the field trial community for their help with this, and they stepped up. Long-time Dixie Plantation manager Randy Floyd became president of the newly incorporated Continental Field Trial Club (CFTC), and along with some new board members, went to work on securing sponsorships and donations for the Continental. The current mandate at Dixie requires the property to be self sufficient. Although owned free and clear by Tall Timbers—Dixie must pay its own way. A small endowment came with the property, but it generates less than 20% of the annual operating expense.

The rest must be generated by the property. To do this requires leasing the 600 acres of farm and hay land, cutting timber, and leasing the hunting rights. Quail hunting rights alone pay nearly a third of the operating costs at Dixie, so are obviously very important to us. An average of 3 days a week is sold throughout the 15 or so weeks of the season available to us. Since the Continental occurs during the season, this would mean lost revenue for us if the trial did not provide it. The CFTC board has successfully filled this gap by raising enough money from the trial itself, along with sponsors and an auction, to cover the cost of these lost hunt lease days. The trial is now paying its own way, and is just as important to Dixie as the hunting leases. It is important to note that all of the money generated by the trial and its associated activities are donated to Dixie Plantation, and are used exclusively for the improvement and operation of the property.

The running of the field trial during hunting season created a dynamic that became a research opportunity for Tall Timbers as well. The lease hunters paying a premium for wild quail hunting on horseback expressed concern about the potential effect of the trial on quail survival,

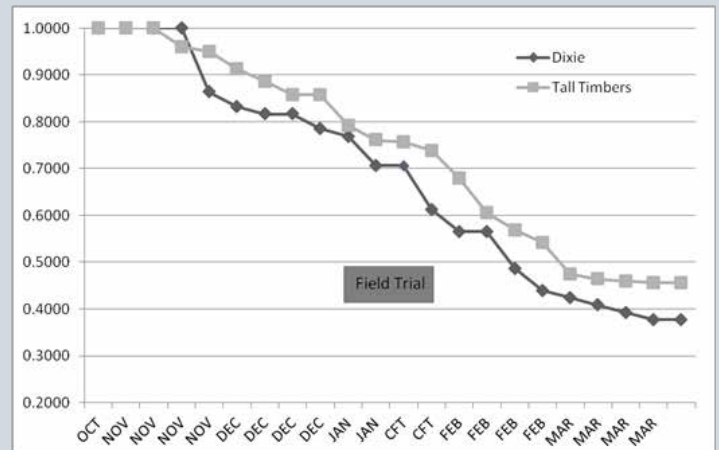


Gallery following the field trial handlers and dogs at the Continental in 2015. Photo by Rose Rodriguez

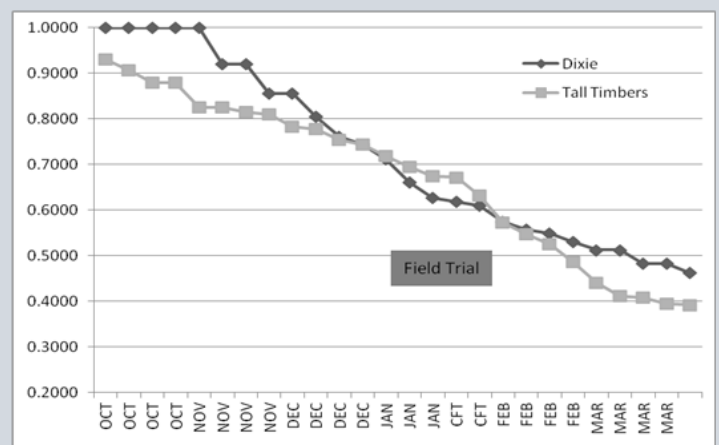
and post-trial hunt quality; while the field trial community expressed concern about potential effects the increase in hunting could have on the trial itself. Tall Timbers wants both groups to be satisfied, and needs both to help pay the operating expenses of the place. This led to a research effort to address this topic: the effect that the field trial may have on bobwhite survival, and the subsequent quality of the hunts, once the trial was over. To conduct this study, we radio-tagged 100 quail each fall, on the core study area at Dixie. The field trial course goes through this area both morning and afternoon. Survival of these radio-tagged birds was monitored before, during, and after the Continental for two years, and was compared to survival through the winter at Tall Timbers headquarters study site, 35 miles away. In addition, one of our employees monitored each hunt of the season, and recorded the number of coveys seen, number of coveys pointed, and number of shots fired during each half-day hunt. These are all commonly collected measures of the quality of a hunt in this region.

Approximately 600 radio-tagged birds were used in the analysis, which revealed no difference in the survival curves between the two study sites for either of the 2 years studied (Figure 1). Survival through the end of March at Dixie was 40%, compared to 46% at Tall Timbers in 2015, and was 48% on Dixie, and 40% on Tall Timbers at the end of March 2016. There was also no difference in survival for the two week period prior to, during, or after the field trial for either year, or for the two years combined (Figure 2). Survival for the two weeks prior to the trial averaged 89%, during the trial was 93%, and after the trial was 92%.

FIGURE 1



a)



b)

Figure 1. Kaplan-Meier survival curves for Dixie Plantation in Jefferson County, Florida and nearby Tall Timbers Research Station in Leon County, Florida during: a) October 2014-March 2015, and b) October 2015 – March 2016.

FIGURE 2

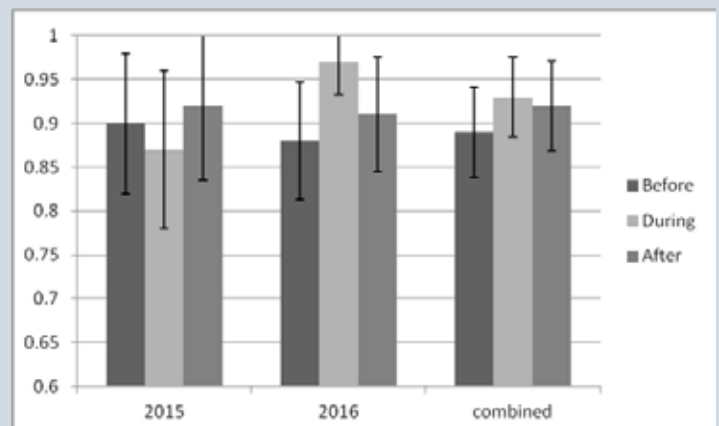


Figure 2. Kaplan-Meier survival for 2-week intervals before, during, and after, the Continental Field Trial on Dixie Plantation in Jefferson County, Florida in 2015, 2016, and for the two years combined.

FIGURE 3

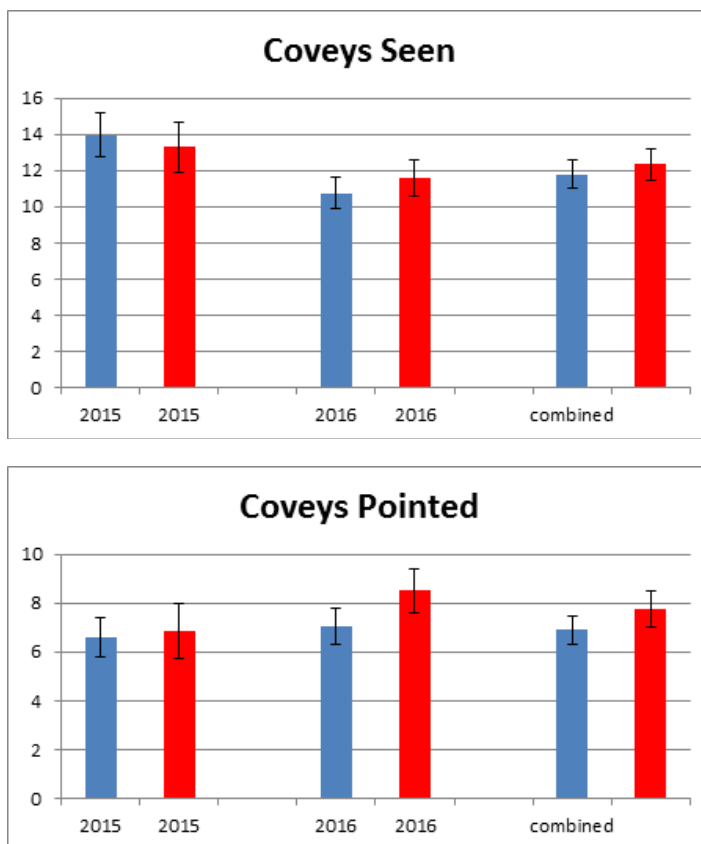


Figure 3. Number of coveys seen, number of coveys pointed, and number of shots fired per half day hunt before and after the Continental Field Trial on Dixie Plantation in Jefferson County, Florida during the 2014-2015 and 2015-2016 hunting seasons, and for the two years combined.

Data was collected on 133 half-day hunts during the two hunting seasons; 78 prior to and 55 after the Continental Field Trial. Statistical analysis revealed there to be no difference either year, or for the two years combined between the number of coveys seen, coveys pointed, and shots fired before and after the trial (Figure 3). The average number of coveys seen per half-day hunt for the two seasons combined before the trial was 11.8, after the trial it was 12.4. The average number of coveys pointed per half day hunt prior to the trial was 6.9, after the trial it was 7.8. The average number of shots fired per half-day hut prior to the trial was 24, after the trial it was also 24.

Results of this study reinforce previous findings at the National Championship at Ames Plantation, and others who found little to no effect on quail survival from All-Age field trials. Even though the trial went through the study area twice a day for two weeks, the day to day variation in the actual areas the dogs covered, and the lack of repetitive and consistent disturbance of individual coveys contributed to this lack of effect. Combine this with

the fact that no birds are being shot for these two weeks makes a compelling case—effects on survival are minimal or nonexistent. We were also unable to detect any negative effect on the quality of the hunts after the trial compared to those conducted prior to it. None of the parameters measured (coveys seen, coveys pointed, shots fired) were affected by the level of disturbance created by this type of field trial. This is quite different than heavy hunting pressure in which individual coveys are being moved and shot at repetitively.

Field trial grounds with abundant wild bobwhite populations are rare on today's landscape. A lot of good comes from the sport, not the least of which is the propagation of high quality dogs, many of which end up as hunting dogs and not in field trials. The effect of the trial on hunting quality and on the bobwhite coveys themselves is insignificant, and should comfort those in decision making roles in similar situations. The example set by the Continental Field Trial Club to help financially support the operations at Dixie also goes a long way towards ensuring the future of this event on the property. These results show that if managed properly with all parties working together, hunting and field trials can co-exist on the same grounds when there is an abundant wild bobwhite population.



Randy Floyd, at right, rides with the gallery at the Continental Field Trial. Randy is the land manager at Dixie Plantation and the president of the Continental Field Trial Club. Photo by Rose Rodriguez

ABOUT THE AUTHOR:
Clay Sission is the Director of the Albany Quail Project & Dixie Plantation Research.

QUAIL MANAGEMENT RESEARCH

Keep Coveys Rising

The Tall Timbers Game Bird Program sets the national standard for Northern Bobwhite management through dedicated long-term research. Given the socio-economic importance of bobwhite to the Red Hills and its conservation value regionally, we conduct research on a wide variety of topics and sites to establish best management practices for bobwhites.

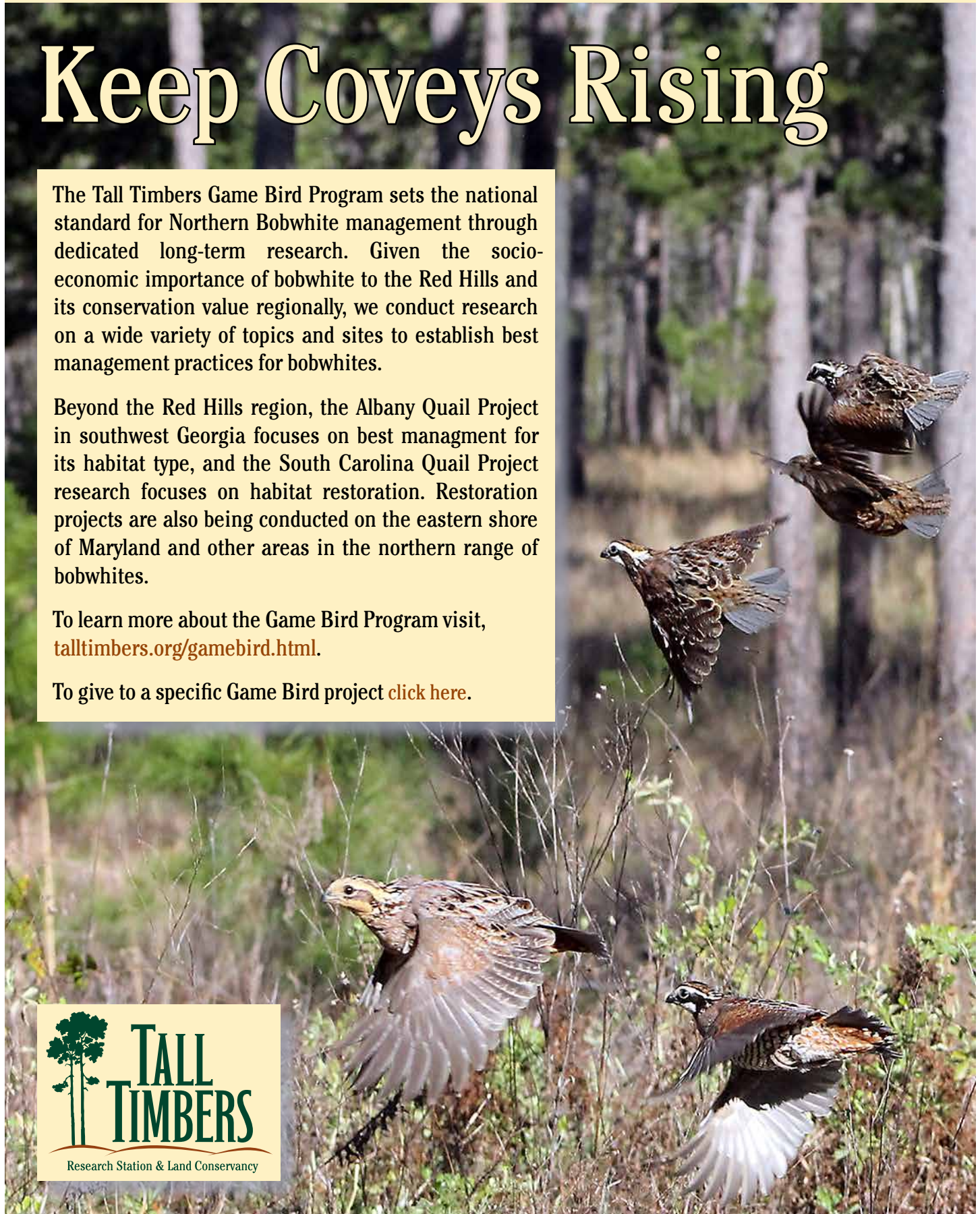
Beyond the Red Hills region, the Albany Quail Project in southwest Georgia focuses on best management for its habitat type, and the South Carolina Quail Project research focuses on habitat restoration. Restoration projects are also being conducted on the eastern shore of Maryland and other areas in the northern range of bobwhites.

To learn more about the Game Bird Program visit, talltimbers.org/gamebird.html.

To give to a specific Game Bird project [click here](#).



Research Station & Land Conservancy



Scent of a Quail ... A Bird Dog's Envy

BY THERON M. TERHUNE, PHD

I REMEMBER IT LIKE IT WAS YESTERDAY, but it was five years ago this February when my first ever bird dog, Gerti, had the light-bulb moment. In her first hunting season at 7-8 months of age, she busted coveys as if she were baying hogs, treeing squirrels, and proudly driving deer all at the same time. I'd cringe at each covey encounter when I heard her high-pitched bark as she gave chase! I recall nine frustrating hunts like this during the first few weeks of the season. It was apparent though that Gerti was having the time of her life. She simply could not get enough of it — heck, it looked like so much fun, I almost begrudgingly gave into the chase myself.

Absolutely befuddled at this point I began to question my path in life and, even more so, my bird dog training abilities. Everything up to that point was seemingly perfect. Gerti had easily picked up all that I threw at her; she knew all the commands from voice to whistle and hand signals for retrieving, she coursed well, retrieved, she took to water like a fish, held steady to the wing, and minded very well. And, to boot, she had even won over my wife — a feat at which I often fail and, at times, even digress. She innately pointed a wing at seven weeks of age, giving me the false sense of promise and anticipation for the first season afield. In the field though, she had mastered the “false” point and seemed to enjoy pointing “stink birds” as I'd run up to the point and trudge through the cover in hopes of quail birds intently ready to give rise. It was as if Gerti enjoyed watching me get tangled in the weeds and vines, because it always seemed to be the dense, nasty thickets in which she pointed. False point...false point...stink bird...false point...boom, covey busted and Gert-dog proudly running wild close behind! What went awry? In retrospect, Gerti had to finally come into her own and learned what quail hunting was all about!

On the last hunt of the season, things took a turn for the better, however. It started too much akin to the previous nine hunts, but somehow I had managed to harvest the first three birds I shot at, which, by the way, was a result of random flyers from the first couple groups of birds busted by Gerti. Then it happened. Gerti went on point and staunchly held! It is a vivid picture seared in my mind, where I can still see the exact spot and remember thinking “yeah, right” as I observed her majestic point and intense quivering tail!



Of course, I was naturally surprised, given the product of the past 30+ encounters, and I had every reason to expect a butterfly to flutter atop my gun barrel as I busted through the cover. But, instead a covey boiled out from the briars and brambles. It startled me so much that the only thing I actually accomplished was messing my britches — much to my chagrin I fired off two rounds and didn't cut a feather. About eight to nine minutes later, she pointed again and I walked through and fired two warning shots at the covey flush. I praised Gerti and reprimanded myself for not being able to reward her with a dead bird, but we continued our pursuit. In less than 15 minutes later, Gerti points for a third time, and this time, I was ready, naturally after having gained some confidence in her pointing prowess. I missed yet again, but admittedly, I have never been so stoked to miss. We moved on, and about 125 yards later she pointed yet again — this time I was finally able to drop a bird to pull it all together for Gerti. The sense of accomplishment for both her and me was forever engrained, and a shared moment in time that



Gerti on point. Photo by Seth Wood

only a dog trainer and owner can perhaps fully appreciate. Gerti pointed six coveys that day in an hour and 15 minutes—it was if she had been doing it her whole life. Indeed, it was the right time and the right place, where it all came together that day, but it took a whole lot of preparation and a covey full of patience.

That cool day in February marked the onset of my fascination with bird dogs and olfaction. Olfaction—a dog's memory system—is their primary means of interacting with the world. Put another way, we rely predominantly on visual cues to assess the environment, whereas dogs rely more on scent to map their surroundings. A tremendous amount of a dog's brain tissue is dedicated to olfactory cells; studies indicate that a dog has more than 220 million olfactory receptors compared to approximately only 5 million found in the average human, resulting in a canine smeller that is thousands to millions of times the ability of a human. The average dog's brain is one-tenth the size of a human's, yet the olfactory region of a dog is four times the size of humans.

Despite their innate ability to identify and catalog scent, dogs must learn to process the meaning of the vast

array of the millions of scent compounds lingering in the air, at which they inhale each minute. One can only imagine the complexity and infinite interactions of scent molecules in space and time that a bird dog encounters with each step. Whereas we smell the “woods” when we go hunting, a dog smells soil, decaying leaves, oils in leaves, bark, berries, acorns, skin cells, new and old scent of birds, insect pheromones, and so on. In addition, numerous variables are known to obscure a dog's olfaction ability—from vegetation, to genetics, to age, and beyond. Only through the tapestry of experience can they begin to weave together the fabric of the environment(s) they are exposed to, and begin to associate specific scent(s) to specific targets, while disassociating other scent(s), such as the smell of quail bird from that of a Bachman's sparrow.

Gerti, being a puppy during her first hunting season, had been exposed to all the appropriate training, but it took the right combination of experience, exposure to birds, and scenting conditions to get her to the point! Perhaps the best “nutrition” we can give to a young bird dog's nose is a daily dose of natural odorants, generated

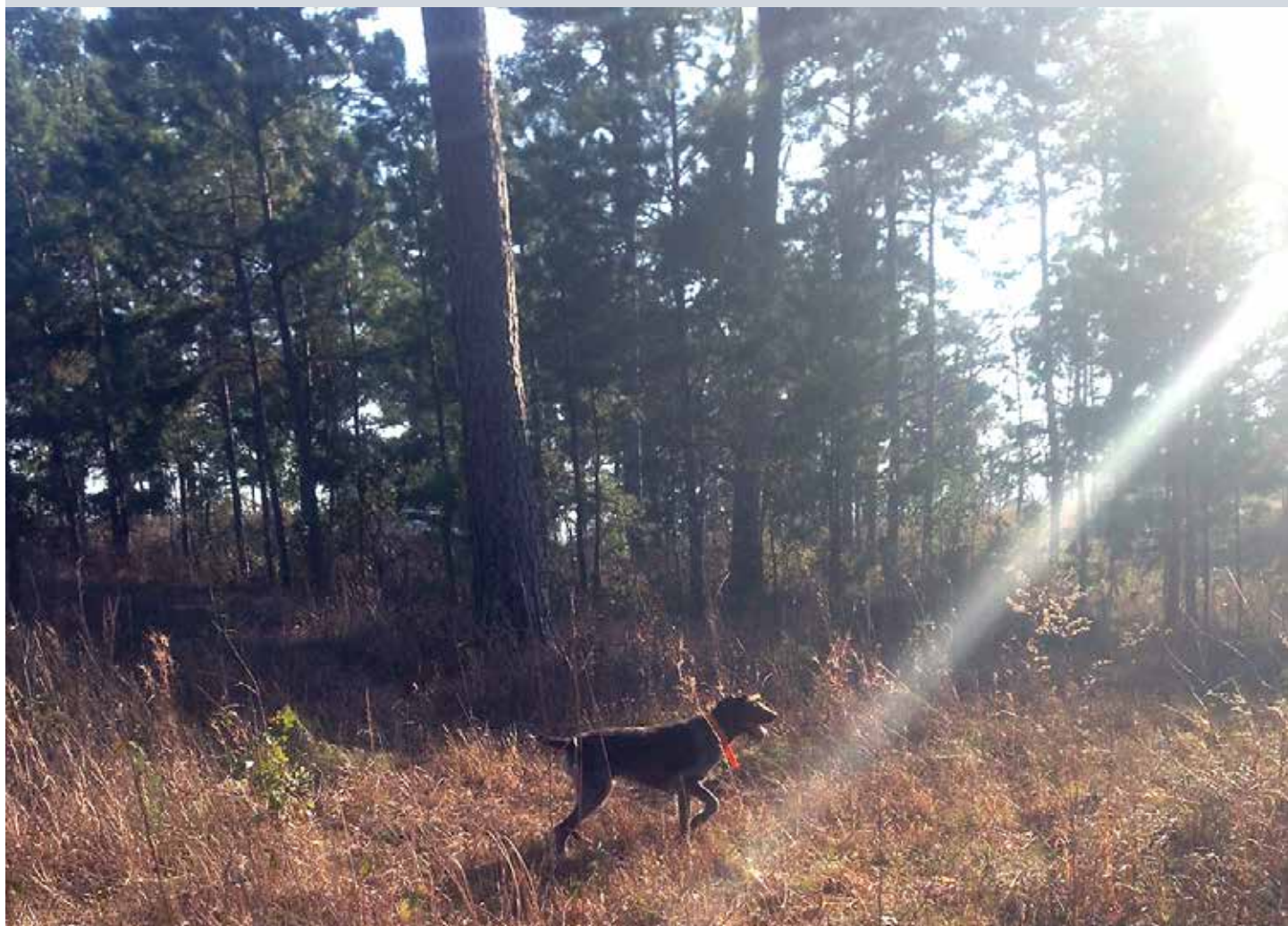
from the fields, to woodlands, to plenty of interaction with birds; the old adage may bode true that it takes wild birds to make a good bird dog! While the enjoyment of watching a bird dog work out the scent of a quail is captivating, reflecting on the science behind how they do it is nothing short of remarkable.

ABOUT THE AUTHOR

Theron is the director of the Game Bird Program at Tall Timbers. To learn more about Theron, [click here](#).



Above, Theron Terhune and his bird dog Gerti. Gerti is a 5.5 year old Deutsch Drahthaar. Photo by Dale Spartas



Tall Timbers Land Conservancy



LAND CONSERVATION

Established in 1990, the nationally accredited Tall Timbers Land Conservancy has become one of the largest regional land trusts in the country, conserving over 130,000 acres of land from Tallahassee, Florida to Albany, Georgia. Our conservation easements protect working lands that provide critical upland wildlife habitat and intact wetland ecosystems, vital to the health and well-being of the region. The public benefits from these easements as they serve to protect the region's water quality, clean air, wildlife and distinctive canopy roads.



REGIONAL PLANNING, ADVOCACY, & EDUCATIONAL OUTREACH

The Land Conservancy also works closely with communities on “smart growth” planning and advocacy, and is engaged in coordinating a Greater Red Hills Awareness Initiative to enhance local awareness and understanding of the importance of the Red Hills region and increase support for its long-term conservation.



To learn more about the Tall Timbers Land Conservancy or to make a contribution to its programs: the Land Conservancy, Advocacy and Planning or the Greater Red Hills Awareness Initiative, please visit, talltimbers.org/landconservancy.html



Fly Fishing in the Red Hills Region of South Georgia and North Florida

A Biological Perspective

BY TOM H. LOGAN

I HAVE THE OPPORTUNITY TO VISIT WITH many fishermen at our local lakes and find that most know a little about fly fishing. A few even tell me they own a fly rod they intend to use some day. But many of those fly rods are left at home, in part, because of the perception that fly fishing is for trout in the mountains or on an expensive trip to the Florida Keys to catch world-class tarpon or bonefish. What few realize is that we have some of the best warm water fly fishing that can be found right here in the Red Hills and Big Bend area of south Georgia and north Florida. You would be hard pressed to find another region with the variety of waters, diversity of fish species and fishing opportunities that occur during every month of the year in our area.

The waters that occur in the Red Hills around Thomsville, Georgia and extend all the way through the Big Bend area to the Gulf of Mexico host natural wetlands that generally comprise lakes, marshes, rivers and streams. Many natural lakes of sizes that range from a few acres to thousands are scattered throughout the Red Hills. Lake Talquin that was constructed on the Ochlockonee River in 1927, for hydro-electric power, is one of the two large impoundments constructed in the area. The other is Lake Seminole that formed when construction of Woodruff Lock and Dam was completed in 1952, where the Chattahoochee and Flint Rivers come together to form the Apalachicola River. Those are the larger rivers of note, but somewhat unique to the area are the many smaller streams that flow from springs and seeps below the Red Hills into the Gulf of Mexico, each with their individual differences and fish species. And of course, small ponds have been constructed and stocked with fish throughout the Red Hills. The growing season is long in these biologically rich systems and they support fisheries and fly fishing opportunities that are as diverse as the systems themselves.

Locals typically use crickets and worms or “crank baits” to catch their share of fish in these warm waters,



Willow flies (*Hexagenia limbata*) emerge from Lake Talquin.
Photo by Tom Logan.

but it may surprise you to find that many of the dry and especially wet flies that have caught trout around the world for hundreds of years are remarkably effective patterns for taking southern bream, black bass and other fish. A little knowledge of the biological factors that govern the lives of these fish, their growth and reproduction, may suggest why.

The lakes and streams of the area do have similarities because they generally are of the same geographic region and rainfall. But factors that include size, depth, bottom shape, and width; whether they are shaded by local forests, are still water (lake) or flowing (stream); spring fed or laterally flow through a forested watershed; and whether they are tidally influenced, as is the case of the freshwater streams that flow into the Gulf, do affect the abundance and diversity of plant and animal life these systems support.

The bream species that live in the natural lakes predominantly include bluegill and fliers (the locals call them flyer bream) with warmouth and shellcrackers occasionally taken. They also support an abundance of largemouth bass. These species are members of the sunfish family *Centrarchidae*. Black crappie also are a favorite fish to catch, especially during winter months, and don't underestimate the challenge of landing the primitive bowfin on a small baitfish pattern and light fly rod. Species of bream typical in the area stream and river systems are the spotted and redbreast sunfish with an occasional bluegill taken from deeper waters. Redbreasts are called "river bream", and the spotted sunfish a "stumpknocker" by locals. Stumpknockers often hold near stumps and knees of the cypress trees that dominate the forest edge along these flowing streams; they are voracious little fighters on the fly, thus the name. Although largemouth black bass do occur in these streams, most interesting is the fact that locally distinct species of bass, that include Suwannee and shoal bass, occur somewhat exclusively in the respective stream systems where they apparently evolved. This is likely because many of these relatively short streams originate distinctly from unique water sources near the Florida/Georgia state lines and terminate at the Gulf with little or no natural opportunity for fish to interact among these individual systems. Any interaction that has occurred is likely due to fishermen carrying and releasing live fish from one system to another for various reasons.

Obviously, water temperatures and clarity are important to the fish that are endemic to each of these



Fish from top: warmouth, stompknocker, Miccosukee flier bream, and bluegill. Photos by Tom Logan.



Largemouth bass are abundant in all our local waters and readily take flies that imitate their natural foods. Photo by Tom Logan

systems. Temperatures do cool in area lakes from November through March during our temperate winters. The bream and bass spend more time in the depths during this period and are not as responsive to flies at or near the surface.

But winter is when take of crappie can get exciting on small baitfish patterns, such as Deceivers predominantly in white. Interestingly though, most of our small streams or rivers are heavily influenced by the springs that feed them. The spring waters come out of the ground relatively warm throughout the year, and some of these streams never cool below 65 degrees during winter. Therefore, the fish and the foods they eat remain active so that these spring fed streams and rivers are fishable throughout the winter months. I've caught stump-knockers in the Wacissa River during winter under the water surface—as though it was summer—while the air

temperature was freezing and ice formed in the guides on my rod.

The plant communities in these aquatic systems, though, are key to their fish abundance and the diversity they support. We as fishermen generally understand that plants and other structure provide habitat for fish to hide from predators and feed, and where young fish survive to eventually become breeders. So, this is where we usually fish for them. Those of us who have ever fished over a bream bed also know that sunfish, both bream and bass, require shallow sandy or gravelly bottoms for spawning in open areas of vegetation.

Biological Perspective

Just as plants provide habitat for fish, plant communities are perhaps even more important as habitat for the natural foods fish depend upon for survival, growth

and reproduction. Freshwater fish generally eat aquatic insects, small crustaceans, macroinvertebrates and smaller fish throughout the world. This is as true for a brown trout in an Irish stream, or a golden trout in the Sierras, as for a bluegill or bass in our local warm waters. Many species of aquatic insects are specific in the plant species, woody structure or bottom type they occupy as habitat, just as are the many species of birds and mammals that occur in the different cover types where we find them. Those of us who hunt or watch birds learn where to look for certain species and where not to look, because we have some understanding of their habitat relationships. This also applies to aquatic insects; so, wetland systems that support abundant and diverse plant communities likewise will support insect populations of high numbers and species diversity as food for fish. Aquatic insects, in their respective life forms, are especially important in the diets of fish, and the mayflies and caddisflies are just as important to fish in Florida as they are to trout in Rocky Mountain streams.

The fact that mayflies and caddisflies occur and are important food items for fish in this area may be surprising to some, but true. More than 80 species of mayflies and 200 species of caddisflies have been documented to occur in Florida waters, but we seldom see them emerging as dramatically in the Southeastern United States as is typical of the western rivers and streams. This probably is because our wetland systems are vast and our growing seasons long and the ecological need to emerge in a hurried way is not necessary for insect survival in our temperate climate. More typical in our area is to see a tiny baetis occasionally rise as a single individual, a cinnamon sedge skitter across the water in fall, or notice a single caddis out of the corner of our eye on the brim of our cap. A few exceptions exist though, that include two of the larger species of mayflies that occur in the Red Hills and Big Bend area. These are the willow fly (*Hexagenia limbata*) and a large white mayfly (*Tortopsis*



From top: Western Coachman fly, Upper Aucilla redbreast on Western Coachman. Photos by Tom Logan

puella). Both do emerge in impressive numbers at specific times during the summer months. Emerging is when an immature insect rises generally from the water bottom, up through the open water column to the surface, where it then molts as an adult with wings, to fly away from the water to breed. The *Hexagenia* emerges at first light through morning hours, while the *Tortopsis* emerges at the very last light of day, usually to have bred, returned to the water to lay eggs and died by next morning. These species are burrowers in their immature forms, their body lengths alone can exceed one inch; fishing fly pattern imitations that include the White Wulff or Western Coachman, when the adults are emerging and drying their wings on the surface, can be very exciting. The *Hexagenia* typically occurs in still waters along the shorelines of Lakes Talquin and Seminole. The *Tortopsis* occurs where water is moving and clay banks are present for burrowing of immatures like along the Wacissa, Apalachicola, Chattahoochee and Flint Rivers; although, I have observed one *Tortopsis* individual on Lake Talquin, likely from a clay-banked feeder stream.



TOM LOGAN

So how does all this apply to our fly selection and the way we fish them for bream and bass? Clearly, we could do as most locals would and fish a cricket, or a minnow struggling under a cork, or even fish a Mepps spinner and catch plenty of fish. We also could fish a popping bug effectively with a fly rod. But, we think more biologically when we fish for trout; so, why wouldn't we prepare in the same way for bream and black bass? We approach the trout stream, analyze where a fish is likely holding and then tie on a fly that we anticipate will mimic the natural insect the fish is waiting to eat. Perhaps we've seen an insect on the water. Logic would suggest a similar approach could be productive for our warm water fish, and I can assure you that it is. I've worked a career as a professional wildlife biologist, and generally think of this as a biological approach to fly fishing, regardless of whether fishing cold or warm water.

I always think of water, and more importantly the plants and other structure under the surface, as fish habitat and I put my fly where I think a big bluegill probably is waiting for an easy meal. But I select the flies I fish from an understanding of predator prey relationships. All animals, whether fish, mammal or bird, must eat for survival and successful reproduction. This is fundamental to perpetuation of their species. While some are grazers and others predators, game fish around the world generally are predators, which means they eat other vertebrate and invertebrate animals to survive. This reality certainly applies to our southern bream and bass. The importance of this to fly selection is that there are two selection criteria that are very important to predator survival. Their prey must be abundant and it must be readily available in those numbers for the fish to not expend more energy foraging than it consumes. And when you apply this concept to the most abundant and available forms of aquatic insects, which are important prey of fish around the world—whether cold or warm water—it is the emerging insect life forms and adults, while on the water surface, which most fulfill these two criteria. Whether we think about it in this context or not, this is why we fish the popular dry patterns, in addition to the fact that it is exciting when a nice fish explodes on the surface fly. But, it is the historic wet patterns that are even more effective, because they more so mimic the perfect prey form that is essential to fish survival.

Few fly fishermen tie or fish the wet patterns any more, but I can assure you that I catch my share of the



bream and bass that occur in the Big Bend waters on wet patterns. These include the Irish Invicta, Fiery Brown and Green Peter, the Welch Coch-a-bon-ddu, Iron Blue Dun, Partridge, and Orange and other soft-hackle patterns; and of course the Old Gray Mare and Western Coachman. This is why a Partridge and Orange that was first tied for taking brown trout in the North Country of England perhaps 400 years ago is also an excellent pattern for taking big bluegill in our natural local lakes. The pattern is a perfect imitation of an abundant and available prey form rising up through the open water column, as are the others I mention. The White Wulff and Talquin Sedge; although not as historic, are very good surface patterns, and the Deceiver and Wacissa are streamer patterns on which I take largemouth, Suwannee and other species of black bass.

I'm often asked whether I "match the hatch"—I don't. I've also been asked if insects actually occur around Tallahassee that look like the Irish Invicta or Old Gray Mare—they don't. I fish patterns that more generally mimic insect life forms, color tones and behavior, rather than imitate exact species-specific details. I often wonder what a fish thinks when it sees some of the flies I fish, but let a big bass take a size 14 Invicta and turn like a wild horse, or watch a big bluegill push a wake from under a lily pad to take an Old Gray Mare and the excitement of the moment makes the question somewhat unimportant.

Lakes Jackson, Hall, Iamonia, Carr, Talquin and Seminole are all very good fly fishing venues, but my favorite is Lake Miccosukee, just to the east of Tallahassee. Miccosukee is a natural lake named after the Native American tribe of the Seminole Nation that once occupied the area. The lake is shallow, highly organic with floating islands and dark water; much of its surface is covered with the



Size 10 Deceiver

A small Deceiver pattern imitates baitfish that all species feed on, especially during winter.

large leaves of water lilies and lotus the locals call “bonnets.” Lake Miccosukee, although larger than some, is typical of the many natural lakes in Florida. It is rich with aquatic life and fly fishing can be spectacular.

Fishing on Miccosukee and other similar area lakes is most productive during the early and late hours of the day, but my preference is to be on the lake before first light of morning. That’s a good time to be on the water, when the only sounds are pig frogs visiting with one another, an occasional alligator can be heard taking a big bowfin and a bluegill sucking an insect off the surface. The birds soon begin singing, and I sometimes enjoy seeing them as much as catching another fish. Although I fish all the patterns I’ve mentioned, my fly of choice is often the Western Coachman. I make my first cast to the edge of a lily at the first hint of light, and I let the fly sit on the surface for a few seconds. I twitch it a bit and if it hasn’t disappeared down the mouth of a bream, I start stripping it in short strips sub-surface for six to eight feet. The retrieve ends with a gentle lift of the fly through the water column to make my next cast. It is during this lift when the fly is often taken if not before. So, I fish the Coachman during each cast as a dry, stripe it as an insect or small fish moving laterally in the water column, and then lift it as an emerging immature insect rising to the surface. I usually apply a small amount of silicon dressing in the wing, so the fly will stay dry, and on or in the surface film, until it gets wet enough to sink 8 to 12 inches below the surface with gentle strips. This gives me a better perspective for how fish are responding the fly. They seem to take the fly on the surface some days, while sub-surface on others.

I generally fish all patterns the way I describe for the Western Coachman. However, I fish the White Wulff

only dry on the surface, and if fish appear to be taking the Western mostly on the surface, I will add floatant as needed to keep it floating. I fish the Talquin Sedge and Coch-a-bon-ddu, with just a little floatant in the wing to keep them in the film. The Old Gray Mare is fished identically to the Western, but I fish wet patterns like the Invicta and Fiery Brown by stripping them purposefully under the surface and then lifting them as an emerger. The Deceiver and Wacissa are stripped to imitate a bait fish swimming laterally under the surface. I often fish soft-hackles like the Partridge and Orange by themselves or as a dropper under a Western Coachman. I typically let a soft-hackle sink a few feet when fished as a single fly and then lift it as an emerger for the take. Each pattern is fished on our rivers and streams similar to that on lakes, except that stream currents provide movement of the fly.

I’ve fished other similar dry and wet patterns with success, but the patterns I mention above are those that seem to best satisfy the predator feeding criteria I describe. Weighted nymph patterns that sink deeper will be taken when fish are staying deep, and small poppers are always productive for bream, as are larger surface patterns for bass when they come to the surface. But, I enjoy fishing the patterns I do and perhaps most importantly, I have confidence that I’ll usually catch fish when I fish them. There also is something satisfying about catching a big, copper-headed bluegill on a pattern that was designed several hundred years ago for taking trout in another part of the world. So, add a little biological perspective to your fly fishing for bream and bass and give some of the historic patterns a try. Logic would suggest that if they’re still around after 400 years, they are probably still a good choice for catching your next fish.

ABOUT THE AUTHOR – Tom H. Logan is a retired certified wildlife biologist from Tallahassee, Florida who specialized for more than 47 professional years in the research, recovery and management of threatened and endangered wildlife species. He enjoys tying classic trout patterns and fishing them for southern bream and bass in his home waters, as well as for trout in the Smoky Mountains, Sierras and other streams of the western U.S. Tom teaches fly tying classes in Tallahassee. He is the creator and manager of North Florida Fly-fishing Adventures and School dedicated to teach fly tying, casting and fishing activities that enhance the fly-fishing experience for anglers who fish with the artificial fly. His website is www.northfloridaflyfishing.com. Contact him at tomlogan@comcast.net.





Red Hills' Old-growth Forests— Rare National Treasures

BY JIM COX

THE RED HILLS REGION HARBORS SOME OF the most important real estate in North America. The value of the land is not linked to rare minerals, a prime business location, or natural gas reserves. The value is linked instead to the extremely rare ecological conditions that exist and the unique role the properties play in understanding the ecology of North America's richest forest type—the longleaf pine ecosystem.

When Europeans first landed in North America, longleaf forests covered nearly 90 million acres and extended from Virginia to Florida to Texas. This uniquely southern forest supplied the beams and trusses that transformed a nation of small agrarian communities into an industrial behemoth at the turn of the 20th century. In addition to its use in the millions of homes and buildings built in the late 1800s, longleaf was so strong and durable that it was pressed into service in the diamond mines of South Africa as well as the ships that fought in World War I.

Longleaf production reached an unsustainable peak around 1910, and while a few enlightened foresters raised concerns about the forest's imminent demise, over-harvesting continued for several decades until this once-extensive forest was all but gone. One authority estimates that only 6500 acres of well-managed, uncut stands remain—approximately 0.0006% of the original total, and now distributed among 15-20 places. The losses are equivalent to subjecting today's global human

population of about 7.5 billion people to a deadly disease that annihilates everyone, except for the half million people living in metro Atlanta.

If you pay attention to some subtle signs, however, vestiges of this once vast forest can be seen while driving almost anywhere in the Red Hills. Looking carefully, you can see tall pines that seem to be sporting a crew cut. It doesn't make sense to be the tallest tree in a longleaf forest when summer thunderstorms approach, so longleaf pines stretch laterally as they age, a growth strategy that yields thick, gnarled branches and an individualistic look for each tree. Many older trees also lean at defiant angles against the tug of the earth, a byproduct of the stormy winds they've endured over the decades. After all, some of the oldest trees found in old-growth stands of the Red Hills were already 50 feet tall back when the Mayflower landed at Plymouth Rock in 1620.

A Unique Old-growth Setting for Benchmark Research

Biologists use the phrase "flat-topped pines" to describe the old trees with a crew-cut look. While it's not rare to find a lone flat-topped longleaf here and there, it's nearly impossible to imagine a landscape with trillions of flat-topped trees covering millions of acres. Finding even small, contiguous stands of flat-topped pines is as rare as finding another Hope Diamond, and even rarer still are stands that support many of the rare species once associated with this ecosystem.



Paddy and Jeptha Wade with author, Jim Cox, at the Wade Tract Weekend celebration in 2008. Photo by Rose Rodriguez

Herbert Stoddard, one of the founders of Tall Timbers Research Station, took special note of one of the larger stands of old-growth longleaf found in the Red Hills. The tract had been carefully managed for decades by its owners, Jeptha and Paddy Wade, and Stoddard saw a unique opportunity amid the ancient trees. In a letter he sent to the family in 1962, Stoddard noted the site was "... *unique in never having had any considerable number of living longleaf cut over several hundred acres...*" This was self-evident, but Stoddard took the added measure of suggesting the tract might be "... *so valuable for research that none of us living today can foresee all the values the block will have for generations to come.*"

In 1979, Jeptha and Paddy Wade took formal action on Stoddard's recommendation and granted a perpetual conservation easement "... *for the purposes of preservation and research of the natural environmental systems contained therein...*" It was the first conservation agreement of its kind in Georgia, and it protected an ecological gem, now known as the Wade Tract, that has provided unique insights on the animals and plants of the longleaf pine ecosystem.

A critical mind might wonder how unique can such information be given the emphasis now devoted to longleaf restoration and management. Longleaf is far from extinct, after all, and aren't data from the replanted forests just as valuable and informative? What makes old-growth so important to the understanding of the longleaf ecosystem?

Answers to these questions may best be found by considering a bird, a tortoise, and the very trees that define the ecosystem.

The Trees and Only the Trees, So Help Me God

Understanding old-growth forests is impossible unless you have data collected over many, many years. The ground cover vegetation found in longleaf forests can change dramatically once a fire passes through. Grasses and forbs flourish for months right after a burn, and then senesce while shrubby hardwoods die and re-sprout. However, the changes that take place above the belt-height of an average person are much slower to develop and stretch out over several decades.

Dr. William Platt, a professor at Louisiana State University, established the Wade Tract tree census to



Dr. William Platt conducting an inventory of trees at the Wade Tract in 2009. Photo by Jean Huffman

monitor the subtle, long-term changes that occur above belt-height. The Wade Tract tree census represents the largest mapped inventory of trees found anywhere in the world, and the data feature regular assessments of the growth and health of each individual tree. The survey is unmatched in terms of its intensity, duration, and specificity, and the information is updated every four years.

“Simply setting up the study area and collecting data the first time around took over a year,” Platt noted in a recent email. “We moved westward across the tract starting in 1978, and did not finish until the fall of 1979. All in all, there were about 5000 trees measured in this first survey.”

This herculean effort was undertaken in part to help address some long-standing misconceptions about longleaf forests, as well as to understand forest dynamics over long periods of time.

“The common assumption at the start of the study was that longleaf pine forests were successional and eventually gave way to a hardwood-dominated system,” Platt noted. “The forest was clearly not successional, as hypothesized, but instead had persisted over very long intervals of time. The forest contained patches of trees of different ages. These patches changed over time as trees grew, reproduced, and eventually died, opening space for new recruits. Given this persistence, our goal was to study population dynamics in this old-growth setting over many, many decades.”

“The census now takes place every four years,” Platt added. “We start each survey in the fall when trees have finished most of their growth for the year. It takes about

2-3 months to complete all field work now that there almost 20,000 trees to account for. It then takes about a year to enter all the data, conduct checks on the data, and iron out the problems.”

“Our old adage is: ‘lots of data, lots of problems, and lots of different problems.’ But, the results also are very solid and the analyses convincing,” he concluded.

The application of such long-term data often goes well beyond the original intent, too. Recently, the tree census data were used to assess whether tree growth rates had changed as global temperatures increased (growth is faster). The mapped trees also have been transferred to computer mapping software so that information on other components of the forest can be compared in unparalleled detail with the surrounding forest conditions.

“We now have a really good idea what the upland pine savannas — the most diverse plant community in North America — looked like, and the role of fire in maintaining that ecosystem as a result of the long-term study of the Wade Tract,” Platt concluded. “And of course, each census also features those strange things that can only happen in field research.”

“One of the crazier moments”, he offered, “took place when Maynard Hiss, one of our best assistants over the years, reached around a tree to grab the tape we use to measure tree diameters. Instead of the tape, he grabbed a rat snake climbing up the opposite side of the tree. That caused a lot of excitement for the crew. Needless to say, the snake was pretty confused, too.”

New Avian Insights Amid the Flat-tops

If you search for scientific articles dealing with the Red-cockaded Woodpecker, you’ll find over 7000 articles that focus on this endangered member of the longleaf ecosystem. If you refine the search to look for articles based on work performed in old-growth forests, you’ll find fewer than a dozen or so references.

Much like the loss of the original longleaf forest, less than 0.5% of the information generated for Red-cockaded Woodpecker has been gathered in settings that mirror the old-growth conditions in which the bird once thrived.

“The Red-cockaded Woodpecker was the most common woodpecker in the pre-settlement longleaf pine forests,” says Dr. Todd Engstrom, a Research Associate with Tall Timbers Research Station, and long-time observer



This small patch of old-growth longleaf has watched the passing traffic on U.S. 319 for decades. Note the many flat-topped adults as well as a younger generation growing from below. Natural old-growth longleaf stands contain multiple age classes distributed among patches. Photo by Jim Cox

of woodpeckers in old-growth forests of the region. “The few remaining old-growth forests we have support some of the highest reported densities anywhere for this bird.”

Abundance often reflects prosperity in the avian world, and the high densities found in old-growth settings point to some fundamentally distinct conditions.

Red-cockaded Woodpeckers secure food by flicking away bark to expose the ants, spiders, wood roaches, and scorpions that lie just beneath the bark. The gnarly limbs and boles characteristic of flat-topped pines provide a larger surface upon which to forage compared to that found on younger trees. Older, flat-topped trees also contain a multitude of small-scale features that include dead limbs, cracks, crevices, and bulging burls that add to the diversity of insect life supported. Studies in southern pinelands have found that insect biomass increases as pines age, with significant increases taking place when trees reach 130-150 years in age.

“The highest densities of woodpeckers in the Red Hills old-growth stands are fifth again greater than the highest densities in the second-growth Apalachicola National Forest,” Engstrom adds. “The Apalachicola overall has the largest woodpecker population in the world.”

Another unique quality of old-growth forests lies in the abundance a diversity of cavity trees that are available to the Red-cockaded Woodpecker and other cavity-nesting birds. Cavities provide a safe place to sleep at night

and to raise young during the breeding season. Each member of a territory of Red-cockaded Woodpeckers uses a separate cavity, so cavity numbers can be important. The number of cavities available in younger longleaf forests typically peaks at 6-8. Woodpecker territories found in old-growth stands in the Red Hills region typically contain 20-45 natural cavities.

“The abundance of cavity trees found in old-growth forests is one of the more intriguing issues warranting further study,” Engstrom suggests. “Many woodpecker studies have been conducted in younger longleaf forests that have a relative dearth of cavity resources. This shortage, in turn, is thought to influence a wide range of life history and behavioral traits. Old-growth forests found in the Red Hills region provide one of the few places left to assess questions like this—until old-growth conditions are more widely established on public lands.”

Digging Up Dirt on an Environmental Engineer

Armed with stiff, shovel-like forelimbs and a penchant for digging, Gopher Tortoises create long (9-13 ft.) durable burrows that provide safe housing for tortoises and many other organisms. This slow, quiet resident of longleaf forests can be difficult to spot above ground, but it has recently been dubbed an “ecosystem engineer,” because of the services it provides to other species. Over

350 different animal species make use of the burrows tortoises excavate, including about 50 birds, mammals, reptiles, and amphibians.

Thanks to support from the Arcadia Research Foundation, Tom Radzio, a Ph.D. candidate at Drexel University, initiated a new census of the Wade Tract tortoise population this past summer. Radzio has worked with the Wade Tract population for over five years, and while he planned to spend the summer summarizing his other work with the Wade Tract population, the prospects of initiating a new census were too tantalizing to ignore.

“The Wade Tract provides a rare chance to study the Gopher Tortoise in conditions that may closely reflect historic conditions,” Radzio notes. “We know some procedures used to monitor tortoise populations are biased toward counting adults, so we thought a key goal of this census should be to collect data on all age cohorts, especially the small juveniles whose small burrows are really difficult to see.”

“Getting a good estimate for the number of juveniles in a population is really important, because it’s common to find adults but few juveniles in poor quality habitats,” Radzio adds. “This leads to concerns about whether such populations might be declining.”

To get an accurate count of juvenile burrows, Radzio laid out a dense set of transects spaced 5 meters apart. Any burrow within the 120-acre study area would be less than 10 feet away, as Radzio walked the transect lines. Furthermore, Radzio initiated the surveys within weeks following a prescribed burn. The closely-spaced transects and bare ground provided optimal conditions for finding both large and small tortoise burrows.

One novel finding centered on just how common small juvenile tortoises were on the Wade Tract. Previous work, conducted in the late 1990s–early 2000s, suggested juvenile tortoises less than 10 inches in length made up less than 25% of the population. The researcher also expressed concerns over the small number of individuals that were approaching reproductive maturity, however Radzio’s data suggested a brighter future.

“Currently, immature tortoises appear to make up about 50% of the Wade Tract population. We also found many large juveniles, which is a good sign for this population,” Radzio notes. “Age can be determined by counting rings on the shells, similar to how we age trees. The rings indicate that tortoises on the Wade Tract grow more



PHOTO COURTESY OF TOM RADZIO

rapidly than those found in lower quality sites. Rapid growth is important, in turn, because you have far fewer things that can eat you, once you reach a certain size.”

New Future for Old-growth

Every dime invested in research on the Wade Tract has yielded lots of new information on the longleaf ecosystem and its many inhabitants. Accordingly, Tall Timbers Research Station has launched a new *Wade Tract Endowment Campaign* to help enhance the important information that can be collected on the tract. The goal of the campaign is to secure the support needed to continue key long-term research projects such as the Wade Tract tree inventory and a recurring Gopher Tortoise census. Others goals are to support regular graduate student studies that focus more narrowly on topics as diverse as the cavity-nesting bird community; the relationship of plant diversity to forest cover; or the foraging ecology of the Red-cockaded Woodpecker, in one of the few sites the bird has continuously occupied since Europeans arrived in North America.

Scientific eyes light up when they see places like the Wade Tract with the surrounding landscape of well-managed forests lands. Before them lies a window to the past, and the opportunity to work in this unique setting leads to deep, unwavering dedication. Contributions to the *Wade Tract Endowment Campaign* will nourish the sense of wonder and spirit of discovery that occurs. Such support is also a fitting tribute to the gift that the Wade family has provided, and will help to fulfill H. L. Stoddard’s

expansive prediction “...that none of us living today can foresee all the values the block will have for generations to come.”

Another concept that Tall Timbers will promote over the coming years is a new restoration goal for the longleaf ecosystem — bringing back old-growth conditions to public lands. The exceptional information provided by the Wade Tract provides ample justification for such as focus — things are simply different in settings where hundreds of ancient trees dominate.

It’s important to stress that this concept is not some wild-eyed, turn-back-the-clock approach to be applied to every acre of public land. Instead, the goal will be to establish a network of sites, within larger public land units, where old-growth conditions are allowed to develop over the coming decades. Restoration targets should be large

enough to support stable populations of wide-ranging species, such as the Indigo Snake and Red-cockaded Woodpecker, but they also can easily be immersed within a larger forest system that continues to serve multiple needs, just like the forested lands that surround the Wade Tract.

Equally important will be the establishment of multiple sites across the broad geographic area once covered by longleaf forests — and to promote research. Longleaf forests ranged from sandy hilltops to wetter flatwoods; the needs of the forest and the species it supports may change in different settings. Such a network would be a great gift to the future, and provide a vision of what was, and what might be again with restoration, just as the Wade Tract and another old-growth forests in the Red Hills have done for decades.



Longleaf pine regeneration at the Wade Tract is framed by a blaze of fall color found in the ground cover. Photo by Jim Cox

ABOUT THE AUTHOR

Jim Cox is the director of the Stoddard Bird Lab at Tall Timbers. You can reach Jim by email: jim@ttrs.org.

Stoddard Bird Lab

The Stoddard Bird Lab conducts problem-solving research designed to reverse the population declines observed for many birds associated with fire-maintained ecosystems. Over the decades, the lab also has provided important information on the bird mortality associated with communication towers and the unique characteristics of rare old-growth pine forests, and special monitoring programs developed by the lab are used to track rare birds on scores of public lands.

The lab also makes use of innovative tools that have been developed to help conserve habitat on private lands. This effort focuses primarily on the large population of endangered Red-cockaded Woodpeckers found in the Red Hills region and extends to over 130,000 acres in Georgia and Florida. The lab also has received numerous awards for other scientific contributions, conservation initiatives, and effective outreach.

Donations are essential for developing data-driven solutions to the problems confronting many pineland birds. To learn more about the Stoddard Bird Lab and to contribute to the program, visit the lab's [web pages](#).



Photos courtesy of Tara Tanaka.

The Last Word

This month Tall Timbers is proud to release *Diamonds in the Rough: Natural History of the Eastern Diamondback Rattlesnake* by Dr. D. Bruce Means. If you are an avid ecologist or naturalist you no doubt know of Bruce Means. His work on eastern diamondbacks is legendary—ranging from a National Geographic special to a personal account of the effect of its venom! With a Beadel fellowship, Means began his research on eastern diamondbacks at Tall Timbers in 1974, and continued when he served as research director of Tall Timbers from 1976–1978. He continued to study them—for over 40 years—as president and executive director of the Coastal Plains Institute and Land Conservancy. While at Tall Timbers, he conducted the first radio-telemetry study on the eastern diamondback, and this data is at the heart of his work.

I cannot help but see parallels between *Diamonds in the Rough* and *The Northern Bobwhite: Its Habits, Preservation and Increase*, written in 1931, by Tall Timbers Research Station founder Herbert Stoddard. Many consider Stoddard's book to be the first modern scientific account on the natural history and management of a wildlife species. *Diamonds* is the first science-based book on the natural history of any single snake species. But the parallels go beyond their work to the men themselves. Like Stoddard, Means has spent his career “in the field” throughout Florida, and learned much by demonstrating a giant curiosity about and keen study of Florida's ecology. Neither spent much time in the office or behind a computer, rather countless hours outside. As a result, they speak with authority about their study species and understand how the natural system



worked, and how it could be managed. Stoddard innovated the field of fire ecology and promoted burning as an ecological necessity, despite the tide of voices against the use of fire. Means began studying the eastern diamondback at a time most would rather shoot it than study it.

The eastern diamondback rattlesnake evokes emotions ranging from fear to awe among those who witness it in the field. It and its cousin the canebrake rattlesnake are the main reason snake boots are worn in the Deep South; any bird hunter knows if you run into a diamondback during a quail hunt, it is all you look for the rest of the day. Yet, this is an iconic species in the southern longleaf forest, long-lived, late to reproduce, and long persecuted, its populations have been on the decline. Time will tell if the eastern diamondback will remain a part of our southern ecosystem heritage. But today, we celebrate it in this impressive book—a person's life work on a species that when Bruce Means started his research, most cared little about. Unlike 70 years ago, we embrace prescribed fire today, and today many people (especially children) enjoy snakes, frogs, and salamanders, and appreciate their place in the longleaf pine forests.

—BILL PALMER



NOW ON SALE!!!

Diamonds in the Rough

◆
Natural History
of the
Eastern Diamondback Rattlesnake

D. Bruce Means

“This book should be required reading for everyone considering becoming a field biologist. It is a wonderful marriage of pure scientific data and vast experience afield, harmoniously woven into a very readable yet technical quilt. By injecting notes from thousands of hours spent traipsing through every suitable ecological niche, Means has thoroughly revealed and defined the natural history of this most majestic of U.S. snakes. Although the amount of information is mind boggling, the text flows so well that it’s hard to put the book down once you start reading it. There is absolutely no doubt, this is destined to be one of the classic animal studies. Simply put, it is THE monograph on the Eastern Diamondback Rattlesnake. Arguably, no more definitive work on a reptile has ever been printed.” —MANNY RUBIO, author of *Rattlesnake - Portrait of a Predator*, 1998, Smithsonian Press, Washington D. C. and *Rattlesnakes of the United States and Canada*, 2010, Eco Press, Rodeo, NM.

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Annual membership giving helps support the day-to-day operations of Tall Timbers. As a charitable non-profit, Tall Timbers relies on the generous financial support of our members to help sustain our research, conservation and education programs. As Tall Timbers continues to grow in size and scope, so must our membership base; we need new members to support our mission. Please take a moment to tour our website, www.talltimbers.org, learn about our programs and join others like you as a member of Tall Timbers. You can [join](#), [renew](#) or [make a gift](#) of membership online using our secure website.

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Pamela H. Firman Red Hills Quail Management Research - Donations support our long-term research, which has studied over 15,000 radio-tagged quail and helped increase quail numbers on hundreds of thousands of acres.

Albany Quail Project - Donations made to the project will be dedicated specifically to long-term research in the Albany area on the best management for quail habitat in this region of southwest Georgia.

Carolina Regional Quail Program - Donations support our research and habitat restoration work in the low country region of South Carolina, helping landowners and managers re-establish sustainable and huntable populations of wild bobwhites in the region.

Dixie Plantation - This 9,100-acre property provides Tall Timbers with a unique opportunity for research on a working hunting plantation. Donations will support management of this historic property.

Fire Science - The Fire Ecology Program and Prescribed Fire Science Program provide the public with applicable, science-based information on prescribed fire and vegetation dynamics in the southern pine ecosystem. Donations will support internships, supplies and capital needs.

Stoddard Bird Lab - Donations will support finding data-driven solutions for the problems facing some of our most threatened songbirds and woodpeckers. Research focuses on the bird mortality associated with communication towers, the unique characteristics of rare old-growth pine forests, the conservation of endangered species on private lands, and the overarching benefits of prescribed fire for declining bird populations.

CONSERVATION

Tall Timbers Land Conservancy - The Land Conservancy is considered one of the premier land trusts in the nation. We conserve working forests, farms, and recreational hunting lands in the Red Hills region of southwest Georgia and north Florida, and other areas that further Tall Timbers' broader mission, by working with land owners to donate conservation easements. Contributions will support these efforts.

Advocacy and Planning - Donations will support land use planning, community planning and issue advocacy efforts.

Red Hills Outreach & Education - Donations will support work to broaden public awareness of the Red Hills and its natural, historical, recreational, and cultural amenities.