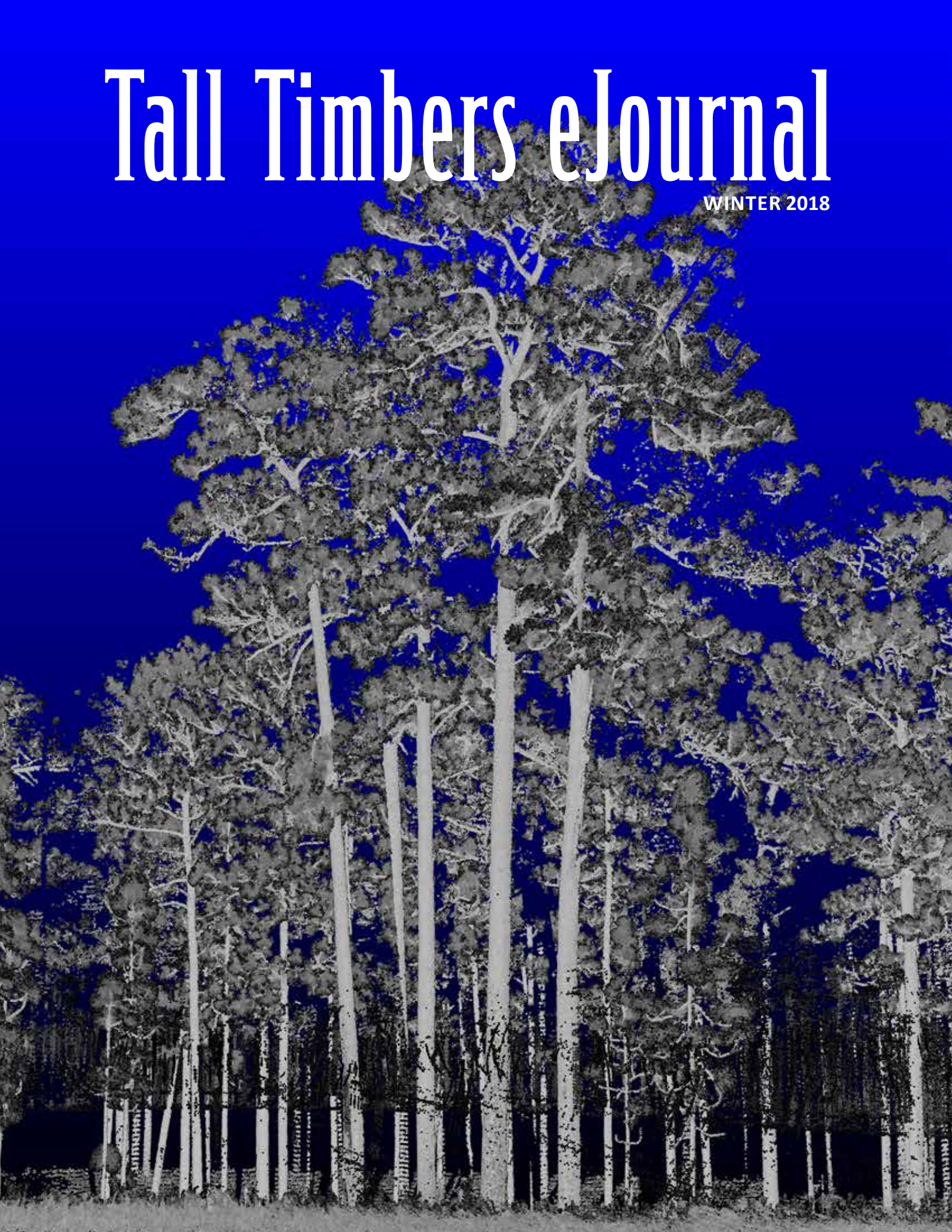
Tall Timbers eJournal

WINTER 2018



What is TALL TIMBERS?

The history of Tall Timbers begins with Henry L. Beadel. In his will, Beadel left his hunting plantation and resources to create "a fire type nature preserve … to conduct research on the effects of fire on quail, turkey and other wildlife, as well as on vegetation of value as cover and food for wildlife, and experiments on burning for said objectives."

In1958, Tall Timbers was established as a research station and Beadel's legacy began.The goal of our research is to better understand the ecology of our ecosystems and apply that understanding toward better land stewardship. Our stewardship ethic supports productive and sustainable use of land, including hunting and forestry, in a manner that maintains ecosystem health and native wildlife populations.

Established in 1990, Tall Timbers nationally accredited Land Conservancy has become one of the largest regional land trusts in the country, conserving over 133,000 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 wellbeing of the region. 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.

TALL TIMBERS

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talltimbers.org/join-ttrs

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On the Front Cover: LiDAR scan of the Wade Tract Preserve's longleaf pine forest by Scott Pokswinski.

On the Back: Red Hills' canopy road. Photo by Brian Wiebler

TALL TIMBERS

TALL TIMBERS

eJournal

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eJournal is published biannually by Tall Timbers
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EDITOR'S LETTER

What do you think of the cover? Isn't the cobalt blue striking? The image is a Light Detection and Ranging (LiDAR) laser scan of the Wade Tract Preserve's longleaf pine forest. In this issue Tall Timbers' fire scientists discuss how they use this emerging technology to map three-dimensional fuel characteristics and forest types. *Make sure you view the two videos.*

Although GPS technology is not new, it's still an important tool for quail research. Tall Timbers' game bird program investigated bobwhite foraging strategies under varying levels of exposure to hunters. Their findings are in this issue.

When writer Jordan Fisher Smith visited Tall Timbers to discuss his award-winning book *Engineering Eden*, Fire Ecologist Kevin Robertson took the opportunity to discuss with him the debate over managing protected lands.

Prescribed fire or planned burning as it is called in Western Australia took Fire Specialist Greg Seamon "Downunder." He shares his experiences here.

When was the last time you took a leisurely bike ride on a scenic road? "Ride the Red Clay" with Outreach and Education Coordinator Brian Wiebler.

Searching for the Ivory-billed Woodpecker was an obsession for Herbert Stoddard. Tall Timbers' Archives holds Stoddard's papers and was a resource for researchers interested in his efforts to find the bird, which is believed extinct. Follow the search for the "Lost Spirit of the Southern Wilderness."

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 highlighted in color, green this issue, 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. Click on the icons below to take you to there.

I hope you enjoy the Winter 2018 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
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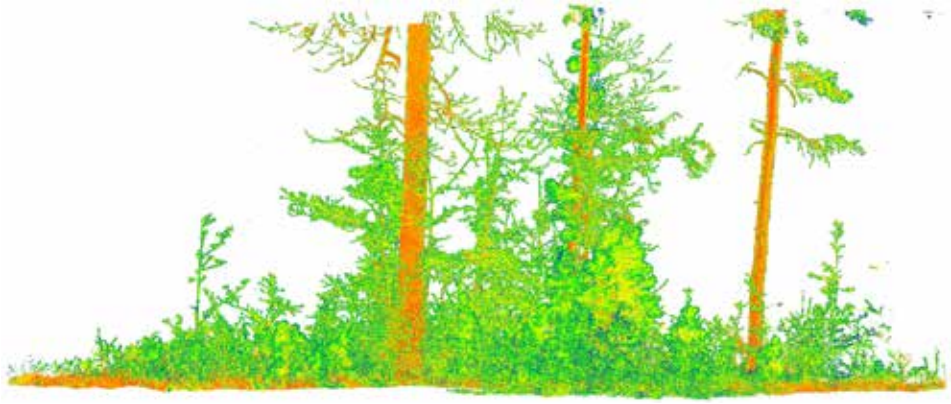
BY KEVIN HIERS, SCOTT POKSWINSKI AND CASEY TESKE



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Hunting Pressure Alters Bobwhite Foraging Strategy

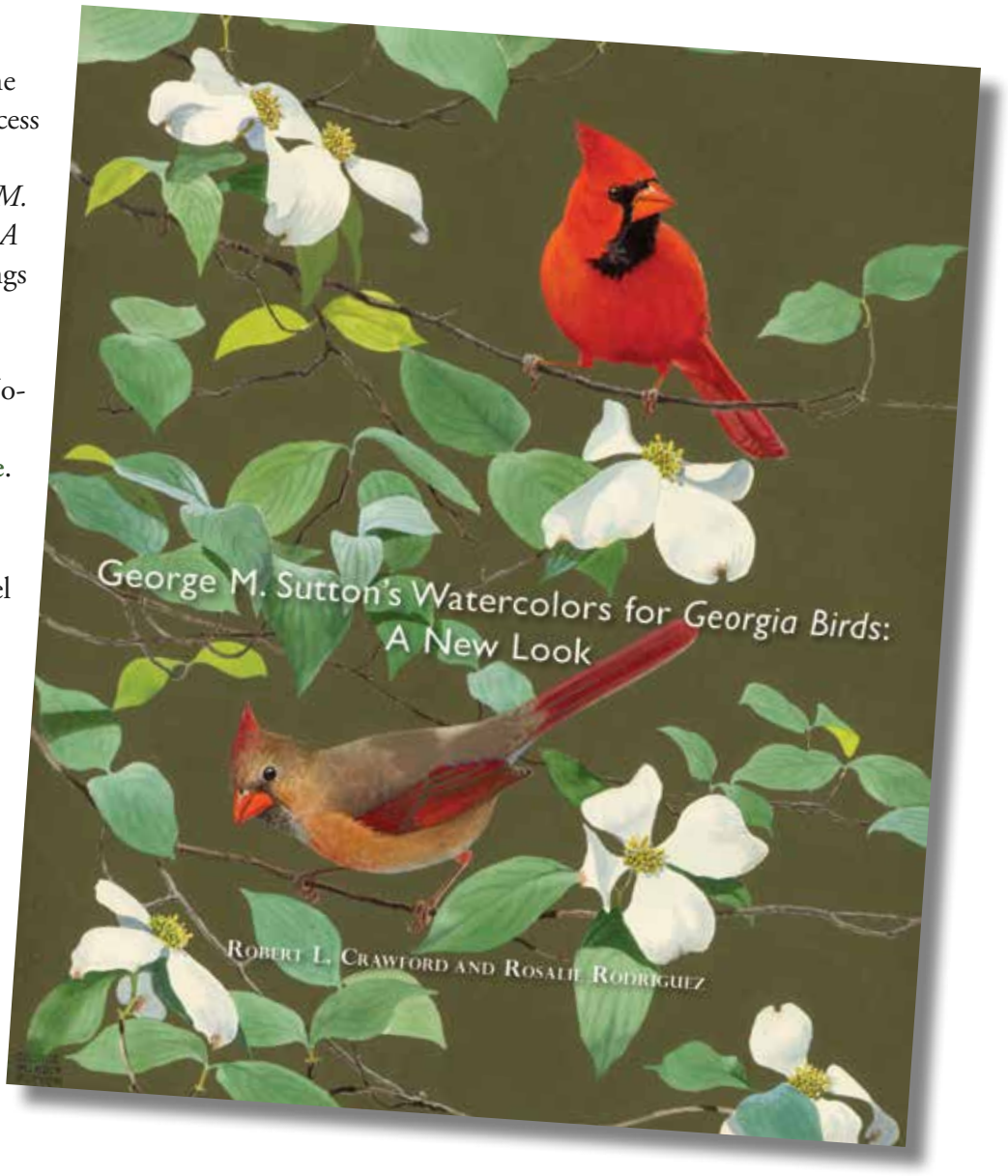
BY DIANA MCGRATH, THERON TERHUNE AND JAMES A. MARTIN

George Sutton, Herbert Stoddard and the Watercolors for Georgia Birds

BY ROSE RODRIGUEZ

George M. Sutton (1898–1982), an esteemed ornithologist, was also one of the preeminent bird artists of the 20th century. He was asked by his friend Thomas D. Burleigh, who worked on his manuscript for *Georgia Birds* during the 1940s and '50s, to provide the illustrations. Sutton painted a series of individual portraits of a select group of Georgia birds shown in their natural habitats. Sutton arranged to spend the spring and summer of 1952 with his friend Herbert L. Stoddard at Stoddard's Sherwood Plantation in southern Grady County. They made a field trip to the Georgia coast near Savannah and Brunswick to study shore birds. Otherwise Sutton sought, studied, and painted birds in Stoddard's backyard. Sutton described his experiences with Stoddard and his Meridian Road neighbors in an affectionate essay in the front matter of *Georgia Birds*, and in charming one-paragraph vignettes for each painting. Sutton gave the original watercolors to Stoddard, whose son later donated them to Tall Timbers; they are part of the Stoddard Collection.

Sutton was disappointed in the reproduction of the color plates in the book as a result of the engraving process used. Robert L. Crawford and I have collaborated on a new book, *George M. Sutton's Watercolors for Georgia Birds: A New Look*, which features the paintings beautifully reproduced and Sutton's original essay and vignettes. It was published by Tall Timbers Press in November 2017. To purchase the book from Tall Timbers website, **click here**.



The original watercolors painted for *Georgia Birds* will be on exhibit until February 28, 2018 at the Beadel House's Webster Art Gallery during gallery hours.

For the Archives Corner this issue, I asked Tall Timbers Archivist Juanita Whiddon, if Beadel made any reference in his diary to George Sutton's stay at Herbert Stoddard's neighboring Sherwood Plantation. Whiddon found excerpts from Beadel's 1952 diary cards that mention Sutton. Read them on the following page.

Henry Beadel's Diary Notes on George M. Sutton

BY JUANITA WHIDDON

In his essay for Thomas Burleigh's 1958 book *Georgia Birds*, George Sutton wrote about the many friends he made in the Stoddard's neighborhood, and though Henry Beadel is not mentioned by name, Beadel's diary notes clearly indicate that he was aware of Sutton's activities. Sutton was a guest at Tall Timbers on several occasions to view film footage of birds Beadel had photographed in the area.

The Beadels did not meet Sutton when he arrived in the spring of 1952, because Henry and Beatrice, (Henry's second wife) were in New York City for her to undergo specialized radiation treatment for bladder cancer. The first recorded meeting was dinner at Birdsong Plantation, the home of Ed and Betty Komarek, on June 21.

June 21st

"6:15 B & I in coupe to Komareks. Stoddard, Roy, Ed, Betty & George Sutton, naturalist & water colorist, who has been there working on illustrations of Georgia birds. Dinner. Talk. Home at 10."

One of his attempts to help Sutton did not work out. Betty Komarek had located a Summer Tanager nest near their home on Birdsong and Sutton was eager to paint them. Henry Beadel, always the very accurate and painstaking architect and builder, designed a platform to mount his camera with a zoom lens so that close up photographs could be made of the young tanagers before they left the nest. By the time the correct materials had been located, the platform built and hauled from

Herbert Stoddard (left) and George Sutton shown with two paintings for *Georgia Birds.* At left, the painting of the Northern Bobwhite; at right the painting of the Common Nighthawk. Photo from the Tall Timbers Archives

Tall Timbers to Birdsong, the young tanagers had left the nest. Here is his diary entry:

June 25th

"I loaded camera & about 3:30 in coupe to Komareks. Inspected Summer Tanagers nest from top of step ladder. Nest on thin pecan limb about 11' up. … Ed K. laid platform across high sides of truck & parked it under the nest. I can put a stool on the platform and a tripod. On my way home stopped and saw the Stoddards & George Sutton."

There was an exhibition in Thomasville on July 13, but at the last minute both Beadels felt too unwell to attend; however they made sure that they entertained Sutton at dinner before his departure from the Red Hills.

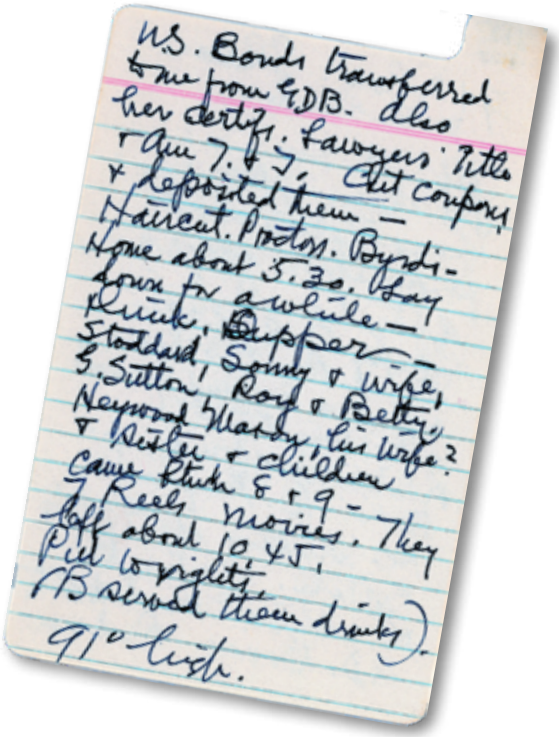
At right, back of Beadel's July 14, 1952 diary card. Beadel notes showing movies to Sutton and others. Tall Timbers Archives

July 14

"Drinks. Supper – Stoddard, Sonny & wife, G. Sutton, Roy [Komarek] & Betty [Komarek]. Heywood Mason, his wife, & sister & children came between 8 & 9 – ran 7 reels [of Beadel's] movies. They left about 10:45."

Before Georgia Birds was published, it was apparent that to be successful there would need to be sponsorships to cover the publishing cost. Henry Beadel enthusiastically led the group of plantation owners with a generous donation.

As the archivist at Tall Timbers for the past 25 years, it has been my pleasure to hear stories from Sonny Stoddard, Betty Komarek, and Leon Neel about these beautiful paintings and Sutton's time here in the Red Hills. It has been my privilege to care for them so that they could be reproduced in such a meaningful way. – JW



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

TALL TIMBERS

Emerging Technology Helps to Advance Fire Science and Conservation

BY KEVIN HIERS, SCOTT POKSWINSKI AND CASEY TESKE

Light Detection and Ranging (LiDAR) is a laser scanning technique that has become increasingly common for generating precise three-dimensional representations of things like topography, infrastructure, and forests at a variety of scales. This technology is responsible for major advances in forest inventory, archaeology, and many other disciplines. LiDAR is typically flown from an aircraft; light pulses are used (e.g., lasers), to measure distances from the aircraft to an object, yielding 1-5 laser "returns" per square meter. The application of this technology to fire management represents a quantum leap forward for mapping three-dimensional fuel characteristics and forest types.

Researchers participating in the Prescribed Fire Science Consortium, led by Tall Timbers' scientists, have leveraged this technology to map trees and fuels at scales ranging from 1 acre (**Figure 1**) to ½ million acres (**Figure 2**). Wildland Fire Scientist Kevin Hiers, along with collaborators at the University of Montana FireCenter and the US Forest Service Southern Research Station, have turned to even finer scale mapping using a ground-based version of LiDAR called Terrestrial Laser Scanning (TLS) to help advance fuels for fire behavior modeling.

The collaboration between the University of Montana's Fire Center, the US Forest Service Southern Research station and Tall Timbers' Wildland Fire Science

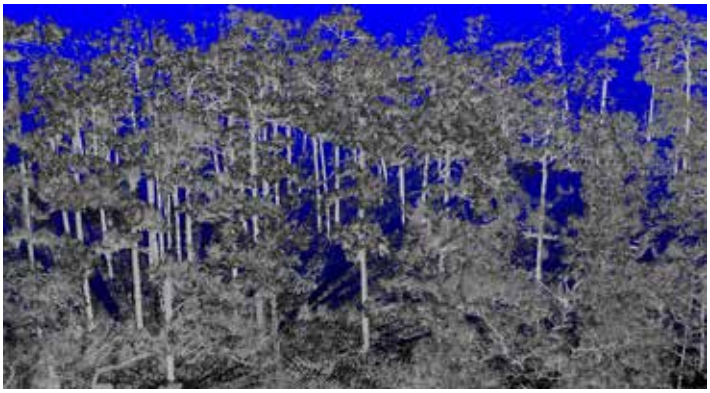


Figure 1. A terrestrial LiDAR scan of a forest at Tall Timbers showing details of forest structure.

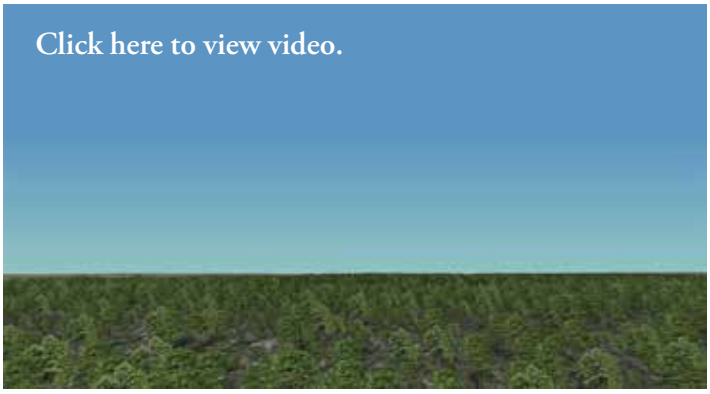
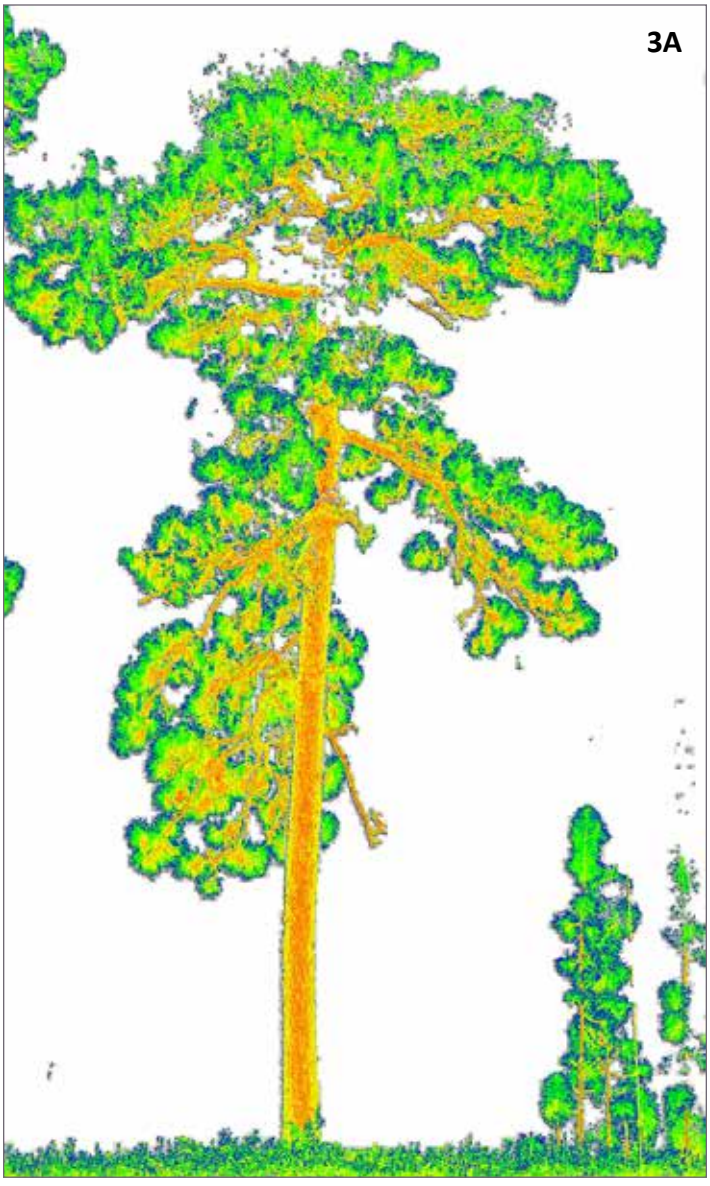


Figure 2. A landscape at Eglin Air Force Base mapped for tree density by the US Forest Service using airborne LiDAR.

Lab uses the TLS equipment on a project to map reference fuel types within longleaf pine ecosystems. To date, laser scans at the Wade Tract, Greenwood Plantation, Tall Timbers, and Eglin AFB are complete. This effort is providing unprecedented detail of forest structure, fuel loading, and spatial variation in understory and midstory vegetation

Terrestrial laser scans are collected using a Riegl VZ-2000 LiDAR scanner (Riegl Laser Measurement Systems, Horn, Austria). Reflective targets are placed in a preselected 50m X 50m or 100m X 100m grid throughout the forest to be scanned; scans are captured 2.5m above the ground at each target location. The scanner spins 360 degrees emitting light in the form of a pulsed laser and collecting reflected points (e.g., "returns"). The laser can penetrate up to approximately 150 meters into these forests. Each time the pulsed laser hits an object (like a tree branch or reflective target), the light is reflected back and creates a cloud of points that effectively measures distance from the scanner and a reflectance value for each object. By scanning at several locations, the point clouds can then be merged in processing software (***CloudCompare v. 2.6***), using the known locations from the reflective targets. In this way, an entire 12ha stand can be stitched together into a 1mm resolution point cloud, with the center portion of the areas averaging more than 1 billion points of data per hectare of forest. Each scan can be analyzed for detailed physical attributes of the forest, which is important for determining fire behavior in a way not presently possible with current fire models.



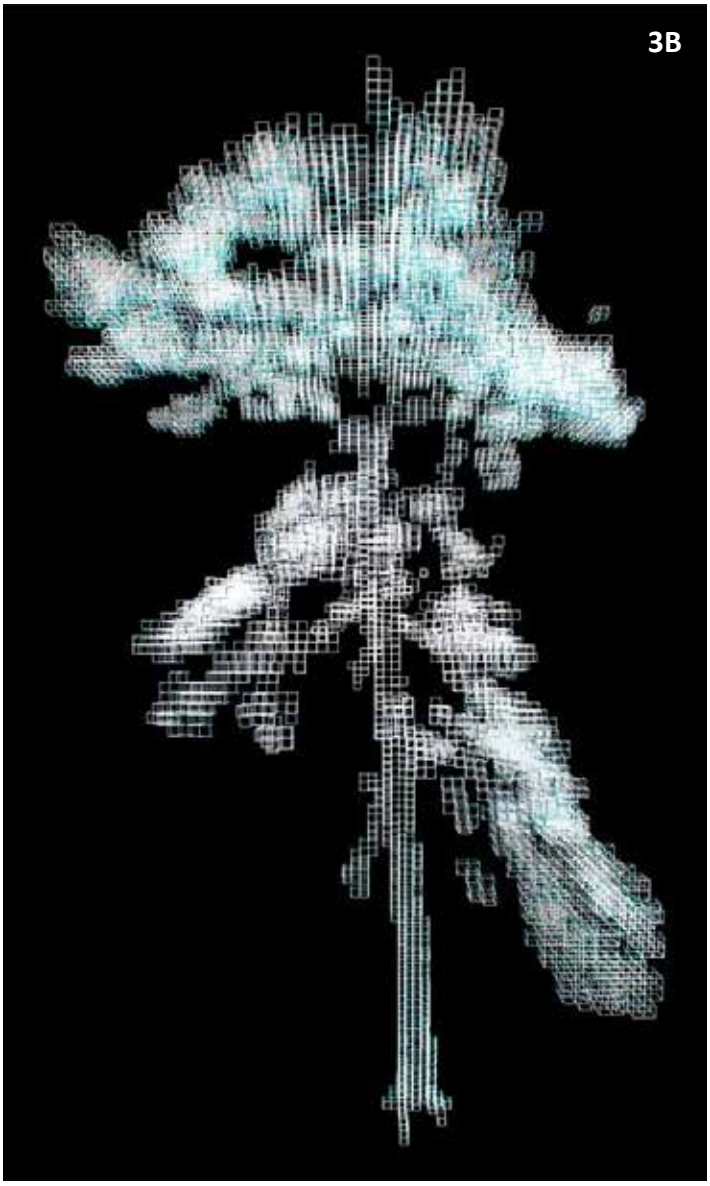


Figure 3. A) Terrestrial laser scan point cloud of a 23m tall old-growth longleaf pine and understory regeneration at Greenwood Plantation. B) 20cm fuel grid (bins) developed for importing into coupled fire-atmospheric behavior models.

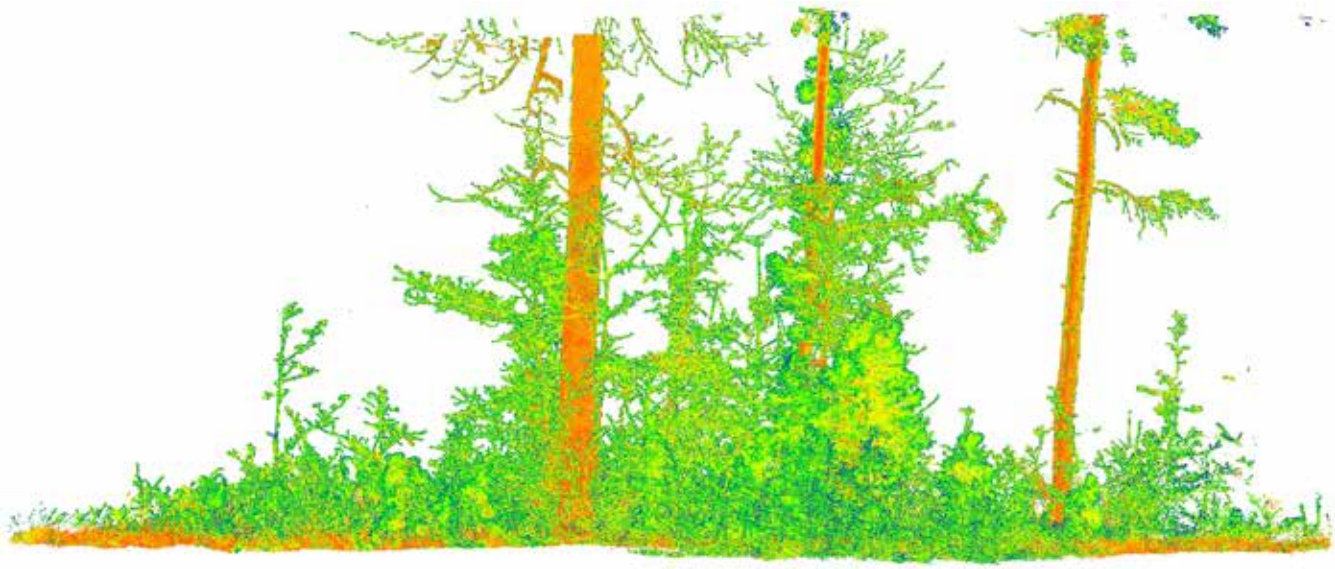


Figure 4. Laser scan of an understory shrub cover underneath a canopy of three loblolly pines on Tall Timbers. Such detail can also be related to wildlife habitat preferences.

For example, stand structure is critical for next generation fire models to accurately capture wind flow into fires, whereas shrub and understory biomass are important determinants of heat release (**Figure 3A**), but detailed representations have not previously been possible.

Many of these details are summarized from the scan into small bins (**Figure 3B**), which are then loaded into next generation models of fire behavior. The research team is evaluating algorithms for extracting detailed features, including individual tree biomass, overstory leaf area distribution, fuel continuity, and shrub cover (**Figure 4**). In this way, the Prescribed Fire Science Consortium is building the most sophisticated fire models that run using available detailed fuel characteristics maps to improve both research and prescribed fire planning.

A video shows high resolution scans of Dr. Kevin Robertson's longleaf pine burn plots at Pebble Hill Plantation in Grady County, Georgia, the focus of the Prescribed Fire Science Consortium burns in April 2017. Details include longleaf regeneration, clumps of wiregrass, and highly accurate (mm-scale) tree diameters and volumes. Robertson directs the Fire Ecology program at Tall Timbers. **View video here**.

In addition to fire science, these high-precision forest scans are revolutionizing the ability to inventory forests and assess wildlife habitat. Highly accurate tree height measurements (which are notoriously inaccurate using standard equipment) and crown complexity characteristics are being used to advance our understanding of forest carbon cycles through collaborations with the University of Georgia and the US Forest Service. Documenting how old growth forests allocate carbon to branches and how leaf area is distributed will help silvicultural planning efforts in forests being converted from even-aged to multi-aged stands — over time — in conservation landscapes.

The data are also being used to characterize variations in canopy openness and understory complexity in pollinator habitats across a variety of longleaf sites. With much less effort, the roughness of the vegetation surface or distribution of shrubs in the understory can be described over large areas to match the highly accurate movement tracking patterns of game and nongame wildlife.

LiDAR sensors are continually advancing in capability and ease of use. Each of these technological improvements offers a new window through which to view the forested ecosystems that we study and manage. The Prescribed Fire Science Consortium will continue to share resources and collaborate to make these advancements relevant to management through the research conducted at Tall Timbers.

ABOUT THE AUTHORS – Kevin Hiers is the Wildland Fire Scientist at Tall Timbers. He works at the interface of fire research and prescribed fire application to help enhance tools and techniques to safely apply prescribed fire for management objectives. Scott Pokswinski is a Research Biologist at Tall Timbers. And, Casey Teske, PhD, is a Spatial Fire Ecologist. She is a new member of the Tall Timbers Fire Science Team.

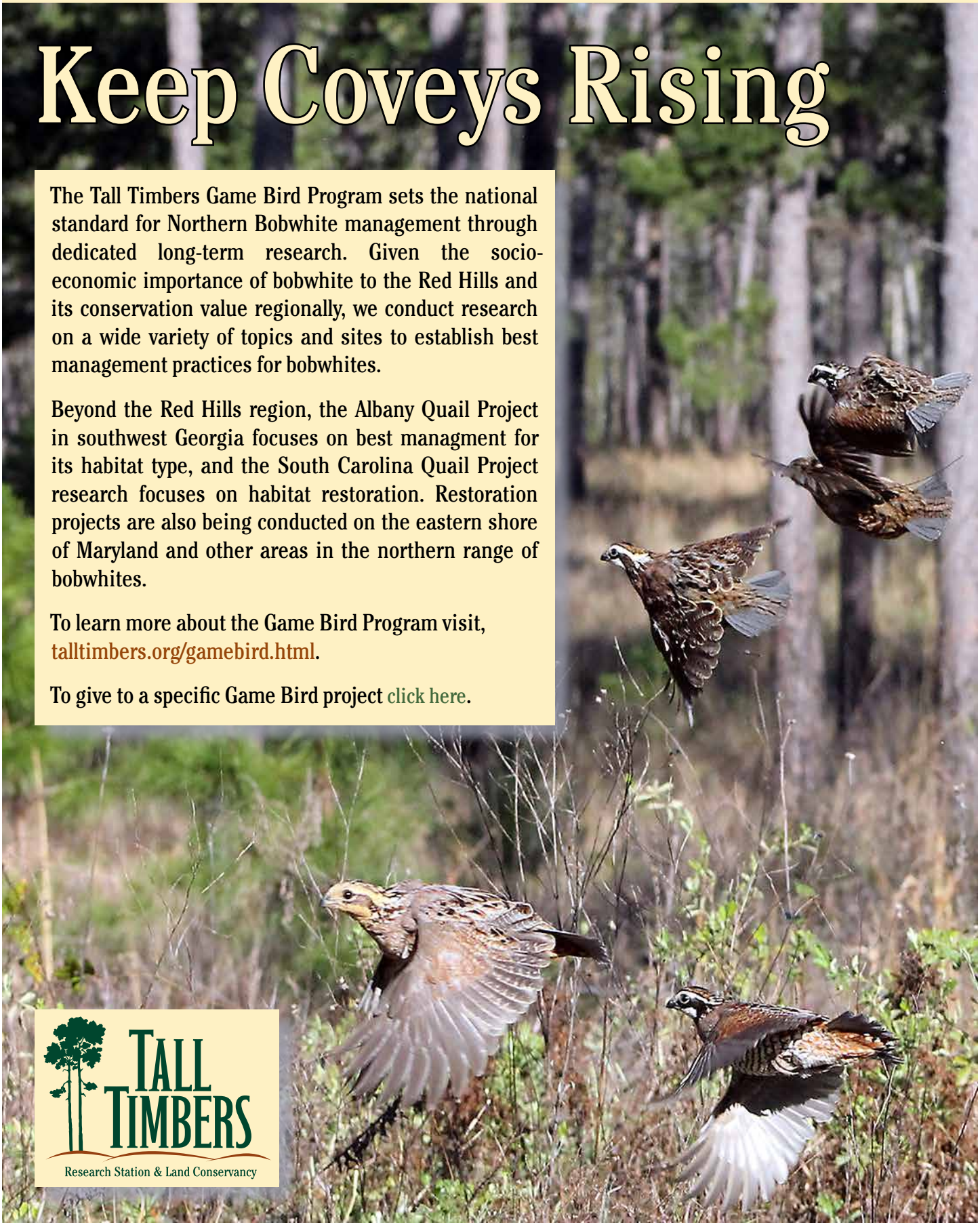
Keep Coveys Rising

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 managment 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.



TALL TIMBERS
Research Station & Land Conservancy

Hunting Pressure Alters Bobwhite Foraging Strategy

BY DIANA MCGRATH, THERON TERHUNE AND JAMES A. MARTIN

Predator-prey dynamics is perhaps nature's most intense version of chess. As predators make moves to become more efficient hunters, prey make counter moves in an attempt to stay alive. We often ponder the question: "how is it that a bird so good at dying is also so hard to find and point with a bird dog?!" The evolutionary construct of predation, the everyday predator-prey interactions — the "chase" and "hide" counter-tactics — is what drives the sportiness of bobwhite wing-shooting. That is, the more bobwhites are chased by predators the harder they become to harvest through their associative learning and innate behavioral response to pressure. For game species, humans become an integrated part of this dynamic often asserting equal or greater pressures on prey species than natural predators. Foraging is a particular risky time for ground dwelling animals, such as the bobwhite, because quality forage often occurs in open cover types thereby increasing visibility to predators. And, even where high quality cover exists on foraging grounds (e.g., supplemental feed broadcast into cover) bobwhites are more vulnerable while feeding due to reduced vigilance (i.e., having their head down to feed). Many bobwhite managers employ supplemental feeding as its benefits have been shown to reduce movement, improve survival, and increase body condition of hens going into breeding season. As such, supplemental food in theory alleviates some pressures associated with finding food. However, during hunting season these areas tend to be targeted by hunters creating competing risks for bobwhites such that there is high predation pressure (e.g., harvest) or a high reward (see Figure 1).

As part of a collaborative project with the University of Georgia, we investigated bobwhite foraging strategies under varying levels of exposure to hunters. During hunting season, we monitored covey encounters and shotgun exposure during hunts (n = 20) on a private plantation in Georgetown County, South Carolina. We conducted telemetry systematically throughout the hunting season (n = *3*, per 30 tagged coveys) to collect daily movement locations and infer foraging behavior.

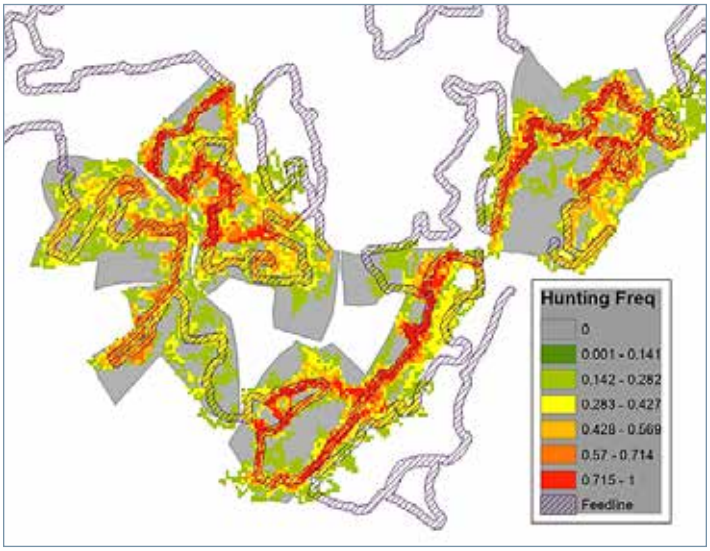


Figure 1. Map of hunting pressure as measured by frequency of use by pointing dogs from October 2014–March 2015. Higher frequencies represent a bias for hunting that particular location.

Telemetry locations were collected by observers at approximately 20–30 m from bobwhites at a time interval of 30 minutes for the entire active period of bobwhites. We explored the influence of various aspects of hunting exposure (i.e., distance to a pointing dog, exposure to firearm disengagement) on components of foraging behavior such as: foraging bout frequency; timing; duration; and area. We identified perceived foraging events using models depicting area restricted search (ARS) behavior along daily movement paths (n=514). This analysis evaluates movement paths and calculates time spent within any given area (i.e., restricted search). High foraging values are generated from increased time spent within a given area and is generally created by sharp turning angles and short step lengths (see Figure 2). Area restricted search is indicative of locating and foraging behavior of granivorous ground foragers, such as the Northern Bobwhite.

We identified foraging activity using 505 daily movement paths (98%) for bobwhites; the average path length was 464 m (mean, SD = 152). We found foraging bout duration was on average 169 min (mean, SD = 112) while total daily foraging duration was 249

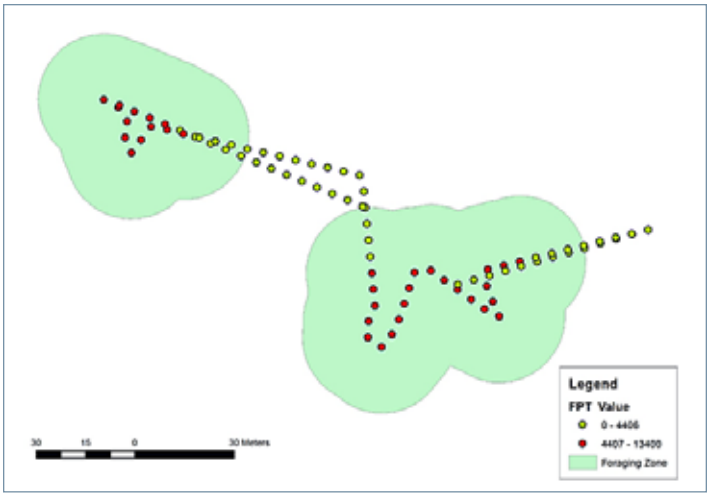


Figure 2. Example daily movement path with buffered foraging zone identified of a Northern Bobwhite. ARS behavior are represented by high FPT values as identified by analysis. FPT values above the ARS threshold (4407) are then buffered by the identified search radius (20 m) to create foraging zones.

minutes (mean, SD = 115). Foraging bout area was 0.28 ha (mean, SD = 0.11) while total daily foraging area was 0.42 ha (mean, SD= 0.17). Bout initiation time was 11:24 (mean, SD= 2.2 hours) while bout frequency ranged from 1–3 with occurrence frequencies of 55%, 41%, and 3%, respectively. Thus, undisturbed bobwhite coveys on average forage for 3 hours with a range of 1 to 4 hours using a relatively small foraging area (less than 0.75 acre) when overlapping supplemental feed.

Hunting pressure negatively influenced feeding such that we observed a general decrease in foraging duration and area (Figure 3) coupled with an increase in the

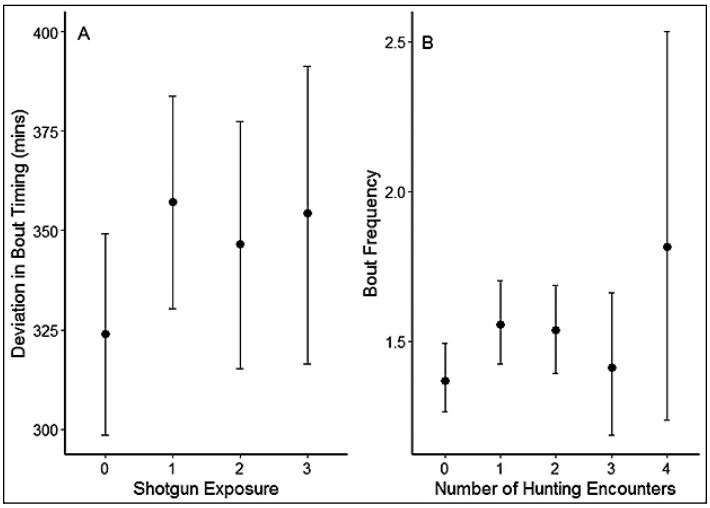


Figure 3. Effects of hunting pressure on foraging bout duration and area (A&B) at the individual bout and total daily foraging level (C&D). Encounter distance represents the most recent distance between a pointing dog and bobwhite covey and therefore hunting pressure decreases as encounter distance increases.

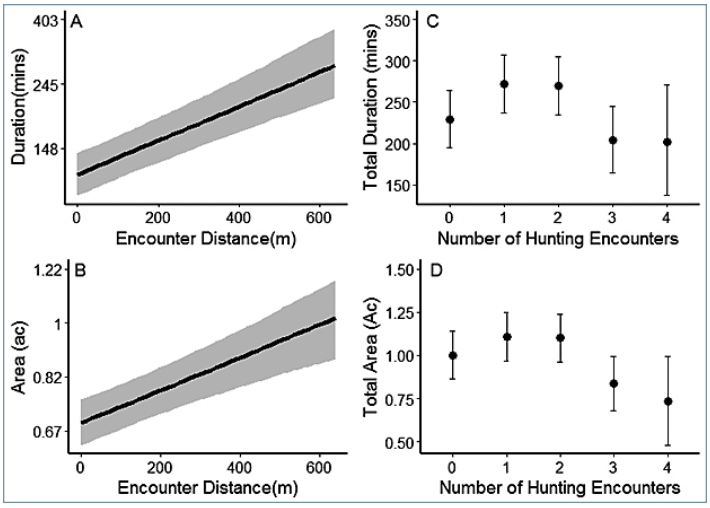


Figure 4. Effects of hunting pressure on deviation in bout timing from peak hunting hours (A) and frequency of foraging bouts per day (B) for Northern Bobwhite. After being exposed to disengaged firearms Bobwhites' increased their deviation in bout timing from peak hunting hours by approximately 30 minutes and showed a general increase in bout frequency with increasing number of encounters.

frequency of foraging bouts (Figure 4B). This suggests that shorter, more frequent foraging forays limited bobwhite exposure to human hunting pressure while still meeting their daily nutritional requirements. Interestingly, exposure to a disengaged firearm (i.e., a covey pointed and shot into) influenced foraging time. Those coveys shot into tended to shift their foraging time by approximately 30 minutes from peak hunting hours (11:00 AM and 4:00 PM, Figure 4A) compared to those less pressured coveys.

Our results demonstrate that bobwhites learn patterns associated with risk and respond in such a way to minimize risk through behavioral shifts during foraging. This study is the first to empirically demonstrate behavioral modifications in foraging for a game species related to hunting pressure. We predict this behavioral shift is compensatory in terms of fitness, but future research should investigate survival associated with varying foraging strategies—i.e., does survival increase as a result of modification in foraging relative to predation pressure?

Take Home Message

Natural predators of the bobwhites such as snakes and Cooper's hawk present a background level of predation year-round creating unique patterns of predation pressure that may alter bobwhite behavior, movement and home ranges. For example, previous research suggests that Cooper's hawks locate a covey and focus predation

on that individual covey until their hunting efficiency declines to a point of diminishing return. Supplemental feeding likely provides increased opportunity to evade predators through alteration of feeding times and frequency of feeding while reducing their exposure. This underscores the potential value of broadcasting supplemental food into areas of good habitat to provide protective cover for foraging coveys.

Altering variation in hunting regime may reduce the amount of associated learning by bobwhites in response to hunting activity, thereby potentially increasing hunter satisfaction and overall hunt success. Given that bobwhites altered their foraging behavior in response to encounters with hunters such that they reduced their foraging duration and restricted their foraging area, we recommend that hunters maximize their spatial coverage and not limit their hunting efforts to the feedline for improved covey detection, especially during late season when experienced coveys may have already modified their foraging patterns. Bobwhites also shifted their foraging times (away from traditional foraging times) in response to consistent hunter activity and encounters. During years of good weather, and purported abundant native food resources, high fidelity to hunting the feed line may prove less fruitful. As such, varying the timing and duration of hunting effort may improve hunting success and hunter satisfaction, especially late in the season. This may also help to explain why some coveys are less "predictable" and feed more inconsistently (i.e., midday) toward the end of the season compared to beginning of the season.

The use of GPS technology to track hunter and dog coverage can help to identify potentially under used areas. We found that bobwhites used supplemental feed to compensate for decreased foraging duration and area. Thus, the provision of supplemental feed may be advantageous for bobwhite survival when it is evenly distributed throughout the property and not spatially concentrated. However, feeding too much, too frequently may result in

– Hunting Pressure continued on the following page

A young bird dog holds point on a covey of quail in the low country of South Carolina. Photo by Diana McGrath

reduced natural mortality but also may result in a reduction in hunt success. In a similar vein, too much hunting pressure will result in behavioral responses by bobwhite coveys to curtail exposure and predation from hunters. Behavioral shifts in timing and duration of foraging and increased movement to evade hunters likely has negative consequences on survival through natural mortality. As such, this emphasizes the importance of proper habitat management, judicious harvest rates, and the use of supplemental feed to potentially offset natural predation pressure during hunting season while underscoring the need to balance hunting opportunity and pressure with bobwhite survival.

At right, author Diana McGrath with a radio telemeter tracks radio-tagged quail coveys during a hunt while on horseback.

ABOUT THE AUTHORS – Diana McGrath is the game bird biologist at Tall Timbers. Theron Terhune is the director of the Game Bird Program, and James Martin is a Research Associate and Assistant Professor at the University of Georgia.

The Road to Eden

Writer Jordan Fisher Smith talked about the experiences that focused his career on the debate over managing protected areas, featured most recently in his award-winning book, *Engineering Eden*.

BY KEVIN ROBERTSON

ON A BOOK TOUR THROUGH NORTHERN FLORIDA, author Jordan Fisher Smith presented a lecture in the E. V. Komarek Science Education Center at Tall Timbers that focused on his recently published book, *Engineering Eden: The True Story of a Violent Death, a Trial, and the Fight Over Controlling Nature*, which won a 2017 California Book Award for nonfiction and was longlisted for the PEN/E.O. Wilson Award for Literary Science Writing.

Jordon Fisher Smith at Tall Timbers. Photo by Brian Wiebler

The book tells the story of the long struggle to understand and properly manage America's oldest national parks through the lens of a lawsuit over the death of a young man killed by a grizzly bear in the middle of festivities celebrating Yellowstone's centennial, in 1972. The story has close philosophical ties to the mission of Tall Timbers, "to promote exemplary land stewardship," and extols the organization for its critical role in redirecting the perspective of federal agencies on wildland fire. A central character in *Engineering Eden* is Starker Leopold, whose famous father Aldo, America's first professor of wildlife biology, was a close friend and intellectual ally of Herbert Stoddard. Jordan Fisher Smith was visibly thrilled to visit Tall Timbers, describing it as a "shrine" for believers in wise natural lands management and speaking truth to power, the central themes of his new book.

Smith wanted to see the old-growth longleaf pine forest of the Wade Tract, and as we bounced down a rutted dirt road in an autumn drizzle, he talked about the intellectual journey that shaped his worldview on the role of humans in conserving our natural heritage that+ led him to write *Engineering Eden*.

Jordan Fisher Smith grew up along the boundaries of Muir Woods National Monument, which protects a grove of ancient redwoods, in California. His parents were avid mountaineers. "Certainly my love of wilderness was given to me by my early experiences in the Sierra

Nevada," he reflected. "From a very early age I knew what to do in wild places."

By the time he was doing undergraduate work at the School of Environmental Studies and Planning at Sonoma State University in California, Jordan was spending his summers as a seasonal ranger, and what he witnessed during this time contributed to his writing, later on. In Engineering Eden Smith describes the late-1960s collision of two philosophies of managing protected areas, which set the stage for the court battle over the death of Harry Walker, the young visitor killed in a grizzly bear attack in 1972. One philosophy, championed by such figures as Adolph Murie and Glen Cole, Yellowstone's chief scientist at the time of Walker's death, was that the essential characteristic of wilderness is the absence of human control. The other, advocated by experts such as U. C. Berkeley's Starker Leopold, was that wilderness and national parks, already vastly altered by previous human activities and isolated within agricultural and urban landscapes, required deliberate manipulation of nature in order to retain biodiversity.

"The Muries were highly sophisticated biologists, but really they came into their professional lives in a time when almost everything was mismanaged," Smith told me. "Adolf Murie really comes out against management, because all of the management he had seen was things like spraying thousands of pounds of insecticides on national parks to get rid of bark beetles. He just thought that much of the management that had been done was wrong-headed. So, the right way to do things was to just stop."

In writing a balanced account of the spectrum of intervention and non-intervention in nature, Smith drew on a considerable sympathy for these early wilderness advocates like Adolph Murie, who had witnessed so many wrong-headed manipulations. "I had actually adopted the values that were built into that old system in my training," he recalled. Working for the Forest Service in the late seventies, Smith saw many destructive management programs. In what he described as his "foot in the door" with conservation agencies, he spent his first summer with the Forest Service in 1978, surveying logging roads for clear cuts just outside the Southwest corner of Yellowstone. There, he saw the Forest Service issuing private sheep grazing allotments in the habitat of Yellowstone grizzlies, already listed as a threatened species.

"They'd make these huge clearcuts, and then replant what were then steep meadows full of slash piles with pine seedlings. Gophers like meadows a lot, and they would chew up the seedlings, so the Forest Service had one of my fellow seasonals driving around all summer, putting strychnine-coated grain in the gopher holes. That was awful rough on predators and carrion-eaters," he said. "Meanwhile, the Forest Service was licensing oil and gas companies to have seismic crews helicoptered in to set off dynamite in bighorn sheep habitat for oil and gas exploration."

On the other hand, said Smith, a big blind spot for the "hands off" wilderness advocates was their silence about fire suppression. "This was not non-intervention, at all. It was a huge management scheme." Smith saw the scale of that enterprise first-hand while working as a firefighter on the Targhee National Forest crew on major fires in various parts of the northern Rockies.

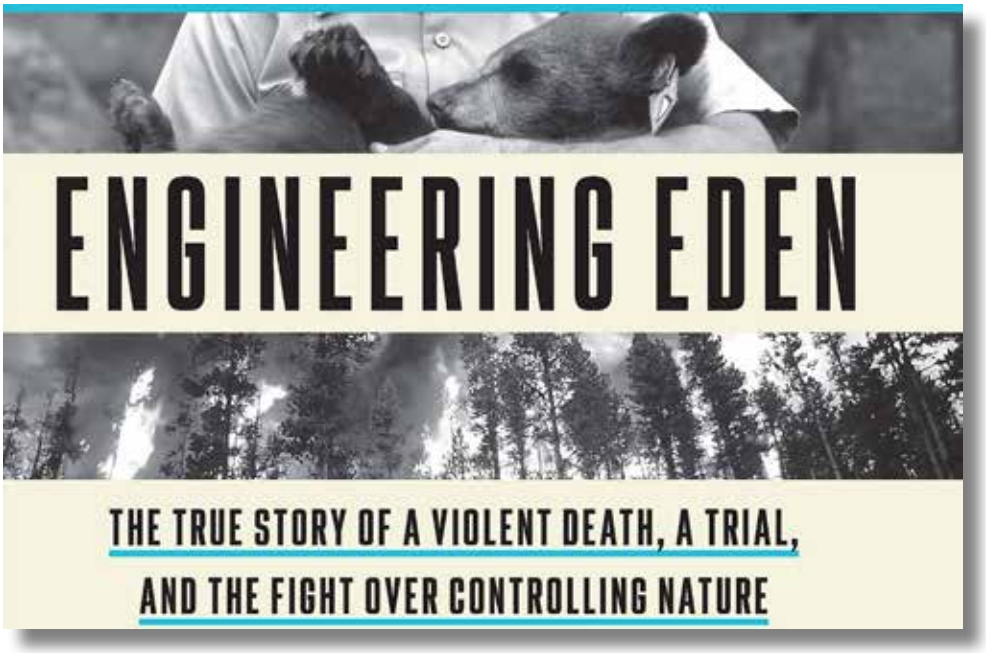
During his lecture at Tall Timbers, Smith recalled in a lesson he would never forget about the difference between fighting wilderness fire and not fighting it. In July of 1979, Smith's crew boss, Kyle Pattee, was burned over and killed on a fire in the Frank Church-River of No Return Wilderness in Idaho. There were no structures or other property threatened, and no roads. The crew had been dropped in by helicopter. Yet, said Smith sadly, young men and women's lives were placed at risk to stop this wilderness fire.

"Meanwhile," said Smith, "in neighboring Montana, which is in the adjoining Forest Service Region 1, wilderness managers like Orville Daniels, Bob Mutch, and Dave Campbell from Missoula were absorbing what was coming out of Tall Timbers Fire Ecology conferences and implementing it in the Bitterroots," said Smith. "Region 1 had been letting some fires burn eight years before Kyle's death. But Region 4, a very conservative region based in Utah, had a different philosophy about absorbing what Tall Timbers was putting out in relation to wilderness fire."

After that first summer in logging roads and sheep allotments, Smith got a job as a wilderness ranger on the west slope of the Grand Tetons, where he worked on a wilderness management plan for what later became the Jedediah Smith Wilderness on the Caribou-Targhee National Forest, while writing a senior thesis on human recreational impact on wildlands. "I wasn't trained as a

scientist, but I took a lot of science courses in order to learn to evaluate environmental impacts. My understanding of what I was doing was, when I had a managerial decision, was to look things up, find out what the scientific consensus was, and talk to scientists in an intelligent way." Jordan held up Herbert Stoddard as the kind of self-trained professional he strived to be.

After school, Smith began working winters at a northern elephant seal breeding colony at Ano Nuevo State Reserve on the coast of California, then he spent three years as a law enforcement ranger and medic at Sequoia and Kings Canyon National Parks. His experience at Sequoia contributed to *Engineering Eden*. "During that time, Sequoia had a big problem with human-bear conflicts — notably property damage — mostly cars getting broken into by bears. Because of the lack of proper food storage facilities for campers and animal-proof garbage receptacles, bears became so food conditioned that they were willing to charge into a campsite and chase people off," he said.



"There was an animal ecologist working in the park who had just finished a doctorate under Starker Leopold at Berkeley. His name was David Graber. In September of 1981, I watched Graber and his crew work up a [black bear] sow with a cub near the maintenance area at Lodgepole Campground. After that, they flew the bears into the backcountry."

"This just seemed to me to be exactly the sort of work that I ought to know how to do," Smith remembered. "So the following year I put in for a school to turn rangers into assistant bear handlers, so that I could participate in the bear program. Throughout that time I thought what I was doing was useful and important, right in line with my profession as a ranger."

"Fifteen years later, when I was working on some essays about my ranger work, I went back to Sequoia National Park and went through the handling records and life histories of every bear I'd ever known. They were all still there, neatly in their folders, along with ephemera like memos and correspondence about the bear program, and each year's statistics."

"What I found out shocked me. With one exception, every bear I had ever known had come to a premature and tragic end quickly after we got involved with it, and that moving the bears around really didn't accomplish a thing. "When you drop a bear somewhere within 50 miles of where you picked it up, they had an uncanny ability to navigate to right back where you got them from, sometimes faster than we could get the trap towed back to where we had caught them!"

"We'd look for a place to put them out where there was good bear habitat and lots to eat, and the best bear habitat was in the lower-elevation, western part of the park, close to the boundary between the park and the national forest. They would wander out of the park and start breaking into cabins, and Fish and Game would shoot them, or they would get shot by a hunter."

"I had always thought of the park the way the public thinks about it, as a big chunk of the original nature, more or less unmanaged, where nature could carry out its important work. Looking at the bear program after those many years, and looking at those reports, helped me understand that what we were looking at was a very managed environment, and that what we did mattered, and that there was good management and there was stupid management, but that it wasn't unmanaged. What I learned was that a great many of the bears that we had were not really wild creatures but were in some way part wild and part tame."

By the time Smith read those files, David Graber — the student of Starker Leopold whom Jordan had first seen in 1981, processing the captured bear — was the chief science advisor of the Pacific West Region of the Park Service. "I went and interviewed him, and as soon as I started talking to him about bear work, he started talking about his tutelage under Starker Leopold. I didn't know much about Starker." Smith recognized Leopold's name only as an author of the Leopold Report, a historic 1963 National Park Service white paper that called for the re-integration of prescribed and natural fire into the national parks.

"Graber had tremendous regard for Starker. So I began looking at what Starker was up to," said Smith. "As I followed that story, I began to understand just how managed wilderness areas and national parks actually were. It wasn't a question of really anything being unmanaged. It had all been managed under one theory or another, many of them wrong. I really couldn't find a place that was unmanaged in some way."

Smith was especially impressed with the younger Leopold's early advocacy for fire. "Starker said during a lecture in the mid-1950s, 'if you set aside a block of Great Plains prairie without fire, a hundred years later it will be a stunted oak-hickory forest, so we are going to have to take some responsibility for some experimentation with management.'"

By 1987, now a law enforcement ranger for the California State Parks, Smith was reading about, and keeping a clip file on, the effects of climate change on protected area management. This really shook him up, and led to his writing. "Climate change has been the driver behind my entire literary career. The scale of what has been going on has driven my desire to make sense of it and help other people make sense of it. It really has been behind my whole effort. Not just climate change, but the sixth extinction," referring to the current precipitous loss in biodiversity.

"If anyone will be around to write about history in a hundred years, this will be the defining feature of our time. Everything else will pale in comparison. So I wanted to do my best to understand how scientists are facing it, and help people who are non-scientists to work their way to philosophical understanding of where they stand

– Road to Eden continued on page 22

At left, Jordan Fisher Smith with land manager Paul Massey at the Wade Tract Preserve.

with nature, and keep drawing attention back to the underlying huge processes influencing the world."

Smith's first book, *Nature Noir*, is a memoir of working as a ranger in a pair of Northern California river canyons that were to be inundated by a federal dam. "It's really a meditation on the impermanence we're are all feeling about life on earth during the sixth extinction," he said. *Nature Noir* received rave reviews from the *New York Times, Boston Globe, Newsweek, Outside*, and was a Booksense Bestseller and a San Francisco Chronicle Best Books of 2005 pick.

The background note of impermanence in Smith's work carried over into *Engineering Eden*. Smith explained, "When the Fourth Assessment of the Intergovernmental Panel on Climate Change came out in 2007, I saw this collapse, among the rangers and scientists, in a belief in some sort of homeostatic naturalness in the national parks."

"I could see that those in charge would have to *manage* for preserving species and biodiversity. That realization set me out on a historical research mission to learn about what kind of management of natural areas had been done since Yellowstone was designated in 1872. I began that research with a great deal of suspicion about management, since so much of had gone wrong in the past. As the project went on, I became much more favorable to it. We are going to be doing it for the rest of our lives, just to save species from extinction and support what is left of our fragmented natural world," Smith continued.

"One thing I learned about being a ranger was, you go into some heinous situation and you just had to manage with what you had with you, what was in your backpack. You just had to improvise. That's pretty much how we have to face our situation here on earth. We just have use what we've got."

Adding to these thoughts and recollections, Smith's lecture at Tall Timbers emphasized our duty as citizens and scientists to stand for truth and objective science in a time when the very existence of facts is being challenged. "We should align ourselves with people who have dignity, honesty, and moral integrity," Smith advised, "And we need to stand up for scientific facts."

As a research scientist at Tall Timbers charged with "promoting exemplary land stewardship", I gained from Jordan Fisher Smith's visit a new sense of alertness to the

challenge now before us, a revitalized belief in the importance of what we do, and eagerness to contribute, drawing on my life experiences, values, and all of the skills and resources we are fortunate to have been given.

ABOUT THE AUTHOR
Dr. Kevin Robertson is the director of the Fire Ecology program at Tall Timbers.

TALL TIMBERS

Planned Burning in Western Australia

BY GREG SEAMON

FOR MOST OF THE MONTH OF AUGUST, Tall Timbers had a presence in Western Australia (WA). Mike Dueitt, former Director at the Prescribed Fire Training Center (PFTC), and Greg Seamon, Tall Timbers' Fire Training Specialist stationed at PFTC, were invited by the Department of Biodiversity, Conservation and Attractions and the Office of Bushfire Risk Management to attend a state-sponsored prescribed burning forum and tour the southern part of Western Australia.

We interacted with scientists, land managers, elected officials, NGO leaders and volunteer fire brigade members to discuss the need, use, training and challenges of prescribed burning. Of great interest to the Australian participants was a comparison of how burns, legislation, and public attitudes are dealt with in the US in contrast to WA.

The forum, held in Busselton on the Indian Ocean, was the first of its kind held in Western Australia. It was invitation only and included leading bushfire experts from across the country, as well as long-established fire managers and those currently recognized as new leaders in applying planned burns. Mike and I were invited to attend and speak about the US's training programs and discuss lessons we've learned from our personal backgrounds. Some of my observations from the week included that the forum received great interest from high level government officials. Speakers on the first day included Francis Logan, the Western Australia Minister for Emergency Services, Stephen Dawson, Western Australia Minister for the Environment, Wayne Gregson, Fire and Emergency Services Commissioner. Speakers on the last day were equally from upper management, including Steve Fewster, Department of Fire and Emergency Services Deputy Commissioner and Mark Webb, Department of Biodiversity, Conservation and Attractions Director General.

The outcomes and recommendations from this forum were varied across a wide spectrum of areas. Many related back to the four workshops held during the forum. All attendees participated in all four workshops, which included: *The Collective Voice,* on the social license to implement prescribed burns and how to inform and get public support for the activity; *Tenure Blind Complexities,* dealing with planning and conducting prescribed burns irrelevant of the ownership of the land being treated and how to work across agency tenure; *Before the Match,* designed to examine assumptions made in planning prescribed burns and this impact on escapes; and the *Practically Science, Technology and Measuring Up* workshop that explores the current and future use of science and technology, and the way the success of these programs can be measured. Some specific recommendations were:

- Lead agencies commit to streamline the burn plan approval process.
- Lead agencies commit to improved community engagement to achieve greater understanding of the benefits of planned burn strategies. This means genuine and locally-meaningful community engagement, incorporating relevant examples and scenario modeling of available options.
- Practitioners, their agencies and organizations commit to develop and use a common set of messages and terminology to describe prescribed burning.
- Practitioners, their agencies and organizations commit to a collaborative approach managing the inherent uncertainty in prescribed burning activities.

Participants at the Western Australia Prescribed Burning Forum during one of the breakout workshops.

- Lead agencies to investigate the establishment of a structured and tailored training program in uncertainty management.
- Practitioners, their agencies and organizations commit to validate technical data and provide feedback to the source to assist in closing the information loop and promote continuous improvement.
- All practitioners commit to explore formal intrastate and interstate arrangements for sharing of intelligence, skills and research.

These outcomes don't come as a surprise to those of us working in the US. They sound all too familiar. An additional finding was the desire to create a "Centre of Excellence in Rural Fire Management" in Western Australia. This would be related to, but not tied to, a national Centre of Excellence for Prescribed Burning that has been established through the Australasian Fire and Emergency Service Authorities Council. This second, national center, seems a wonderful concept, but at the time of the forum there was not a great amount of agreement or understanding of what it will accomplish. Most agreed that until a decision is made on whether the center will be bricks and mortar or virtual; whether it will focus on standards or training; whether it will be at a national scale or focus regionally to deal with specific needs — there is too much unknown. Currently the mission is broad.

Two unforeseen outcomes were the responses by most participants that the initial forum needs to be repeated in the future. The programming and delivery methods were widely acknowledged of significant benefit. The second was the initial set-up, which stressed not wearing uniforms, but work casual clothes. This seems a small matter, but it helped break down agency barriers and brought about a collegial atmosphere that produced collaboration.

Of interest, from many of the attendees, was the training program run by PFTC, and the state and federal agreement on training and fire position competencies and standards under the National Wildfire Coordinating Guidelines (NWCG). This has caused consternation with Australia. As an example, someone qualified as an engine operator for the Department of Biodiversity, Conservation and Attractions (DBCA) may not have the same training, skills or experience as someone working at the same level for the Department of Fire and Emergency Services (DFES), much less someone from another state, such as Victoria or New South Wales. This has led to problems during large bushfire incidents, as well as in conducting large planned burn projects. I believe that there needs to be some oversight of training and qualifi-

cations that are applicable throughout the country, which includes all agencies, organizations, private industry and consultants. This could alleviate many current difficulties encountered during burning planning and operations.

Once we got out in the field, the similarities were often what would be expected. Western Australia, in particular the southern half, is dominated by fire-adapted vegetation. The fire return interval varies from 2-3 years for grass-dominated systems to 10+ years for the karri forests (*Eucolyptus diversicolor*). Similarly to the southeastern US, there are many areas where the fuels have built up to levels over 50 years or more due to fire exclusion. The primary burn windows are fall and spring. Fall is preferred going into the normally cooler and wetter winter. We observed some winter burning taking place and participated in two burns in a pine plantation near Perth. The planted pine around Perth is dominated by maritime pine (*Pinus pinaster*) from Portugal and Spain. Planted pine further south consisted mostly of Monterey pine (*Pinus radiata*) from California. Additionally we saw plantations of Tasmanian bluegum (*Eucalyptus globulus*) scattered across southwest WA. All of these plantations are grown primarily for wood fiber; and, all of them are burned with low intensity fires to minimize impact on the trees.

An interesting fact was that, unlike the southeastern US, almost all burning takes place on government managed lands through DBCA or the local municipalities (towns and shires) not on private lands. The towns and shires have accepted the responsibility to manage fire within the town limits. State planning policy has identified bushfire-prone areas, and required risk management/mitigation for old and new construction. Ed Hatherley a forester for DBCA, stated if you own the land, you are responsible for dealing with the hazards, which includes bushfire management. This goes back to the 1954 **Bushfire Act**. During travels after the forum, and on a field trip during the forum, we visited numerous coastal towns, including Yallingup. All the coastal towns have coastal heath, a native, highly volatile shrub community that grows up to, and in some instances, through these towns. This community burns through the shrub layer

Mike Dueitt, Greg Seamon and Emma Clingan burning pine plantation outside Perth.

The town of Yallingup with surrounding coastal heath.

and is wind-driven. There is little fine fuel, such as leaves and grass, which will support fire. When this heat burns, it burns hot and fast. Most of these coastal communities have only one road in and out. Many of the towns have experienced damage with the loss of buildings from escaped planned burns and wildfires. There is much work being undertaken to reduce the risk by burning around the towns and creating open breaks through mechanical and fire application. However, this can only occur where clearing has been granted. Statute prohibits clearing of native bush except under specific circumstances. The best way to protect towns is by burning around them. The town of Margaret River has begun this edging — burning thin areas between native bush and town infrastructure — in the last few years, after an escaped prescribed fire burned through portions of the town. All stakeholders are involved in the planning of these burns. These smaller units are burned to set up for larger burns in the surrounding jarrah forest (*Eucalyptus marginata*), on a 7–9 year rotation.

Edging burn in Margaret River as part of protection from bushfires.

There are two main burning windows, fall (late April-June) and spring (October-December). Autumn burns are favored due to the weather pattern moving into the wet winter pattern. However, the spring burns are extremely useful for ecological effects, similar to what we do in the southeastern US. In fact for the jarrah and karri forests, this timing works well — except when it doesn't. The karri forests are mostly moister than the jarrah forests and won't burn at the same time. However, when the karri forests will burn is problematic due to the bush fire concerns. We experience similar difficulties in burning into our organic soil dominated systems such as marshes, ephemeral wetlands and cypress strands. When the karri will burn well for ecological impacts, there is the higher possibility of escaped fires or long-term burning with the associated smoke impacts. The land managers in Western Australia are working on accomplishing the positive, while dealing with the dilemma of unwanted results.

Karri forest 5 years post burn.

Another concern that has cropped up recently is the impact of smoke on the wine industry. This past year many planned burns were cancelled due to the late harvest of grapes for wine. Vineyards are a high-dollar agricultural crop in Western Australia. As the growing season has lengthened, grapes are being harvested later, and this has impacted the fall burning window.

Obviously, the needs of prescribed fire, or planned burning as it is most often called in WA, are similar to those in the southeastern US. Specifics may be different, but the overall need and potential obstacles are easily understood by those of us working with fire here. In some areas, the Australians are ahead of us in proposing legislation that requires fuels to be the responsibility of the landowner/manager. Yet they may be behind the US in training and standardization that is agreed to between agencies and adjacent states. I made many important contacts and hope that we can foster a continued exchange of ideas and people between PFTC and the fire managers of Western Australia.

Greg Seamon after lighting up a grass tree (*Xanthorrhoea australis*).

Greg Seamon is a Tall Timbers' Fire Training Specialist assigned to the Prescribed Fire Training Center in Tallahassee.

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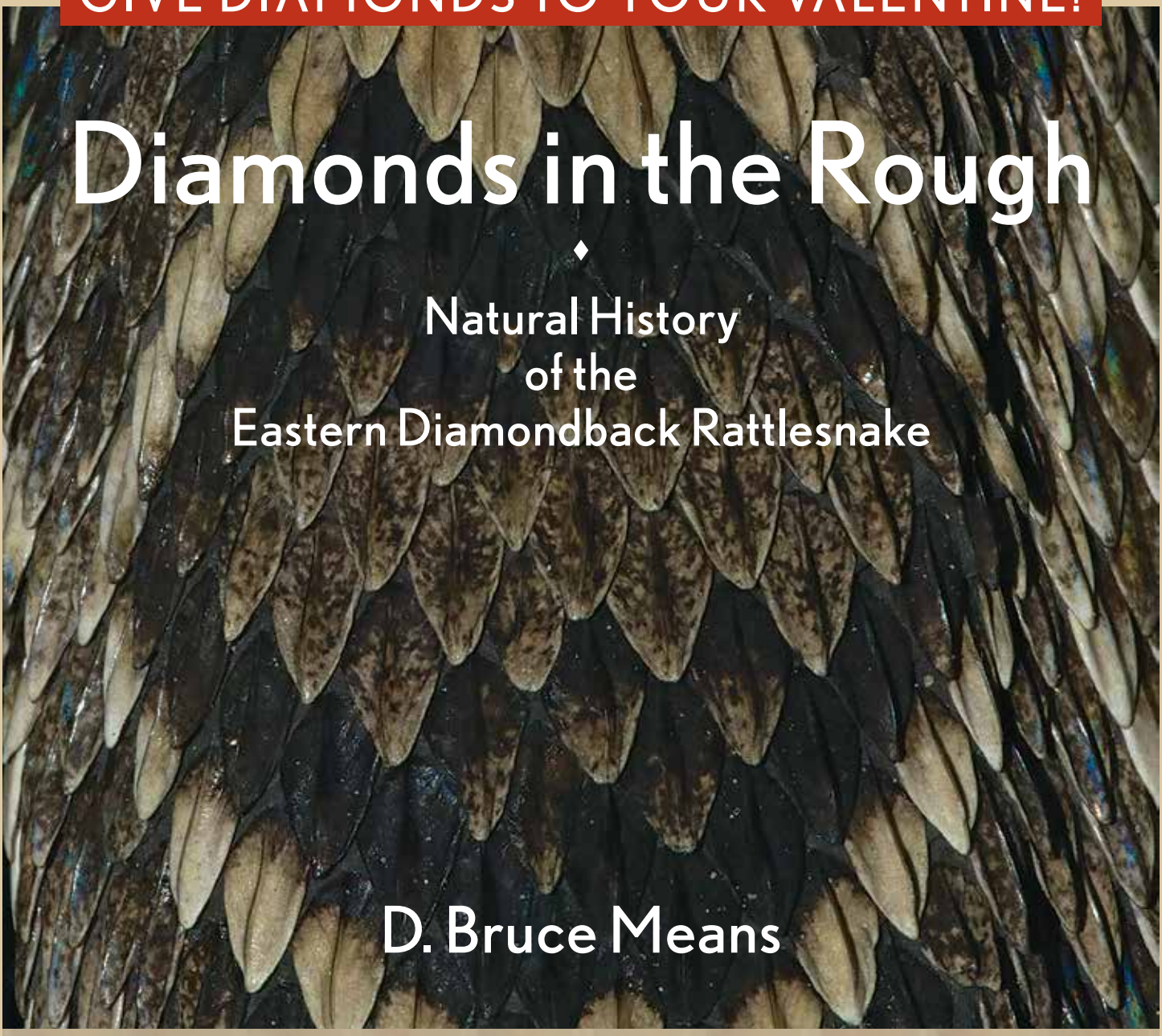

Diamonds in the Rough

♦

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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To purchase the book at the $70 sale price, contact Lisa Baggett at 850.893.4153, x241 or email Lisa. No other discounts apply. S/H is $5 additional + tax for FL residents.

A summer morning bike ride on New Hope Road

Riding the Red Clay

STORY AND PHOTOGRAPHY BY BRIAN WIEBLER

IT'S NOT DODGING TREES AND BOUNCING OVER rocks like mountain biking, and it's not flying down the open highway like road biking. This is clay road riding, and it may be the relaxing alternative you're looking for to get out and explore the Red Hills region on two wheels.

The spacing of pines in a forest managed with prescribed fire provides open views and ample sunlight that people in the Red Hills have enjoyed for generations. There is also a visual magic that occurs as you ride a bicycle at a casual speed down a clay road; the conveyor belt of pines and historic landscapes glide by for your enjoyment with no window frame to contain them. The experience is punctuated as portions of the road close in tight around you with massive live oak trunks and thick canopy branches, only to open again with wide views of a southern pine forest under the careful stewardship of a thoughtful landowner.

I enjoy the thrills of mountain biking and the extended traveling accessible on a road bike. However, increasingly I'm turning to the clay roads for quiet, restorative rides with friends and family. Recreational cruising by bike is not new to the clay roads of this region. Thomasville, Georgia was a big part of the bicycling craze of the 1890s.

The modern bicycle, or "safety bicycle," was introduced in the 1880s with two equal-sized wheels and a drive chain. This new invention made cycling more accessible, and it became the fashionably athletic way to travel and socialize in the Red Hills. The Ladies Cycling

Many of the clay roads in the Red Hills include vistas of open, fire managed pine forests.

"...increasingly I'm turning to the clay roads for quiet, restorative rides..."

Club of Thomasville motto remains an appropriate call to action, "Come forth in the light of things. Let nature be your teacher."

This article provides some tips and ideas for connecting with the cycling heritage and natural resources of the Red Hills by getting out on your own clay road ride.

A group of cyclists ride the dirt road in front of the Piney Woods Hotel in Thomasville, 1897. Photo from the collections of the Thomas County Historical Society

Starter Ride

If you are buying your first new bike in years, or dusting off a trusted steed from deep in the garage, the car-free Orchard Pond Road Trail in Leon County is a good place to test your wheels on a short, safe clay ride. The 3.5-mile long clay road trail opened in 2016 after the Orchard Pond Parkway toll road was constructed to the north of the old clay road.

Now part of the extensive Leon County greenway system, Orchard Pond Road Trail includes parking access from Old Bainbridge Road on the west end, and Meridian Road via the Orchard Pond Parkway on the east end. With no worries of vehicular traffic, this is a nice place to test your skills and your bike on clay. However, be aware that clay can be slippery after a rain and the lack of vehicles repacking the clay may increase the dry time for this trail.

– Riding the Red Clay continued on the following page

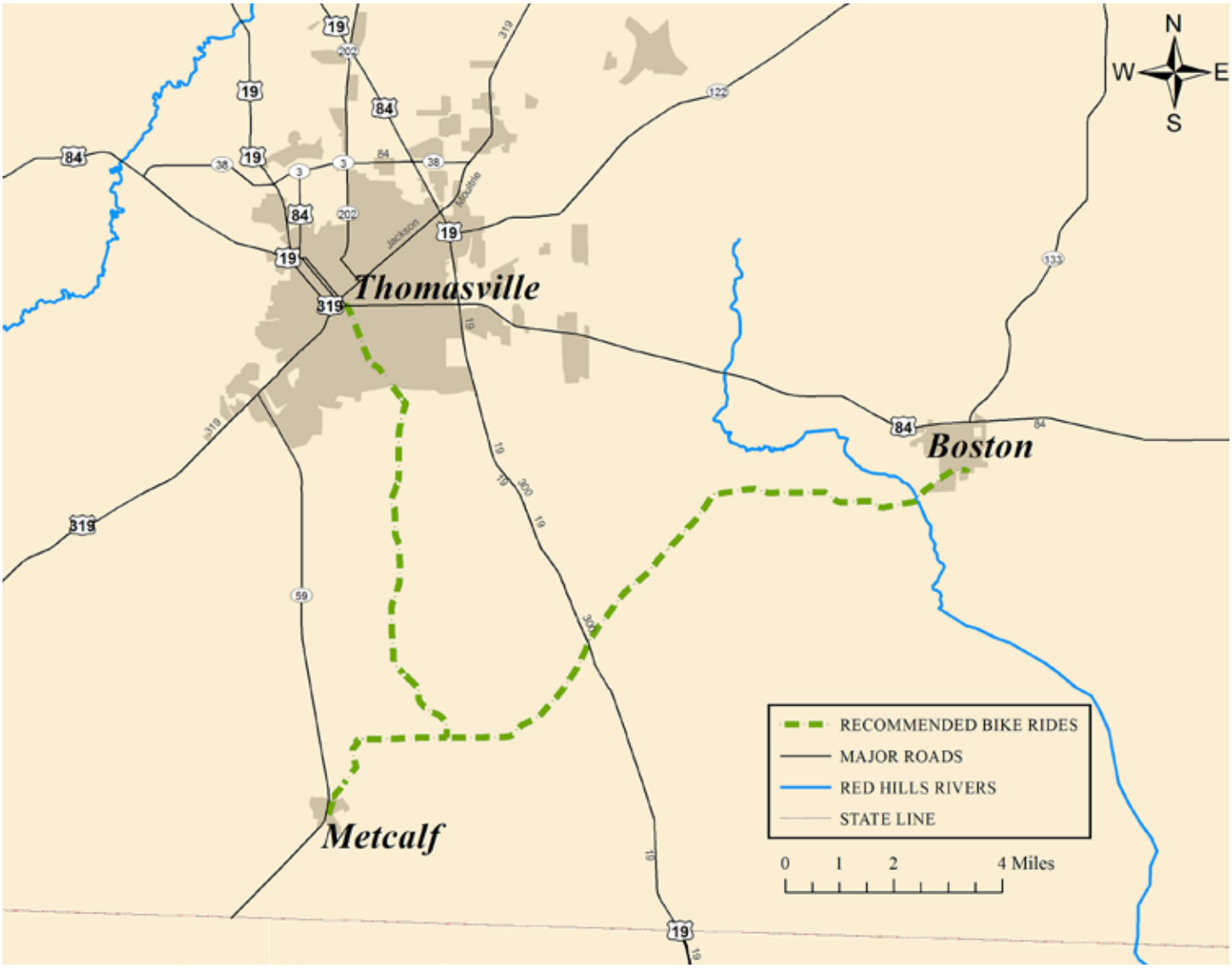
Road Condition and Bike Tires

Paying attention to the wet and dry cycle of clay roads is the most important factor in having an enjoyable experience on your bike. Too wet, the clay is a slippery mess. Too dry, the sand and dust drag you down and impact steering. However, the time between too-wet and too-dry is a blissfully smooth ribbon of packed red clay that delivers a quiet, easy ride. That's the goal.

As with most outdoor activities, the weather is a factor; not every time out is perfect, but when conditions are right, it's incredible. Paying attention to other local clay roads you drive on is a great way to predict riding conditions. Within a day or so after a rain, the tracks of cars and trucks become packed and ridable, providing thin paths between any remaining puddles. Cloudy plumes of dust rising behind cars are a sign that things are getting too dry for a comfortable ride.

The tread and width of your bicycle tires can help stretch the window of desirable riding. When conditions are good with clear packed trails of clay, I prefer a bike with a generally smooth tread and one, to one and a half inches in width. This provides for a fast and smooth ride that really lets you enjoy the clay when it is at its best. As conditions move to the wet or dry side of the desirable spectrum, I reach for a mountain bike with a knobby tread on tires of two inches or more in width. Knobby tread provides traction when dealing with wet slippery clay and greater width allows for lower tire pressure that helps you stay on top of dry sandy patches.

Side by side view of a 1.25 inch road bike tire and a 2.25 inch knobby mountain bike tire. Larger tires help when conditions get slippery or sandy.



Recommended Rides

Located deep in the Red Hills, Metcalfe, Georgia is my favorite launching point for exploring clay roads. Parking and restrooms are available at the Metcalfe Community Park on the south side of Beachton-Metcalfe Road, just east of John Street. After exploring this little historic district, pedal north on Haines Street, continue north on Horne Cemetery Road, then curve east onto New Hope Road.

New Hope Road and Millpond Road offer two great rides out of Metcalfe with midpoint rests in Thomasville or Boston, Georgia. The shorter route is to follow New Hope Road to the intersection with Millpond Road and head north. Millpond Road is a fantastic example of an unpaved antebellum road and includes two wood plank and steel girder bridges still used by hunting wagons to pass over the road.

Historic buildings in Metcalfe, Georgia

– Riding the Red Clay continued on the following page

Taking a break along Millpond Road.

The ride from Metcalf to Thomasville via Millpond Road is about 12.5-miles one way, completing your journey to downtown on Gordon Avenue. Budgeting around 90-minites for this one-way trip is a good plan for lunch time arrival in the foodie paradise of Downtown Thomasville. Matching bike rides with food destinations is a fun motivator and a great way to make your favorite dish taste even better. After refueling, don't forget to include some digestion time before the return ride on this 25-mile roundtrip.

If you are up for a longer ride, consider staying on New Hope Road for a journey to Boston, Georgia. This 32-mile round trip takes you down the oldest and longest intact antebellum roadway in Thomas County. First cut between 1830 and 1850, the road served as a direct route for farmers and planters to ship cotton from Thomas County through Tallahassee and on to the port of St. Marks.

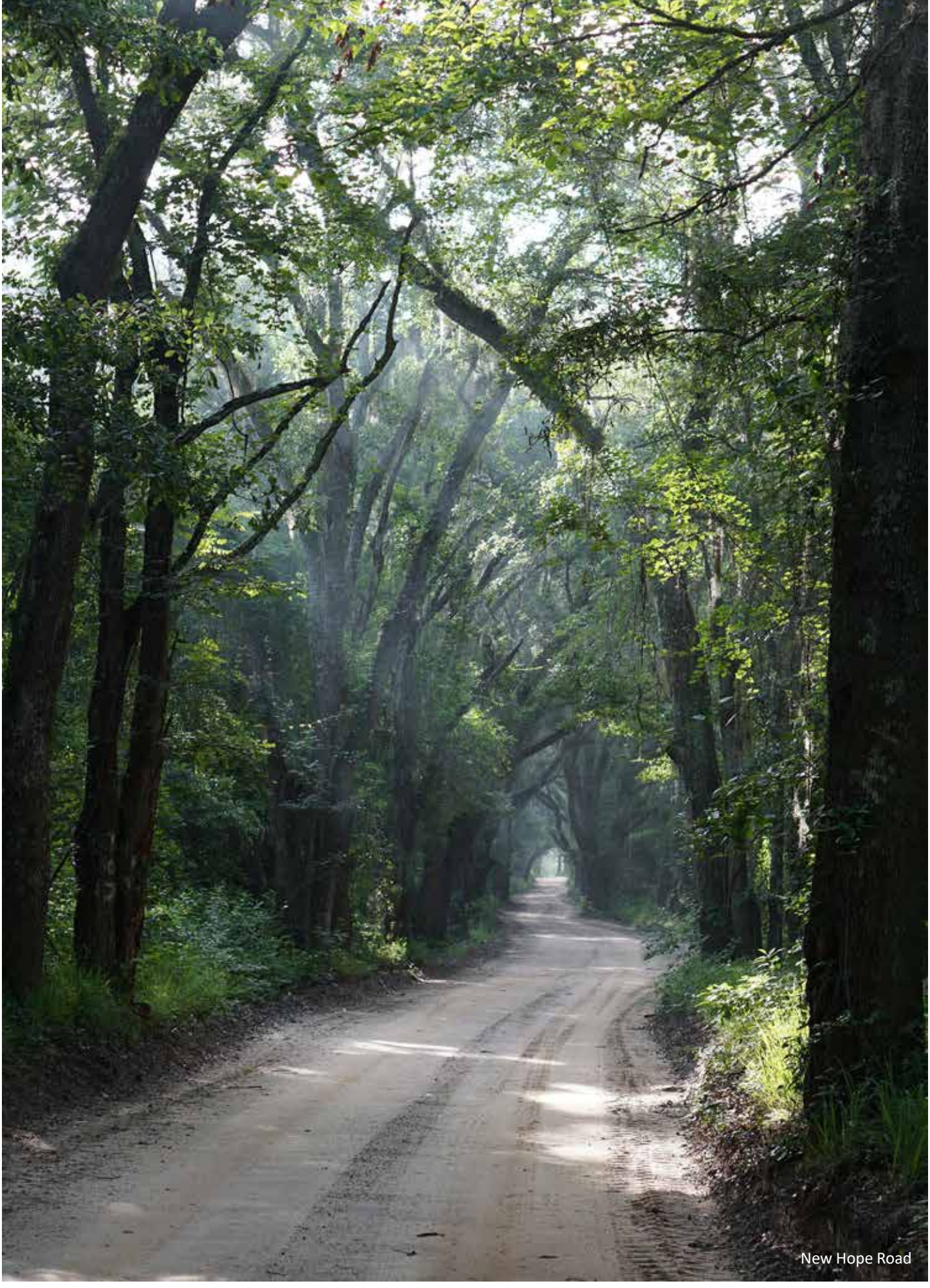
From Metcalfe, stay on New Hope Road for 10.5 miles, then head east on Lower Boston Road and complete your journey to Boston on Monticello Road as it turns into Washington street. The bridge just north of the turn onto Monticello Road offers a peek at the upper portion of the Aucilla River. To enjoy a halfway point rest, turn north on Main Street and check out Boston's Main Street Café or the Buzzery, serving up pizza and mead.

The journey to Boston, Georgia includes a bridge over the upper portion of the Aucilla River.

If you are interested in longer clay road rides with more social opportunities, consider the Spaghetti 100 out of Miccosukee, Florida or the Dirty Pecan out of Monticello, Florida. The Spaghetti 100, hosted by Capital City Cyclists in early October each year, offers 40 and 60-mile dirt road options. The Dirty Pecan, sponsored by Bird Legs Bicycles in early March, serves up epic options of 60, 100, and 150-miles. Organized rides are a great way to meet other people who love clay roads, get tips on new areas to explore, and accept the challenge of going a little farther.

Cool building in Metcalfe

– Riding the Red Clay continued on page 36



New Hope Road

Stewardship

Exploring the Red Hill's network of public clay roads is a special way to connect with this unique American landscape that supports irreplaceable ecological resources, sustainable local economies, and a rich culture, providing a distinctive sense of place for the people of the region. Please be respectful of the private properties these roads provide views of. The stewardship of area landowners has protected these lands as open space, enhanced habitat for declining wildlife species, and provided clean water for our aquifer, lakes, and rivers.

Tall Timbers has taken a leadership role in working to establish a Scenic Roads Program for Thomas County, Georgia, and designating New Hope, Millpond, Glasgow, and Twelve-Mile Post Roads to the program. In Leon County, Florida, Tall Timbers succeeded in getting Sunny Hill Road, Old Centerville Road, and Pisgah Church Road designated as official Canopy Roads protected by local ordinance. These scenic roads will continue to provide recreational opportunities and connections to natural and historical resources.

If you are already out there enjoying the clay roads by bike and would like to share your favorite routes, please contact us. We would love to continue highlighting ride opportunities that get people outside and connecting with the great resources of the Red Hills.

ABOUT THE AUTHOR
Brian Wiebler is the Red Hills Outreach & Education Coordinator for Tall Timbers. Before joining Tall Timbers, he biked his way through positions as a Wildlife Biologist, Urban Forester, and City Planner. Contact Brian at **bwiebler@talltimbers.org**, or 850-363-1079.

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 133,000 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

Herbert Stoddard's Search for the Lost Spirit of the Southern Wilderness

BY FREDRIK BRYNTESSON, WILLIAM C. HUNTER AND JIM COX

MAINTAINING A SECRET CAN BE A BURDENSOME task for a scientist. In a profession that thrives upon new discoveries and near-constant outside review, suppressing information can gnaw at the psyche like some malignant growth. Failure to place a glistening piece of break-through information before the public's eye seems to run counter to the philosophy of scientific inquiry—except when the information might threaten an endangered species.

Such was the dilemma that Herbert Stoddard and many of his colleagues faced in the mid-1900s. The rapacious clearing of forests that took place in the late 1800s and early 1900s led to staggering losses of native wildlife. Stoddard and his peers grew up in an era when many native species were struggling to survive as our country transformed from a collection of small agrarian communities into a manufacturing behemoth. In his youth, Stoddard had chances, albeit slim, to see Bachman's Warblers, Passenger Pigeons, and Carolina Parakeets. By the time he was fully engaged with his career during the early 1900s, chances of seeing these and other species were vanishingly small.

One of the rare species that plunged Stoddard into deep, guarded silence toward the end of his career was the Ivory-billed Woodpecker, the largest woodpecker to have inhabited the US. Known as the *Lord God Bird* because of its size, the black-and-white Ivory-billed once ranged across the remote wild swamps, bottomland forests, and mature pinewoods of the southeastern US. Stoddard became familiar with Ivory-bills during his childhood in the wild frontier of Orange and Seminole Counties, Florida, and later recounted that he "had seen at least 12 to 15 in the Fort Christmas region" during his boyhood years. He suggested there might have been more in this area that today supports the burgeoning suburbs of Orlando. But with the characteristic scrutiny that

would guide his professional career, he added "… some may have been repeats of the same birds or families."

Searching for Ivory-billed Woodpeckers became a regular part of Herbert Stoddard's life until he passed away in 1970. As he once noted, "I know of no keener or worthwhile problem than assisting in working out the present status of this most spectacular bird."

Except for a tight-knit group of close friends and colleagues, however, few knew about the information and insights that Stoddard amassed in pursuit of the Lord God Bird. As noted in his memoirs, "The ivory-billed woodpecker was always in my mind. I searched for it at every opportunity, especially in and near the larger cypress swamps." He was realistic about the probability of locating such a rare bird in the vast areas of the Southern wilderness and likened it to be like, "looking for a needle in a hay stack" and then added, "but what could be more fun?" However, he kept the information close to his chest because he feared the information might be used for great harm rather than good. In his youth, he had observed the uncontrolled slaughter of wildlife in the wild lands of central Florida. Later on, his work with museums throughout North America convinced him that shotguns in the hands of curators and others also had played a role in the demise of Ivory-bills. In fact, soon after Stoddard arrived in the Red Hills region, two Florida Ivory-billed Woodpeckers would be shot and sold to the University of Florida, along with a purported nest tree, for $175 (equivalent to about $2,500 today).

Above, Herbert Stoddard c. 1961. Tall Timbers Archives. At left, Ivory-billed Woodpecker specimans at the Florida Natural History Museum in Gainesville, Florida. Photo by Fredrik Bryntesson

While Stoddard kept many of his observations to himself, the archival materials housed at Tall Timbers (especially Stoddard's own letters, memo's, notes etc.) provide great new insights about Stoddard's thoughts, knowledge, and searches for ivory-bills. We also have information from many of Stoddard's peers, including Leon Neel, Whitney Eastman, Alexander Sprunt, and John Dennis, who published accounts of Stoddard's many searches. These accounts described searches along the Santee River in 1935 and along the Chipola and Apalachicola River systems in the 1950s. Stoddard also briefly mentions searches in Florida, Georgia, and Texas during his adult life, but what he saw is largely a mystery. These were not random adventures; they were purposeful endeavors that Stoddard undertook when he received a promising sighting or when he had a brief, tantalizing look at a large black-and-white woodpecker. Then there are the three Ivory-bills that Stoddard mentions seeing in "the last fifteen years" in his autobiography. Archives and interviews with those working with Stoddard at the time have put more meat on the skeletal fragments he left behind and reaffirm Stoddard's tremendous importance to the new conservation ethos emerging in North America.

Sprunt, Storms, and the Santee River

One of the people who searched regularly for Ivory-bills with Stoddard was Alexander Sprunt, a leading figure in the fledgling National Audubon Society and one of Stoddard's closest ornithological colleagues. Much like Stoddard, Sprunt never prospered in academics, but he was a prolific writer and consummate naturalist. In 1928, an Ivory-bill was reported at Wakulla Beach after a hurricane had struck and killed hundreds of trees. Stoddard and Sprunt searched the area in vain for one day, but Stoddard found evidence of the peculiar bark stripping Ivory-bills were known to perform.

–Ivory-billed woodpeckter continued on p. 40

"I did see many trees almost stripped of bark that I feel quite sure was ivory-bill work," Stoddard noted, "as I had seen the birds previously in my boyhood where they had almost completely de-barked dying pine timber." Stoddard described the torn bark as being similar to what "…a man might leave who knocked off the bark with a cross hatching motion with a heavy screwdriver...." The process was thought to yield a trove of beetles and their larvae just beneath the bark.

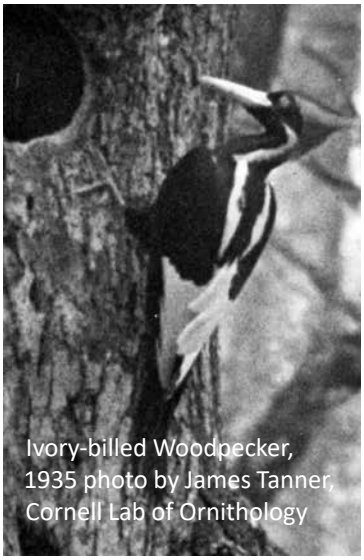
In the mid-1930s Stoddard and Sprunt participated in a large-scale search for Ivory-bills along the Santee River in South Carolina. George Malamphy, a turkey biologist working in the area, had contacted Stoddard and Sprunt with the remarkable news that he had seen both Ivory-billed Woodpeckers and Carolina Parakeets. The Ivory-bill had not been seen in South Carolina in many years, while the Carolina Parakeet was long presumed to be extinct.

Sprunt had questions about the sighting, but Stoddard was keenly interested in conducting follow-up work. The two visited the Santee River in March 1935 and proceeded to travel with Malamphy from the mouth of the Santee to the area where Malamphy had seen the birds. Sightings of the birds eluded them, but both Stoddard and Sprunt thought the area contained excellent habitat and were excited about the possibilities. The Santee is one of the largest rivers on the east coast and included during the 1930s some of the largest expanses of old-growth bottomland hardwood forest remaining in the southeastern United States. Sprunt returned to the river in May and saw a male Ivory-bill in flight and then heard the birds on the following day. The rare discovery led to the establishment of the Santee Sanctuary in 1936, a National Audubon Sanctuary with two wardens in place to protect the Ivory-bills from over-zealous collectors and other threats

Ivory-bills were seen in the sanctuary with some regularity for two additional years. Stoddard was fascinated with the reports and, in his words, took "….every opportunity to go into the Santee Swamp with Sprunt as I am intensely interested in [this] whole matter. But have been very careful to keep the matter quiet, and prevent knowledge of the situation there from spreading."

Sightings of the Ivory-bills in the area began to decline around 1937. Efforts to locate a nest also had not met with success and led Stoddard to the conclusion that the Ivory-bills that had been encountered along the Santee were "wandering birds" and thus not permanent residents of the area, a recurring theme in the search for Ivory-bills. The Santee Sanctuary was officially closed in April 1938, but people can still experience a sense of primeval conditions present in Stoddard's day by visiting the old-growth forest that has been protected along the Santee through the creation of Congaree National Park.

A Nest, a Student, and Flickers of Hope


Ivory-billed Woodpecker, 1935 photo by James Tanner, Cornell Lab of Ornithology

A few years later in 1932, Ivory-bills were sighted in the Singer Tract in eastern Louisiana. Follow-up surveys by Arthur Allen, founder of the Cornell Lab of Ornithology, and a 21-year-old graduate student named James Tanner led to the discovery of a nest in 1935 that held out hope for recovering the lost spirit of southern wilderness.

Tanner initiated a doctoral study that included intensive monitoring of the Ivory-bills on the Singer Tract as well as extensive surveys elsewhere in the southeast. Tanner and Allen visited Stoddard during some of the initial forays into the southeast and recognized the importance of the information he had amassed. Tanner wrote Stoddard, before beginning his doctoral research, in 1936 asking… "Have you heard of any recent reports of the birds, and do you know of any places that would bear investigation? … Professor Allen and I will both be glad to hear from you about this."

Stoddard was excited about the project and responded quickly. "I cannot imagine a more fascinating assignment," he said. He recommended surveys along the Altamaha River in Georgia, the Savannah River in South Carolina, and the Wacissa River and the Wakulla Beach in Florida. Stoddard also noted several additional areas that seemed promising. "In order of importance in my mind," he wrote, "I would place the rest of the Santee, the Savannah… most of the Altamaha…the section around the boarders of the Okefenokee Swam[p]… the whole Gulf Hammock section of Florida (I do not know the best locations to try in south Florida) from about Apalachicola to Cedar Keys, and probably further, and

Click here to view a video of a male and female Ivory-billed Woodpecker at their nest cavity, taken by Arthur Allen in 1935, at the Singer Tract in Louisiana. Arthur A. Allen/ Macaulay Library at the Cornell Lab of Ornithology.

Apalachicola River. Photo by Fredrik Bryntesson

probably some of the wilder swamps of Alabama and western Florida." In Stoddard's view, these were some of best southern wilderness landscapes where Ivory-bills might be holding on, but he also knew a comprehensive search would be nearly impossible.

"The area where they may possibly occur at present in the Southeast is simply tremendous, not restricted as many believe…," he wrote. "I can best answer your question of possibilities by stating that if I had the rest of my life for the purpose, I doubt that I could cover *adequately* a half [of] the ground I now think worth investigating."

In reference to his Santee experience, Stoddard recounted, "I have in mind five days I have spent personally looking especially for these birds with such men as Robert Allen and Alexander Sprunt on an area of some ten thousand acres known to be frequented by several pairs of these birds, without seeing one," he added, "Of course this was due to the element of luck, as others have gone in the same area for a few hours and seen one or two. But it indicates the time one would have to spend in these great river valleys to really be reasonably sure that the birds were absent, or even extremely rare therein."

Tanner visited Stoddard several times and regularly corresponded with him. Stoddard suggested field methods that involved locating the best surviving hardwood forests along rivers but also consulting with local foresters. He suggested to "question timber estimators, and especially reliable hardwood cruisers… as to the present status of the virgin and other big timber left. Then investigate these areas on the basis of ecological conditions, nearby populations, inaccessibility, and local information obtainable. I will be tremendously surprised if there are not a few scattered birds in areas of big timber along most of these River Swamps and more isolated hammocks."

Stoddard hoped to visit Tanner in the Singer Tract to see "the big timber and the Ivory Williams (a nickname Stoddard sometimes used for Ivory-bills)." He even successfully applied for a permit to visit the area in 1939. However, on both occasions he was unable to make the trip due to his busy schedule. Protection of the Singer Tract was a top priority, but logging rights had already been sold to the Chicago Mill and Lumber Company. A valiant campaign was launched by National Audubon that raised $200,000 to purchase the timber rights back, but the company refused the offer and proceeded with plans. A lone female was seen on the tract in 1944 that served as the last universally accepted report, with suggestive but unconfirmed reports continuing for only a few years thereafter.

–Ivory-billed woodpeckter continued on p. 42

Chipola River Wildlife Sanctuary Area. Photo by Fredrik Bryntesson

Another Encounter, Another Sanctuary

Some of the most thorough descriptions of Stoddard's involvement in searches for the Ivory-Williams comes from work on the Chipola and Apalachicola Rivers in the early 1950s. Much like the Santee River in South Carolina, the Apalachicola/Chipola river systems represented one of the largest unmarred river systems left in the southeastern United States at the time as well as some of the highest biological diversity hotspots found in North America.

Indirect evidence dating back to the 1930s suggested the Apalachicola River might support a few individuals, but a new lead emerged in 1950 when Ivory-bill searcher Whitney Eastman reported that Ivory-bills had been seen near Scotts Ferry on the nearby Chipola River. The area was searched by others over the next couple of years and evidence was amassed that ranged from brief glimpses to more detailed descriptions of the birds. The observations included sightings of a pair of adults, which provided new hope that a nest might eventually be found. Accordingly, a very optimistic National Audubon Society established the Chipola River Wildlife Sanctuary in October 1950.

However, the excitement soon gave way to doubt. A team formed by James Tanner and Robert Porter Allen investigated the sanctuary and nearby areas along the Apalachicola in December 1950 and found meager evidence at best of Ivory-billed Woodpecker use of the area and none to suggest birds were resident or nesting there. National Audubon organized a follow up survey that included Stoddard and others, but this effort yielded similarly desultory results. Stoddard was not surprised because he firmly believed that although Ivory-bills had been observed in the area, one had to be lucky in order to see the birds. He urged leaders at National Audubon to continue to support the sanctuary until more thorough searches could be conducted. He even offered to conduct this follow-up search free of charge "…. due to my intense interest in the matter and sincere desire to cooperate with all concerned…."

National Audubon agreed and Stoddard and Neel visited the area regularly during the spring and summer of 1951. They covered the sanctuary thoroughly as well as regions along the Apalachicola River. They searched quietly by canoe and on foot, and they split up regularly to increase coverage. Neel thought he heard an Ivory-bill while Stoddard logged one possible sighting. However, Stoddard could not accept either record as definitive. The pair was, however, treated with the rare sighting of a Bachman's Warbler on March 31, 1951, a species that is now thought to be extinct.

Stoddard also surveyed the area from an airplane and was impressed with the habitat he saw. He purchased aerial maps and used these a starting point for examining new areas along the Apalachicola. However, none of the searches yielded positive sightings, nor evidence that the birds used the area on a frequent basis, and the sanctuary soon closed. Stoddard was convinced that Ivory-bills had been present. He suspected that the birds relied more

Map of Ivory-bill Woodpecker sightings by Herbert Stoddard and others. Map by Fredrik Bryntesson

heavily on forests along the Apalachicola and only visited the sanctuary from time to time.

A Trio of Final Encounters

Herbert Stoddard chased Ivory-bills reports relentlessly throughout his professional career, but, as of the late 1940s, he still had not seen an Ivory-billed Woodpecker since his youth. As he told a colleague, "I knew the bird well before 1900 in the Fort Christmas area of Florida, but have not had a good look at one in fifty years. Have followed up on many reports in this section, especially soon after I got here in 1924, but they all proved to be duds."

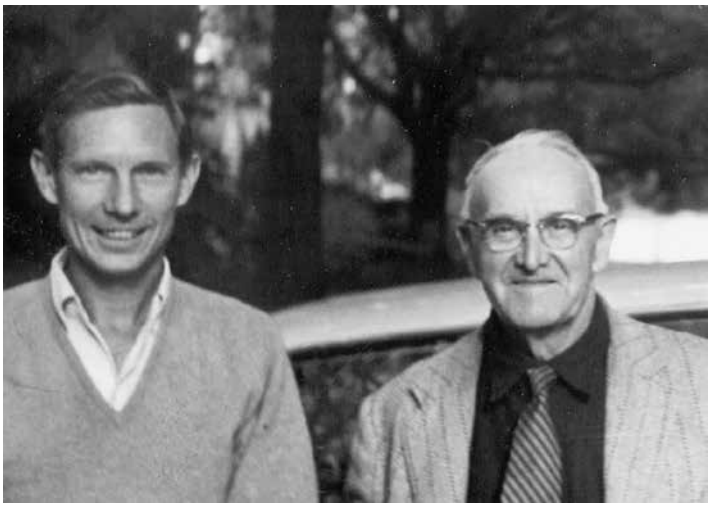
Stoddard finally recorded three Ivory-bills in the early 1950s—all in Georgia. The first encounter occurred in 1951, when he spied two female Ivory-billed Woodpeckers along Ward's Creek just south of Thomasville. Two years later, he observed a lone Ivory-bill from an airplane passing over the Altamaha River, close to Mount Pleasant. The tell-tale line of black separating white borders serving to distinguish the bird from the Pileated Woodpecker. Ironically, these sightings were chance encounters that took place when he was not out in the field specifically looking for the birds.

Stoddard never published these sightings nor mentioned them to some of his closest colleagues, but Leon Neel was working closely with Stoddard at the time and provided some of the missing details.

"He saw two females over in Ward's Creek swamp on the Greenwood property known as Mitchell-Swift place," Neel noted. "I was not with him that day. He went into that swamp, and there was a pine island that had spruce pine on it, big sawtimber-sized spruce pine."

"Somehow a bug kill had gotten started in there, and most of the trees were dead. Mr. Stoddard went to mark

–Ivory-billed woodpeckter continued on p. 44



Leon Neel and Herbert Stoddard. Tall Timbers Archives

that bug kill to salvage the timber. Regrettably, he had sent me somewhere else that day."

"I got home late in the afternoon, and he immediately came over and told me he had seen two Ivory-billed Woodpeckers. He was marking in that bug kill, which covered a couple of acres, and he heard them coming. They came in and lit on a couple of trees, and he thought that they were going to feed on the bug kill, but they stayed around just a little bit and then took off to the north."

Stoddard and Neel spent a good part of the next year in that swamp with fingers crossed for another glimpse. They went before daylight, hoping the hear birds when they came out of a roost hole. They often stayed until dark, but they never saw another sign of them.

"He swore me to secrecy," Neel says. "He would not tell a soul, because he said, 'if I tell anybody, that swamp's going to be overrun with bird watchers looking for the ivorybill, and they will destroy it.'"

Authors (l-r) Fredrik Bryntesson, and William "Chuck" Hunter at the County Record Office in Blountstown, FL doing research on sightings of the Ivory-billed Woodpecker. Photo by Robert Turner

Stoddard did write up personal field notes for the sighting along the Altamaha River on June 5, 1953. The archival notes say the plane had been flying above the clouds, but, in an effort to avoid a storm, the pilot took an alternate route which took the plane below the clouds.

Just as they passed over the Altamaha River Swamp, Stoddard writes that "I was all eyes as I saw we were over the River Swamp and the hardwood forest seemed a fine one and very wide."

"While looking directly down on the tree tops, I was for a moment struck speechless by the sight of an Ivory-billed Woodpecker taking off from the top of a huge dead hardwood because of the low flying plane. For a fraction of a moment I had a perfect view of the wholly white lower back area of the bird as it flew above the dark foliage not 300 feet below. Before I could call my companions attention to the bird, we were past and the bird in the foliage… The bird was seen on the north side of the river, and fully a half mile from it not far from the middle of the swamp."

A few years later, Stoddard received a letter from a young man who wanted to search for Ivory-bills. The man wrote that he had: "heard of an amateur ornithologist from Georgia who claimed to have seen Ivory-bills from an airplane, three years in a row; but he apparently would not tell no one of their whereabouts."

Stoddard "got a good belly laugh" from the letter and replied, "To show how very badly things are distorted, or exaggerated in passing from person to person, [I] will cite one instance. I know very well the ornithologist you refer to that is supposed to have 'claimed to have seen three Ivory-bills from an aero plane, three years in a row'. Also this man is 'supposed to be an amateur with a good reputation' when as a matter of fact he is a professional of over fifty years experience as such, and he saw only *one* bird on *one* occasion under very unusual circumstances. But he made the mistake of telling *one* good friend in *strictest confidence* of the fact. He knows the Ivory-bill as well as friend Peterson knows a Robin, and I know he is sorry to have mislead anybody if such is the case."

Epilogue

Stoddard is well known throughout the Red Hills region for his stellar work on gamebird management, fire ecology, and forest management. While these all were

Wacissa River, Jefferson County, Florida. Photo by Fredrik Bryntesson

important locally, he was also one of the most influential ornithologists working in North America during the 20th century and a pioneering conservationist. He played on a much larger stage than most of us realize, and his accomplishments came without stepping into a formal classroom after he completed the eighth grade. Stoddard grew up in an era when care and conservation of natural resources were rare to nonexistent and wildlife management meant little more than establishing bag limits and seasons for harvest. The importance of habitat would not emerge until half way through his career, and in this darkness many species became extinct. Stoddard always held out hope and devoted much of his time gathering information that—in the right hands—could help to avert the losses. He also worked to conserve habitat, especially old-growth forests, throughout the southeast and obviously had grave concerns about a world with diminished diversity. It's an astounding legacy that seems to be as little known at times as his searching for Ivory Williams.

About the Authors – Fredrik Bryntesson is an Associate Professor of Biology at Bryn Athyn College in Pennsylvania; Chuck Hunter is Chief, Division of Strategic Resource Management and a Regional Refuge Biologist with the National Wildlife Refuge System, U.S. Fish and Wildlife Service; and Jim Cox is the director of the Stoddard Bird Lab at Tall Timbers.

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

In Stoddard's Foot Steps: A New Fire Landscape

The Red Hills is a 100-year "experiment", begun by Herbert Stoddard and concerned landowners, to manage a landscape using frequently-applied prescribed fire at ecologically appropriate seasons and scales. Compared to other parts of the southeast or U.S., the contrasts are striking. It is so obvious to those of us lucky enough to live in the Red Hills with no wildfire threats, high biodiversity, and healthy ecosystems. Likewise, Georgia, Florida, and Alabama burn their publicly-owned lands frequently (relative to other states); and they deserve major kudos for their efforts over the past 15 years to increase fire use in the face of many threats. That said, I was recently struck with statistics on the relatively flat number of certified burners in Florida and Georgia, despite a burgeoning population. Given the emphasis on public land burning, it appears on the surface that the number of private landowners becoming certified is likely declining. This is not too surprising as we have skipped a generation or two where fire use was prevalent.

Why do we care? Land stewardship. Keeping ecosystems functional and diverse in our region requires frequent prescribed fire. New research at Tall Timbers indicates that even some fire helps sustain significant biodiversity. In addition, while the Red Hills is a large landscape, we are connected to other landscapes and share pests, pathogens, species, water and much more. Imagine if Stoddard and the Red Hills' landowners ignored the problem of declining bobwhite in the region and did not spend decades promoting prescribed burning?

We are among many other individuals and groups that understand the problem. So what are we doing about it? Tall Timbers has created a position to help play a bigger role in a regional movement to increase landowner training and encourage prescribed fire on private lands surrounding the Red Hills — a region we call the Longleaf Legacy Landscape. Partnering with state forestry agencies in Florida, Georgia, and Alabama, other burn teams, private landowners, and several NGOs, this program will help landowners not familiar with setting prescribed fires get the necessary training, and burning, done on their lands.

A key objective is to encourage landowners not familiar with fire to start using it to benefit their lands. Private landowners who are not used to fire may have inherited stands of pine that have not been burned for a decade. Setting a match is often a scary notion for the novice burner let alone in a situation with heavy fuel loads. By offering burning expertise to landowners who need help with the first "re-entry" burn, we hope to set the stage for continued fire use. And, by using these burns as demonstrations to inexperienced landowners, our goal is to encourage a fire culture across the Longleaf Legacy Landscape. No small task, but it has to start somewhere.

I predict the Red Hills "experiment" will continue for another 100 years, and will continue to highlight the many benefits of frequent fire. During the next century, will the Longleaf Legacy Landscape continue to lose species and hunting opportunities due to the lack of fire, or can we make a difference? We hope in that time, our collaborative efforts will assist landowners to become torch-bearers themselves and pass on a more diverse and healthy landscape to the next generation. Like Stoddard did 100 years before us, we are starting a new experiment in a new landscape, one that surrounds the Greater Red Hills.

– BILL PALMER