

TREE BY TREE: DESTRUCTION, DEVELOPMENT, AND DISCOURSE IN THE
SOUTHERN LONGLEAF FORESTS

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ABSTRACT

Robert Paine Shapard: Tree by Tree: Destruction, Development, and Discourse in the Southern Longleaf Forests
(Under the direction of W. Fitzhugh Brundage)

This dissertation, “Tree by Tree: Destruction, Development, and Discourse in the Southern Longleaf Forests,” is an environmental history that examines the near destruction of the once-vast longleaf pine forests across the American South, particularly during the intensive timbering of longleaf between 1880 and the 1920s. We understand more about critical chapters of the South’s past such as staple-crop agriculture, the rise of Jim Crow laws and traditions, and the growth of towns and cities, than about the historical abundance of longleaf and the relentless clearing of these forests by the early twentieth century. The same is true for longleaf in comparison to other large-scale environmental changes in the South, such as the engineering of rivers. In contrast to many histories of the New South, this dissertation treats longleaf forests as essential in the historical action. In doing so, the project reveals human perspectives, desires, choices, and actions that enabled the clearing of longleaf from more than 95 percent of its historical range between southeastern Virginia and east Texas.

The project focuses on intersections between longleaf and landowners and community leaders in North Carolina, lumbermen in Louisiana, federal foresters in Florida, and Charles Mohr, Roland Harper, William W. Ashe, and Herbert L. Stoddard as representative figures working in natural sciences in the longleaf region. These figures questioned the prevailing impulse to use old-growth longleaf with no regard for a future growth, and others in the South and observers from outside the region also at times decried the damage to longleaf forests by

timbermen and turpentine operators. However, they did not make a sustained, broad, and effective critique of the clearing of longleaf, and the history of interventions in this clearing through the 1920s is a history both of deep concern for the natural environment and innovative thinking, but also limited commitment and imagination. In concluding, the project examines how longleaf advocates today are employing the history of longleaf in their ambitious efforts to restore portions of the longleaf ecosystem.

To Sarah, Ella, and Samantha:
For your love, faith, encouragement, patience,
And your precious ability to make me laugh.

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Finally, to fellow dissertation-writers who stumble across this page, if you tend to be an introvert, remember to talk to people regularly about your project from the beginning. I wish I had done so more frequently. But once I started telling friends and colleagues about my project more often, I was reminded on many occasions how these conversations can clarify your thinking and refill your tank with new ideas and inspiration. Benefit from the feedback of all the smart and thoughtful people around you. Tell them about your ideas and arguments, research hurdles, writing obstacles and doubts, and be open to new perspectives.

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LIST OF ABBREVIATIONS

LCLC	Louisiana Central Lumber Co.
MLM	Missouri Lumber and Mining Co.
TIMOs	timber investment management organizations
REITs	real-estate investment trusts

INTRODUCTION: PINES, PROGRESS, AND PROFIT IN THE LONGLEAF SOUTH

As physician Robert J. Massey rattled by train through the longleaf region of his native state of Georgia in September 1885, he was pleased to see a transformation underway, from a “wilderness of pines” to a region where a higher standard of economic and cultural life was possible. The diligence of inhabitants in timbering the pine forests, farming the land, and building homes and communities was turning a part of the south Georgia landscape of “pine trees, wire-grass, rude tents, cow paths and deer-trails” into one of “fields, farms, cottages, refinement, civilization, plenty, thrift, [and] commerce,” Massey cheered. True, the old-growth pine forests once formed a beautiful surrounding, but the benefits from cutting the forests and developing the region were more impressive to Massey, and he wanted other Georgians to embrace such progress.¹

Massey had in mind a particular stretch of pine-rich south Georgia that he had just traversed between the port city of Brunswick and the town of Eastman, on his trip home to the Atlanta area. But using the language of southern promoters who coalesced in the 1880s around the notion of creating a New South, he clearly hoped for similar changes elsewhere in the longleaf forests. Building the New South in the longleaf region meant in part trying to replicate, many times over, the pine-timbering and other activities that Massey lauded.²

¹ “The hand of man – R.J.M. discusses the past and present of the pine belt of Georgia, and the changes made by man,” Brunswick (Ga.) *Advertiser and Appeal*, Sept. 26, 1885. This article was attributed to “R.J.M.,” and it is clear to me that Dr. Robert Jehu Massey was the author, for several reasons. For example, this piece was posted from Douglasville, Ga., where Massey lived part of the year, and other editions of the *Advertiser and Appeal* listed Dr. R.J. Massey as editor for local news from St. Simons.

² Edward L. Ayers, *The Promise of the New South: Life After Reconstruction* (New York: Oxford University Press, 1992), 20.

Massey's reflections in 1885 came when the large-scale cutting of longleaf was just gaining momentum in Georgia and neighboring Deep South states, and his views on the state of things evoked many of the historical developments and themes in this dissertation. For one, he described a small piece of the overall transformation that this dissertation addresses as an historical problem, namely the fact that such an extensive component of the South's natural environment that evolved over millennia was nearly destroyed in a relatively short time. Massey also touched on the great abundance of longleaf that remained after Reconstruction, and then the growing investment by the mid-1880s in logging the longleaf forests in an increasingly industrial manner. Massey made clear in his account that human agency was the key force in transforming the longleaf region. Indeed, he praises that agency. While Massey briefly played the role of someone who regretted the clearing of the forests, his larger aim was to show why the drive for economic benefits was more important. In some ways, he suggested these benefits spoke for themselves, making it incontrovertible that cutting intensively was the right choice. Finally, he demonstrated a superficial understanding of forests that was more a postcard view than a complex, three-dimensional perspective.

Massey, born in 1828, grew up and trained as a doctor in the Georgia piedmont, and ran a Confederate hospital during the Civil War. He and his wife, Sarah, and family lived in the Atlanta area after the war and also spent time on St. Simons, the barrier island near Brunswick that entrepreneurs began to develop as a resort in the 1870s. Massey was a regular chronicler of Georgia history and current events, and he contrasted the milieu around Eastman in September 1885 with his memories from a visit to the same area in 1858.³

³ "Dr. Robert Massey dies at sanitarium – was pioneer Atlanta citizen and one of Georgia's best loved men," *Atlanta Constitution*, Mar. 19, 1915; Lee Kennett, *Marching Through Georgia: The Story of Soldiers and Civilians During Sherman's Campaign* (New York: Perennial, 1995), 116 and 257-60; Massey, "Hand of Man." Massey wrote

Massey recalled a scattering of rough, pine-log huts and very little else on the landscape in 1858. Eastman did not yet exist, and the seemingly endless pine forests were the only feature that gave Massey any positive feeling for the place. Longleaf was by far the dominant pine species there, although Massey did not specify the species. “On every side, far beyond the range of vision, was a continued pine land carpeted with green spread out in panoramic beauty, [with] grove after grove of majestic trees of fleecy foliage,” he remembered. Massey portrayed the old-growth pines as glorious, pristine, primeval, and mysterious, and as “wrapping mother earth in their solemn shadows.” In this portrayal of “Nature,” the longleaf forests provided a large-scaled, pleasing, and somewhat enigmatic backdrop, but they were not living forests with many complexities and variations.⁴

Massey professed to “love trees” as he described the clearcutting that preceded his 1885 trip. “An invasion of a terrible army of axemen, like so many huge locusts, has swept over the whole face of the land, leaving naught of former native grandeur but treeless stumps,” he reported. Nature had quietly perfected these forests for ages in the “secret recesses of her laboratory,” only for timbermen to destroy them. But Massey’s expressed love for the longleaf forests did not run very deep. He conflated their destruction with the earlier histories of settlers forcing Indians from the land, and the early settlers – the “piney woods cracker” – passing from

regularly for newspapers and other publications, and published pieces such as “Twenty events place Georgia in van of American History,” *The Sunny South* (Atlanta), Oct. 12, 1901.

⁴ Massey, “Hand of Man.” In Massey’s depiction of “nature,” I see slight traces of the romantic “sublime,” in that he gave the longleaf forests certain epic and mysterious qualities. But his view perhaps could be called quasi-romantic, or a secular sense of the sublime, or the “domesticated sublime,” a term from William Cronon, in that the erstwhile longleaf forests did not evoke emotions such as fear for Massey, nor did he claim to experience God in passing through them. The vast forests were impressive, but not scary or imbued with spirituality. See William Cronon, “The Trouble with Wilderness, or Getting Back to the Wrong Nature,” reprinted in Louis S. Warren, ed., *American Environmental History* (Malden, MA: Blackwell Publishing, 2003), 213-220; and Massey used the term “Georgia yellow pine,” which often meant longleaf pine, although loblolly, shortleaf, and slash pine sometimes were included as yellow pine or southern yellow pine; see Kim D. Coder, “*Pinus palustris*-longleaf pine,” Warnell School of Forestry and Natural Resources, University of Georgia, July 2011, accessed Sept. 10, 2011, https://www.warnell.uga.edu/sites/default/files/publications/Pinus%20palustris%20longleaf_0.pdf.

the scene as well. While it was somewhat sad the pines were gone, only someone with “Indian blood” would grieve for long over the timbering of such forests, Massey suggested.⁵

Massey turned to highlighting the thousands of workers cutting trees and operating mills for manufacturers like Norman Dodge and Titus G. Meigs of New York, who were shipping copious lumber of the “finest Georgia yellow pine” from the mill they built on St. Simons Island in the 1870s. In and around Eastman, the tilled fields, homes, churches, and Uplands Hotel made the area a “highly improved country,” Massey touted, while the East Tennessee, Virginia and Georgia Railroad thrived as well. All these economic and cultural advances outweighed the natural charms of the erstwhile longleaf forests.⁶

Massey of course had no power, nor desire, to reverse these changes, but his conclusions were just one alternative. The clearcutting’s effect on the landscape was not lost on him, and he might have argued instead that timbering longleaf so intensively was short-sighted, and that developing other approaches to extracting economic value from the remaining longleaf in Georgia and the South was a wiser course. This moment in 1885 still was early in the most intensive period of the longleaf timbering on millions of acres across the southern coastal plains. But Massey made the same calculation made by most people engaged in some way in the affairs of the South: People did often take pleasure in the pine forests in seeing or passing through them, or hearing the particular roar of wind through the pinetops. But it was most essential to use longleaf intensively for making lumber and naval stores, especially turpentine, and creating jobs,

⁵ Massey, “Hand of Man.” Key figures in turning the pines in the Eastman area into lumber were William P. Eastman of New Hampshire, and William E. Dodge of New York, who came to the area at different times in the late 1860s. The town was named for Eastman, an agent for the Georgia Land and Lumber Company, while the county was named for lumberman Dodge; see William J. Steele, “Eastman,” *New Georgia Encyclopedia*, accessed Nov. 22, 2016, <http://www.georgiaencyclopedia.org/articles/counties-cities-neighborhoods/eastman>.

⁶ Massey, “Hand of Man”; and Mary D. Koon, “St. Simons Island,” *New Georgia Encyclopedia*, accessed Oct. 16, 2016, <http://www.georgiaencyclopedia.org/articles/geography-environment/st-simons-island>.

extra cash for smaller farmers or significant wealth for some individuals and corporations, building communities, and advancing the South economically. However, Massey's calculation was problematic, since he ignored the intense conflict over land titles that developed in this part of south Georgia for several preceding years, especially as lumbermen moved to consolidate forested lands, and the ongoing racial conflict there as well. Many people, such as landless tenant farmers, were not sharing in the region's progress that he described. In this sense, he gave a distorted and incomplete picture of the benefits. So did many others during the most intensive cutting of longleaf.

And there was a lot to cut, considering that the pre-colonial range of the longleaf forests once extended across some ninety million acres between southeastern Virginia and east Texas. Longleaf was the dominant tree on about sixty million acres of the range, while it grew in mixed forests with other pines and hardwood species in the transition between coastal plain and piedmont, across perhaps another thirty million acres. The longleaf forests, in combination with the other southern pines, once formed "one of the richest reservoirs of softwoods on the earth's surface," observed William B. Greeley, U.S. Forest Service chief in the early twentieth century.⁷

By one estimate, old-growth longleaf across the full range once contained enough wood to make a staggering 400 billion board feet of lumber – out of perhaps 5.2 trillion board feet in all the old-growth forests within the future United States. For perspective, consider that one company was turning out about 120 million board feet of lumber per year at its mill in Fullerton,

⁷ William B. Greeley, "The Relation of Geography to Timber Supply," *Economic Geography* 1, no. 1 (March 1925): 6. At this stage in this project, I use the general term "longleaf forests" most frequently, although I recognize this term does not capture the complexity of forms within the longleaf ecosystem, such as longleaf savannas and areas with more dense stands. "Longleaf pine woodlands" sometimes is used as a general term, while the larger ecosystem at times is called the longleaf biome, the longleaf pine ecoregion, or the longleaf pine and grassland forest. In addition, features within the longleaf ecosystem such as sandhills and the flat coastal plains can be described as distinct ecoregions. See Robert K. Peet, "Ecological Classification of Longleaf Pine Woodlands," in Shibu Jose, Eric J. Jokela, and Deborah L. Miller, eds., *The Longleaf Pine Ecosystem: Ecology, Silviculture, and Restoration* (New York: Springer, 2006), 51-93.

Louisiana, in the early 1900s. The Fullerton mill was making the most pine lumber west of the Mississippi by the 1920s. At that rate, the mill would have needed more than 3,000 years to produce 400 billion board feet of longleaf lumber. Even with five mills with Fullerton's capacity running ceaselessly in each of the nine longleaf states, sawing all that old-growth longleaf would have taken about seventy-five years. Lumber manufacturers turned longleaf into products ranging from heavy timbers to railroad crossties. But if we imagine that all the old-growth longleaf lumber were used to build houses of 1,000 square feet, a reasonable estimate is that there was enough for more than 133 million houses. Or if all the longleaf lumber were formed into a single sheet of wood, one inch thick, the sheet would cover nearly nine million acres, or about ten percent of the land within the historical range of longleaf.⁸

However, longleaf trees did not grow on every one of the tens of millions of acres within the historical range to form an unbroken forest. Savannas with widely spaced longleaf trees were interspersed with denser longleaf stands, and with features that had no longleaf, such as creeks, major rivers, bottomlands, wetlands, and prairies. For instance, before European colonization, a person crossing the coastal plain in what became Georgia did not pass beneath a seamless canopy of old-growth longleaf crowns from the Savannah River to the Chattahoochee. The Creeks, Oconeas, and other Native Americans continued to shape landscapes with their settlements, crop fields, and paths. The traveler did encounter extensive areas of longleaf, within

⁸ A board foot is a piece of wood twelve inches by twelve inches, and one inch thick; estimate of 400 billion board feet from Thomas C. Croker, "The Longleaf Pine Story," *Journal of Forest History* 23, no. 1 (January 1979): 34; data on Gulf Lumber mill in Fullerton, LA, in Anna C. Burns, *Fullerton: The Mill, the Town, the People, 1907-1927* (Alexandria, LA: n.p., 1970): 1-3; estimate of 5.2 trillion b.f. from Greeley, "Relation of Geography to Timber Supply," 5 (Fig. 4 caption). Greeley also estimated the "virgin pineries of the south" had extended over 130 million acres and contained about 650 billion board feet of wood, so this estimate must have included longleaf pine but also loblolly, shortleaf, and slash pine. The estimate of 133 million houses assumes using 3,000 board feet of lumber for a house of 1,000 square feet, see U.S. Forest Service, "Calculating Board Footage in a Tree," accessed April 17, 2016, http://www.na.fs.fed.us/spfo/pubs/uf/lab_exercises/calc_board_footage.htm. The calculation for one sheet of wood includes figuring that a board foot is one square foot, and an acre is 43,560 square feet.

the grassy savannas and the more dense stands, but she also had to scout for ways to cross large and small streams, and to navigate wetlands thick with cypress, sweetgum, red bay, black willow, and other hardwoods thriving in swampy environments.

Scholars have detailed how clearing forests was an important and positive step for the advance of “civilization” in the view of the first European colonists in North America, and for many generations to follow. When they were in the way of the pursuit of agriculture, forests were more a hindrance than a resource. But forests often were a valuable resource as well, in that making lumber was central to building the nation, both literally and figuratively, and to advancing the country’s standards of living. For many people operating from these perspectives, Americans in effect were obligated to clear forests.⁹

In the longleaf region, as colonists came in increasing numbers, the longleaf forests directly influenced the colonization and growth of the region in several ways. For one, they often indicated the sandier, less fertile soils that settlers bypassed in search of richer soils in stream bottomlands and in the piedmont. Meanwhile, for those who did settle within the longleaf region, the forests were valuable as a storehouse of wood for basic needs like fires and buildings, as habitat in which to hunt game and let hogs free-range, and increasingly for producing naval stores and lumber as market products.

In areas where they could drag logs fairly easily to waterways and send them downstream, Americans cut a significant amount of longleaf before and after the Civil War. Free and enslaved men also cut into millions of trees to make turpentine. But a high percentage of the

⁹ Robert B. Outland, *Tapping the Pines: The Naval Stores Industry in the American South* (Baton Rouge: Louisiana State University Press, 2004), 208-10; Michael Williams, *Americans and their Forests* (Cambridge: Cambridge University Press, 1989), 3-21; Eric Rutkow, *American Canopy: Trees, Forests, and the Making of a Nation* (New York: Scribner, 2012), 7-9 and 11-23; and Robert Pogue Harrison, *Forests: The Shadow of Civilization* (Chicago: University of Chicago Press, 1992), ix-xi and 18.

old-growth longleaf remained through Reconstruction. Before then, the timbering of old-growth American forests on a significant scale was centered in New England in the early 1800s, and in the Great Lakes region by the 1860s. The next major shift in the migration of timbering was to the southern pine forests in the 1880s.¹⁰

Turpentine crews still were extracting sticky resin from perhaps millions of longleaf trees at that point, but the intensity of timbering grew steadily, cutting perhaps half or more of the old-growth longleaf acreage by 1900 and establishing the longleaf forests as the leading source of trees for the U.S. lumber industry in the first decade of the new century. The marketability of this lumber helped to drive the trend, since longleaf trunks tended to be straighter with fewer knots than other pines, the lumber often had an attractive grain, and generally was stronger and more resistant to rot, or “exceedingly hard for pine, very strong, tough, compact, [and] durable,” in the words of one lumber-industry editor. In addition, railroad and lumber companies had acquired millions of acres in the South forested with longleaf and other valuable trees, through grants and sales of public lands by the federal and state governments in the last quarter of the nineteenth century. For example, between 1880 and 1888, just 159 buyers managed to acquire about 3.7 million acres of forest lands from the federal government in Florida, Alabama, Mississippi, Louisiana, and Arkansas. In 1882, a northern company’s agent, in search of opportunities for acquiring longleaf in Florida, notified his bosses that “the woods are full of Michigan men” on the same mission.¹¹

¹⁰ James Lewis, *The Forest Service and the Greatest Good: A Centennial History* (Durham, NC: Forest History Society, 2005), 7.

¹¹ Bill Finch, Beth Maynor Young, Rhett Johnson, and John C. Hall, *Longleaf, Far as the Eye Can See: A New Vision of North America’s Richest Forest* (Chapel Hill: University of North Carolina Press, 2012), 57; 1880-1888 data from public lands historian Paul Gates cited in Albert G. Way, *Conserving Southern Longleaf: Herbert Stoddard and the Rise of Ecological Land Management* (Athens, Ga.: University of Georgia Press, 2011), 96; quote from timber agent in Florida in Ayers, *Promise of the New South*, 124; description of longleaf lumber from Henry H. Gibson, *American Forest Trees* (Chicago: Hardwood Record, 1913), 44.

Controlling large tracts, lumber capitalists had greater incentive to put money into infrastructure like larger saw mills, new company villages surrounding the mills, and rail lines to haul logs and finished lumber to main lines. To one south Georgia newspaper editor in 1892, it seemed that, only days before, the “magnificent forest of pine timber in Colquitt County was unbroken and the axe of the mill and the turpentine man had never entered its borders.” But now, he observed, the “rattle of turpentine implements and the swish of sawmills are heard throughout the land turning into available wealth the splendid Georgia pine.” The steam technology powering locomotives and sawmills had changed the lumber industry dramatically, and the industry also applied steam power to timber “skidders” in the 1890s. Steam skidders used steel cables to yank the cut logs out of the woods much more rapidly – and dangerously for workers – than could draft animals dragging the logs.¹²

Timbering had reduced the longleaf forests dramatically since the 1890s, and an extensive second growth of longleaf was not taking root naturally, noted northern lumberman and editor Henry H. Gibson in 1913. “They grow slowly at best, and a new forest [of longleaf] could not be produced in less than a hundred years,” Gibson reported to his industry readers. “Both protection and care have been lacking [and] many extensive tracts where longleaf pine once grew in abundance have few young and scarcely any old trees now. As far as can be foreseen, this valuable timber will reach its end when existing stands have been cut.” Over the next few years, as companies continued to cut through longleaf and other southern pines and hardwoods, the depletion of these forests was “running its course in the [South] as it has previously been run in the Lake States and the Alleghenies,” the Forest Service’s Greeley observed in 1925. “The production of southern timber passed its peak in 1916 and the last great

¹² Lawrence S. Earley, *Looking for Longleaf: The Fall and Rise of an American Forest* (Chapel Hill: University of North Carolina Press, 2004), 150; editor of Tifton (GA) *Gazette* quoted in Earley, 138.

migration of American sawmills is under way – across the Great Plains to the virgin forests of the Pacific Coast.” The old-growth redwood, Douglas fir, and ponderosa pine forests in the West were especially alluring. Greeley estimated that, by 1925, about three-fourths of the remaining old-growth forests in the U.S. were west of the Great Plains, and that Pacific Coast forests might contain one trillion board feet.¹³

Lumber companies left the longleaf states to deal with the quandary of what to do with tens of millions of acres of cutover lands. A portion of the lands went into public ownership for unpaid taxes, as some lumber companies essentially abandoned the lands after cutting. Entrepreneurs bought some of the cutover lands at low prices, seeing them as a kind of terrestrial canvas on which they could realize visions of colonies where migrants from outside the South could acquire plots of land and become small truck farmers, raising strawberries or other fruits and vegetables for market. The wood debris left on cutover lands often fueled fires, which could spread to other woods and farm structures. If the owners of cutover longleaf lands wanted to grow pines for pulp and paper manufacturers, they typically replanted the lands with loblolly and slash pine, believed to grow more quickly than longleaf at least in their early years of growth. And loblolly and other species sometimes seeded naturally into cutover lands and formed new forests if conditions were right. In addition, people farmed a portion of the lands where the soils had at least some fertility that they could supplement with fertilizer, while others turned cutover lands into cattle pastures.¹⁴

¹³ Gibson, *American Forest Trees*, 45; and Greeley, “Relation of Geography,” 6 and 9.

¹⁴ For these broad outlines of longleaf history, I rely primarily on Earley, *Looking for Longleaf*, 1-4 and 154-62; Lewis, *Forest Service*, 7; Way, *Conserving Southern Longleaf*, 96-97; and Gerald W. Williams, “Private Property to Public Property: The Beginnings of the National Forests in the South,” paper for American Society for Environmental History meeting, March 2003, 4-5, copy in General History file drawer, National Forests in Florida, U.S. Forest Service, Tallahassee, FL.

We know less about the historical abundance of longleaf forests, and the clearing of the forests from more than 95 percent of their historical range, than many other important chapters of the South's past, such as staple-crop agriculture, the rise of Jim Crow laws and traditions, and the growth of towns and cities. The same is true for longleaf history in comparison to other large-scale environmental changes in the South, such as the engineering of rivers like the Mississippi, Tennessee, Savannah, and many smaller streams. Rather than treat the longleaf region's transformation as inevitable or natural, we should consider the human perspectives, desires, choices, and actions that created the transformation. I focus mainly on points of contact between the longleaf forests and people such as farmers and smaller owners with longleaf stands on their land, officials seeking economic growth for their communities, lumber capitalists cutting on a large scale, and naturalists, botanists, foresters, and researchers engaged with longleaf in significant ways. I consider what these people said and did in relation to the longleaf forests, and whether they questioned the prevailing impulse to use longleaf as intensively as possible.

As a native of Georgia, my only close contact with old-growth longleaf was not in the woods, but in the kitchen of my family's house. Thick, wide pine boards lined the walls of the kitchen. The boards were unpainted so the grain showed, and the wood had taken on an amber hue that helped give the room warmth – along with all the meals and family happenings. The boards were on their third “life,” from forest to church pew to wall panels. My parents salvaged the wooden pews from our church when new pews were installed in the 1960s, and they trimmed and sanded the backs of the pews to make the boards for the kitchen. The old pews were made from “heart pine,” a name commonly used for the dense lumber from old-growth longleaf.

My home county was north of the longleaf region but adjacent to counties like Meriwether and Pike, which biologists and foresters include within the historical range of

longleaf. In other words, longleaf grew in parts of these piedmont counties in the past, but it was not the dominant species. It was an hour's drive south to the Georgia coastal plain, where the longleaf forests once had been truly abundant. Since the 1970s, I passed through this heart of the Georgia longleaf region dozens of times to reach the Georgia coast or Florida, crossing waterways like the Ochopee River and Choctawhatchee Bay, passing wetlands, large expanses of flat cattle pastures and crop fields, and many pine trees. I understand now that, even in the spots where the pines were plentiful and the plant life was most rich, the landscapes that I saw were nearly devoid of the old-growth longleaf that some had claimed a century earlier were practically endless. Like virtually all Americans today, I never experienced a sizable forest of old longleaf.

Many aspects of longleaf history remain understudied, but scholars and other writers certainly have been aware of the history for some time and have examined it to varying degrees. Journalist Lawrence S. Earley published the first in-depth work in 2004, exploring why securing longleaf's survival as a species and a substantial ecosystem has been so difficult. In *Looking for Longleaf: The Fall and Rise of an American Forest*, Earley recognizes the powerful economic drives working against "saving longleaf," including the historical use of old-growth longleaf for making turpentine and lumber, and the choice by many landowners in the twentieth century to re-plant former longleaf lands with loblolly or slash pines for pulp and paper companies. The population growth and drive to develop private property in the South in recent decades has impacted longleaf as well, he points out. In some cases, developing land in the southern coastal plains has meant clearing a second growth of longleaf that took root there earlier in the twentieth century. Paving and building on lands in the region also makes those lands unavailable for potential longleaf restoration in the future. Earley adds that, even with advances in understanding

longleaf science through disciplines like ecology, many questions remain about how the longleaf ecosystem functions and how to restore it.

Earley is right to emphasize economic and scientific factors in explaining longleaf history, but he also suggests a stronger, more widespread level of concern about the destruction of longleaf than I have seen in this history. “Longleaf”s passage from the greatest conifer forest on the continent to a fragment has been long and tortuous – death by a thousand cuts – but it [has] been especially well noticed and well mourned, a subject of scientific and even popular remark for more than 150 years,” Earley contends.¹⁵

I concur that some southerners and observers from outside the region at times fretted over, lamented, or disparaged the damage and destruction of longleaf forests by turpentine and timber operators both before and after the Civil War. At a large gathering of turpentine industry men in Jacksonville, Fla., in 1902, the city’s mayor and the Florida governor first offered welcoming platitudes to their fair city and state, but then sharply chastised the turpentiners for destroying trees in a “most wasteful and reckless manner.” Mayor Duncan Fletcher urged the group to adopt new methods to “preserve” the pines and enable the industry to last beyond just another fifteen years or so – and also so that more trees would be left for timber companies, he added. The mayor and Gov. William S. Jennings rebuked the current timbering in the state’s forests as well, with Jennings charging that both turpentiners and lumbermen were “destroying their source of supply without respect for the sovereign welfare of the state or heed for the morrow. Without a thought, seemingly, for the future, both are moving on, leaving destruction in their path.” But the two Florida politicians also clearly wanted both industries to continue in the state, and they made no argument for exactly how the lumber companies cutting longleaf and

¹⁵ Earley, *Looking for Longleaf*, 4.

other trees should proceed differently. Their criticism was sincere, but had little impact. Nor was it evidence of a sustained, broad critique of the clearing of longleaf forests across the South during the intensive period of 1880 to the 1920s. In broad terms, I see people in the historical record welcoming the benefits from intensive timbering in many cases, and while some offered strident critiques of the damage to longleaf forests on occasion, the prevailing response to the damage was more like a collective shrug.¹⁶

Like Earley, I recognize expressions of regret and nostalgia in the 1920s and later about the removal of the great majority of old-growth longleaf. Even the editor of the pro-turpentine industry *Weekly Naval Stores Review* conceded in 1921, “One cannot but breathe a sigh of regret for the millions of acres of noble trees that have disappeared.” The editor briefly acknowledged a sense of loss, even if he downplayed human agency in describing the pine forests as somehow “disappearing.” But many of these reactions came after the intensive timbering was a *fait accompli*. In my mind, rather than helping to explain how so much of the longleaf system was destroyed by the 1920s, such reactions raise more questions about this historical development.¹⁷

In his history of social and economic life in the New South, Edward Ayers devotes part of a chapter to turpentine and lumber, and notes that lumber manufacturing in particular became increasingly important in the New South economy. Ayers mentions longleaf pine, but he otherwise writes about southern forests mainly in general terms. He is most interested in the experiences of southerners working in turpentine and lumber jobs, and perhaps living in the work

¹⁶ “Turpentine Operators’ Association holds its first annual convention,” *Florida Times-Union and Citizen*, Sept. 11, 1902. Earley cites the Fletcher and Jennings remarks as well, and he states that criticism of the naval stores industry was commonplace by around 1900 (pp. 138-41). My sense is that the criticism was motivated, in large part, by the desire of lumbermen and economic boosters who saw more economic potential in large-scale lumbering, and therefore did not want turpentine operators to destroy all the longleaf first.

¹⁷ Thomas Gamble, ed., *Naval Stores: History, Production, Distribution and Consumption* (Savannah, Ga.: Review Publishing and Printing Co., 1921), 60.

camps or company towns that rose and faded according to the supply of trees. While Ayers recognizes that some southerners decried the destruction of forests, he does not examine their perceptions of longleaf in any detail. William P. Jones focuses even more intensively on the lives of workers in the southern forests in *The Tribe of Black Ulysses*, specifically African-American lumber workers and their families after Reconstruction and into the twentieth century. Jones briefly describes the geographic outlines and trees of the southern forests, including the longleaf region, and he notes the destructive timbering practices that prevailed. However, the essential story for Jones is how black lumber workers created lasting family and community ties in the New South, and played a meaningful role in the region's modernization. He deals with the longleaf forests mainly as the setting for that story.¹⁸

This dissertation in contrast treats the forests as an essential element in the historical action, and aims for a more ecological approach, in the way that historians such as Christopher Morris have advocated. Morris contends the "ecology" of the South requires greater attention from scholars studying the region's environmental history. He uses ecology in a broad sense, as "the web of connections and intersections between humans and nonhumans, and between humans but in ways mediated by nonhumans," drawing partly on ideas from Bruno Latour and southern ecologist Eugene Odum. Humans often change the ecology drastically, but they act from within the ecology because they are inherently part of it, not from outside the ecology.¹⁹

Such ecological interconnections are central in *Nature, Business, and Community in North Carolina's Green Swamp*, Tycho de Boer's study of the Green Swamp and environs in

¹⁸ Ayers, *Promise of the New South*, vii and 123-32; William P. Jones, *The Tribe of Black Ulysses: African American Lumber Workers in the Jim Crow South* (Urbana, IL: University of Illinois Press, 2005), 1-14 and 17-42.

¹⁹ Christopher Morris, "A More Southern Environmental History," *Journal of Southern History* LXXV, no. 3 (Aug. 2009), 598. Morris cites works including Eugene P. Odum, *Ecology* (New York: Holt, Rinehart and Winston, 1963), and Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. by Catherine Porter (Cambridge, MA: Harvard University Press, 2004).

southeastern North Carolina from the colonial era to the mid-twentieth century. In interpreting how people in the region related to their natural environments, from wetlands to longleaf forests, he finds a story of “business development, community formation, and human-ecological interaction [that] is neither the environmentalist’s declension narrative of destructive exploitation nor the corporation’s triumphalist account of progressive and sustainable capitalist development.” The story is more complicated in part, de Boer argues, because farmers, smaller sawmill owners, and other local people at times successfully pushed back against the maximum exploitation that larger enterprises intended, in the quest to secure forests as wood-lots for their farms, and ensure access to woods and wetlands for subsistence hunting, fishing, and foraging. He also contends that local people in the Green Swamp region at times genuinely appreciated beauty in nature, and lamented major environmental changes.²⁰

De Boer argues effectively that neither of the two opposing narratives he lays out fully captures how ideas and actions relating to longleaf and other natural features were complicated and fluid over time in his study area. My first chapter discusses some similar perspectives in North Carolina. However, de Boer also recognizes the persistent drive over time by inhabitants to generate cash, on a smaller scale, from resources such as longleaf pine, and their willingness to destroy animals and plants that they found problematic. And he observes that the people and communities in his study generally shared a capitalistic vision for improving their lives and community, including using natural resources. For me, this drive to profit by turning longleaf into market products, via enterprises large and small, held the greatest sway over time in

²⁰ Tycho de Boer, *Nature, Business, and Community in North Carolina’s Green Swamp* (Gainesville: University Press of Florida, 2008), 5-7, 21-23, and 89-100.

transforming the longleaf region, and generally overpowered the kinds of contestation that de Boer attributes to local people.²¹

Jack Temple Kirby discusses longleaf's decline in *Mockingbird Song: Ecological Landscapes of the South*, his insightful wandering through the long history of people thinking about and changing Southern environments. For example, Kirby recounts the role of free-ranging hogs in reducing the longleaf forests over time, starting in the colonial era when settlers first sent hogs into the piney woods to root for food. The terminal buds – or the point of growth – at the tip of longleaf seedlings in their initial years, as well as the young roots, were among the most favored delicacies on nature's menu for hogs, which meant that they killed a significant number of longleaf seedlings over time by eating buds and digging up roots. But foraging hogs, of course, never slashed countless longleaf trees to collect their resin. "The crackers' hogs had their day, but it was naval stores entrepreneurs who must bear major responsibility for prolonged, massive depredations of the magnificent longleaf pine," Kirby writes, putting the focus appropriately on human agency.²²

My study discusses the destructive effects of turpentine as well, but I emphasize the cumulative effects of cutting longleaf for lumber perhaps more than does Kirby. In my view, the people making longleaf into lumber, from smaller sawmill operators to large-scale lumber industrialists, played the primary role in reducing the longleaf forests across the historical range, more so than turpentiners, especially during the intensive clear-cutting between the 1880s and 1920s. Hacking repeatedly into longleaf trees in the process of making turpentine certainly killed a significant number of trees, first in North Carolina and later in the lower South. But there

²¹ Ibid., 7, 21, and 89-92.

²² Jack Temple Kirby, *Mockingbird Song: Ecological Landscapes of the South* (Chapel Hill: University of North Carolina Press, 2006), 124.

would have been no vast areas of longleaf to clear-cut during the intensive decades, if turpentine had already killed the majority of longleaf. Kirby recounts the timbering of southern forests in *Mockingbird Song*, but the intensive cutting merits greater emphasis in explaining the destruction of the old-growth longleaf.²³

In his history of the work of naturalist and land manager Herbert Stoddard in the longleaf region, Albert Way goes a long way in consistently portraying the ecological interconnections that Morris emphasizes for southern environmental history. Stoddard's career-long study of bobwhite quail and other wildlife, longleaf forests, and other natural features in south Georgia and north Florida forms the core of Way's *Conserving Southern Longleaf: Herbert Stoddard and the Rise of Ecological Land Management*. In examining Stoddard's dealings with land owners, researchers, foresters, timbermen, and local people beginning in the 1920s, Way demonstrates that ideas about wildlife, longleaf forests, and the broader landscape regularly "mediated" or shaped these relationships. Indeed, working on questions like how best to manage longleaf lands to boost quail populations was the foundation of many of Stoddard's relationships with other people. Way also weaves tightly into his study the connections between insects, animals, and plants within longleaf forests that are the subject of scientific ecology, and considers how the forests related to other parts of the south Georgia/north Florida landscapes, as did Stoddard. The outlines of our studies are different, in that I examine several locations across the longleaf South, while Way focuses largely on a specific region. But I aspire to the strengths of *Conserving Southern Longleaf* as an environmental history.

²³ In his earlier *Poquosin*, Kirby also discusses the growth of timbering of longleaf and other forests in southeastern Virginia and northeastern North Carolina after the Civil War. The forests are central in this account, but Kirby's key insights are in the business, labor, and cultural histories related to the forest industries there, such as the rise of the Camp Manufacturing Co.; Jack T. Kirby, *Poquosin: A Study of Rural Landscape and Society* (Chapel Hill: University of North Carolina Press, 1995), esp. 197-234.

Put in Morris's terms of ecology as a critical pathway into the South's material and intellectual history, this dissertation dwells on the longleaf forests as a substantial feature of the South's material past, and ideas about exploiting, conserving, and restoring longleaf in the region's intellectual past. The study explores intersections between the longleaf forests and landowners and community leaders in North Carolina, lumbermen in Louisiana, federal foresters in Florida, and Charles Mohr, Roland Harper, William W. Ashe, and Herbert Stoddard, as representative figures working in natural sciences in the longleaf region, as well as contemporary longleaf advocates. The persistent question shaping these connections with longleaf forests has been what value or values of longleaf people were motivated most strongly to realize, for their personal interests, and/or the interests of a larger organization or community. The question of value also has mediated relationships between people such as lumbermen, landowners, and local officials involved in land sales in northern Louisiana in the early 1900s, or U.S. Forest Service foresters, turpentine operators, and homesteaders with competing interests in how longleaf in the Choctawhatchee National Forest should be managed between 1908 and 1940.²⁴

Morris cites Kirby's *Mockingbird Song* as an exemplary study of southern environmental history in many regards, but he does critique Kirby for not making his account more consistently ecological. For example, he argues that Kirby "segments" the history of southern forests, rather than telling the history "holistically and ecologically." It is true that Kirby, who describes his book as an exploration of the "poetics, politics, and portions of the sciences of the human relationship with the rest of nature" in the South, zooms in on subjects like hogs and forests, without consistently reminding the reader of the interconnectedness of living things. This dissertation often "segments" the history of longleaf in a similar way. I do not step back

²⁴ Morris, "A More Southern Environmental History," 598.

regularly to point out that savannas and dense longleaf stands were part of the vast longleaf ecosystem, which in turn helped comprise the larger environments of the South, the country, and so on. It is a shortcoming, but at this stage, it seems necessary to “segment” the longleaf forests in this way. It is a valuable step, perhaps a first step, in looking at this topic more closely and reaching for a deeper understanding, while the larger contexts, ecological as well as political, economic, and social, remain important as well.²⁵

My concluding chapter returns to the present, and assesses the contemporary work to plant and maintain more longleaf in parts of the South, in the bid to restore more of the ecosystem. I point out the emphasis that many advocates for longleaf restoration place on the potential for financial return from planting and managing longleaf, at least after several decades, and consider whether the economic emphasis could set up future problems. I also argue that the history of interventions in the destruction of the longleaf forests, by figures such as foresters, researchers, and conservationists, is a history both of concern for the natural environment and innovative thinking outside the mainstream views, but also of ineffectiveness, and limited commitment and imagination. Finally, the conclusion puts longleaf history in context with other forest transformations outside the South, and argues longleaf history is not only a southern story.

²⁵ Kirby, *Mockingbird Song*, xiv and 123-43; Morris, “A More Southern Environmental History,” 597.

CHAPTER ONE: CASTING AWAY THE PEARLS OF EASTERN NORTH CAROLINA

Like many men of his time, place, and class, Isaac Croom, a slaveholding planter in eastern North Carolina, protested in the early 1830s that his state lagged behind others in economic development. Croom blamed North Carolinians for not doing nearly enough to exploit the state's natural resources, and he ranked longleaf pine as the leading example of such neglected resources. In his view, this failure to use longleaf and other resources much more intensively to generate profit and greater prosperity for the state explained why so many North Carolinians were moving to the lower South in search of new land and opportunities.²⁶

Croom had two interrelated ideas in mind when he described this pressing need to “improve” the natural resources that, in his view, God had bestowed upon North Carolinians. Even though the state had “everything in the way of resources, physical and moral, to make her a great, commanding and prosperous state – she is at best stationary,” he complained in 1834. “Her population and wealth are deserting her in one continued and augmenting stream, for other climes, [simply] because she will not improve the means which the God of nature has placed at her disposal.” Croom's meaning for “improving” was to exploit such resources on a larger scale, and secondly, to build the necessary transportation system for intensifying this exploitation, the kind of internal improvement that Americans were debating at state and national levels.²⁷

²⁶ On North Carolina and issues such as internal improvements, see William A. Link, *North Carolina: Change and Tradition in a Southern State* (Wheeling, Ill.: Harlan-Davidson, 2009), 137-43; Daniel Miles McFarland, “Rip Van Winkle: Political Evolution in North Carolina, 1815-1835,” doctoral dissertation, University of Pennsylvania, 1954, 377-78; and Alan D. Watson, *Internal Improvements in Antebellum North Carolina* (Raleigh: Office of Archives and History, N.C. Dept. of Cultural Resources, 2002), 1-20.

²⁷ “Calcareous deposits in North Carolina,” April 22, 1834, *Fayetteville (NC) Observer* (reprinted from Edmund Ruffin's publication, *Farmer's Register*). I use “exploit” throughout this chapter to mean making full use of longleaf

As a planter, Croom also argued that restoring and enhancing the productivity of the eastern North Carolina farm soils was a critical “improvement” for the state. He relied on some thirty or more enslaved people to make his plantation in Lenoir County along the Neuse River a viable enterprise, and he was an advocate for using marl, fossil-shell sediments with a high percentage of calcium carbonate, to help make depleted soils more productive. Croom was frustrated that few other landowners were interested in working marl into their fields. The soil solution was right in front of them. “I trust we shall make a wise choice,” Croom hoped. “Should we not however, it can excite no surprise. It will not be the first rich pearl we have cast away.” Longleaf pine was the other wasted “pearl” that Croom had in mind.²⁸

As a potential source of lumber and naval stores, the longleaf forests of North Carolina remained highly valuable, more valuable even than all the enslaved people that he and other North Carolinians owned, Croom contended. He regretted that the most cost-effective routes to market were the region’s navigable streams, a reality that severely hindered the ability to tap the “immense resource” that the longleaf forests represented. Croom described traveling recently for about sixty-five miles to Fayetteville, “through a country heavily timbered with the finest longleafed pines.” He claimed to see just one tar kiln along the way, and no other evidence that people were making naval stores or market lumber. “Hundreds and thousands of acres [of longleaf] are in the state that nature formed them,” Croom grouched about forests that were “lying

for economic benefit, although I recognize the word also can connote using a resource or a person unfairly or unjustly; see *Webster’s New Collegiate Dictionary* (Springfield, Mass.: Q. & C. Merriam Co., 1976).

²⁸ “Calcareous deposits,” April 22, 1834, *Fayetteville Observer*. Croom’s pearl metaphor likely was a variation on Matthew, Chapter 7, Verse 6 in the King James Bible, which reads, “Give not that which is holy unto the dogs, neither cast ye your pearls before swine, lest they trample them under their feet, and turn again and rend you.” If so, it prompts the question of whether Croom meant to imply that other North Carolinians were the “swine” on whom pearls such as longleaf were wasted; see “Bible, King James Version,” accessed Jan. 31, 2016, <http://quod.lib.umich.edu/cgi/k/kjv/kjv-idx?type=DIV2&byte=4407881>. Marl was a mix of fossil shells and clay used to add calcium and reduce acidity; see John Majewski and Viken Tchakerian, “The Environmental Origins of Shifting Cultivation: Climate, Soils, and Disease in the Nineteenth-Century U.S. South,” *Agricultural History* 81, no. 4 (Fall, 2007): 536; and Kirby, *Mockingbird Song*, 84-86.

dormant.” He overstated the “dormancy” of longleaf, as North Carolinians had been making naval stores and timbering longleaf in eastern North Carolina for more than a century. Croom surely was not ignorant of that history, so we should see him as calling for using longleaf on a much larger scale, combined with more sophisticated means of extraction and marketing.²⁹

As it turned out, Croom gave up on North Carolina and moved to central Alabama by the late 1830s, where he became a successful cotton planter – in effect joining what a group of southeastern North Carolinians had lamented as the “Sullen Stream of migration that peoples the graves of the far west.” But Croom had hardly been alone in calling for intensifying the use of North Carolina longleaf and other features of the natural environment, and both before and after the Civil War, the development of new transportation options, primarily railroads, did enable using longleaf on a greater scale. By the turn of the century, many North Carolinians were commenting not on how much longleaf stood unused, but how little remained, and the notion of longleaf as a wasted “pearl” began to take on a different meaning.³⁰

In 1905, a Wilmington physician, Walter Gilman Curtis, recalled the longleaf forests that once thrived on the land stretching westward from the coast, with trees more than one hundred feet tall and a forest floor covered with grass and flowers. “It was certainly a most beautiful prospect and one which could not be seen in any other country,” Curtis remembered. He also recounted the past destructive impacts of turpentine, and observed that the lumber industry was

²⁹ “Calcareous deposits in North Carolina,” April 22, 1834, *Fayetteville Observer*. Croom was born around 1793, graduated from the University of North Carolina, and became a lawyer, state legislator, and planter. Census records indicate Isaac Croom owned twenty-seven enslaved people in 1820, and sixty-two people in 1840. In 1860, Col. Isaac Croom presided at the Alabama convention of the Constitutional Union party, see *Fayetteville Weekly Observer*, July 9, 1860. He died in Greensboro, Ala., in 1863, see *Fayetteville Semi-weekly Observer*, Feb. 23, 1863; also “Magnolia Grove,” *Encyclopedia of Alabama*, accessed Dec. 21, 2015, <http://www.encyclopediaofalabama.org/article/h-3075>; 1820 U.S. census and 1840 U.S. census, Kinston, Lenoir County, North Carolina, accessed April 15, 2016, <https://www.ancestry.com>.

³⁰ Petition in 1840 by residents of Richmond and Robeson counties to the North Carolina General Assembly, quoted in Watson, *Internal Improvements in Antebellum North Carolina*, 3.

cutting relentlessly into the remaining longleaf and other forests. “Sawmills are established upon all the navigable streams, and soon the clang of the saws is heard in every place where there is a tree of whatever kind it may be; [and] pines, cypresses, black gum and every other tree which can be shipped and manufactured into anything is cut and prepared for shipment,” Curtis lamented in a short memoir, reflecting on the previous five decades. “Thus the clearing of North Carolina of every useful tree goes on with fearful rapidity and the owners of the lands find themselves but very little richer on account of this business, and the glory and beauty of the scenery is destroyed forever.” To many, the whine and clang of saws was the joyful din of economic activity and progress. Late in life, Curtis saw the intensive timbering as misguided and argued the state was losing some features of long-term value, including the natural beauty of forests. Curtis thus feared the state was squandering its “pearls,” although unlike Isaac Croom’s antebellum interpretation of wasted pearls, Curtis meant the destruction of longleaf.³¹

A few years later, when Joseph Wesley Humphrey visited his former home in Robeson County, N.C., after four decades away, he was taken aback to see that the countryside once abounding in longleaf appeared largely devoid of the pines. Humphrey had moved from Robeson to Mississippi in 1871 as a school teacher, and then to Texas, where he taught and later became an attorney, cattle farmer, local official, and Democratic state legislator. In 1913, traveling with his wife, Mary Jane, through Robeson to the county seat of Lumberton, Humphrey registered many differences from the Robeson of his youth, but none more striking than the scarcity of longleaf. “Mr. Humphrey says that Robeson has certainly undergone many changes since he

³¹ Walter Gilman Curtis, *Reminiscences of Wilmington and Smithville-Southport, 1848-1900* (Southport, NC: Herald Job Office, 1905), 55-57. Curtis was born in New Hampshire in 1826, but he spent much of his career as a physician in Smithville and Wilmington, N.C. He also served as state quarantine surgeon for the port of Wilmington from roughly 1868 to 1895, and he died in 1909; see finding aid, W.G. Curtis Papers, Southern Historical Collection, Wilson Library, UNC Libraries, University of North Carolina at Chapel Hill; 1880 U.S. census, Smithville, Brunswick, North Carolina, accessed Jan. 14, 2015, <https://www.ancestry.com>.

went away,” the local newspaper reported. “He says that the thing he notices most is the absence of the long leaf pines.” When Humphrey was a boy there in the 1850s and 60s, longleaf still had been a prominent though diminished part of the landscape in southeastern North Carolina, and the absence was remarkable to him after so many years away.³²

After Bertram Whittier Wells moved to Raleigh in 1919 and began studying the flora of his adopted state, he soon became aware of the absence of longleaf in eastern North Carolina. A native of Ohio with a doctorate in biology, Wells joined the faculty of North Carolina State College in Raleigh as professor of botany. He soon concluded that human activity and related factors had reduced the longleaf forests in eastern North Carolina so drastically that neither he nor anyone else could ever again experience the “majesty and glory” that North Carolina longleaf once offered.³³

Wells criticized North Carolinians for failing to shield any significant portion of longleaf from the most destructive agents – casting away valuable “pearls,” in the sense that Walter Curtis had in mind in 1905. “Now this noble original forest, one of nature’s most unique products of the ages in North America, is gone – rooted out by hogs, mutilated to death by turpentine, cut down in lumbering, burned up through negligence,” he ranted in his best-known work, *The Natural Gardens of North Carolina*. “Not a part of this great natural wonder, worthy of the name

³² “Texas Robesonians on a visit to native county,” *The Robesonian* (NC), Nov. 3, 1913. Born in Robeson in 1847, Joseph Humphrey worked on his family’s plantation and attended school. Reaching Texas in 1874, he became a Rains County deputy sheriff, deputy county clerk, county assessor, and county surveyor, and served in the state legislature as a “true, simon pure Jacksonian Democrat.” He and his wife, Mary Jane Bellah Humphrey, had four children and owned a cattle farm. See E.H. Loughery, *Personnel of the Texas State Government for 1885, Containing Biographical Sketches of the Governor, Lieutenant Governor, Heads of Departments and Members and Officers of the Nineteenth Legislature* (Austin, TX: J.M. Snyder, 1885), 28; L.E. Daniell, *Personnel of the Texas State Government* (Austin, TX: Smith, Hicks, and Jones, 1889), 326-28; E.H. Loughery, *Texas State Government: A Volume of Biographical and Sketches and Passing Comment* (Austin, TX: McLeod and Jackson, 1897), 109-10.

³³ James R. Troyer, *Nature’s Champion: B.W. Wells, Tar Heel Ecologist* (Chapel Hill: University of North Carolina Press, 1993), 1 and 162-70; Bertram W. Wells, *The Natural Gardens of North Carolina, with Keys and Descriptions of the Herbaceous Wild Flowers Found Therein* (Chapel Hill: University of North Carolina Press, 1932), 114-18.

forest, remains intact within the state's borders." Wells' appreciation for longleaf and his sadness and resentment over its destruction were grounded partly in his scientific mien, as well as a slightly romantic sense of wonder toward nature.³⁴

The perspectives of Croom, Curtis, Humphrey, and Wells broadly mark the transformation of the longleaf region of North Carolina on which this chapter dwells, beginning in the colonial era but focusing in particular on longleaf timbering after Reconstruction. The chapter analyzes how people used longleaf, in particular to make naval stores and lumber, and how they responded to the extensive destruction of longleaf that resulted from those uses. The chapter explores how some North Carolinians thought about longleaf during this dramatic change from abundance to scarcity of longleaf, focusing in part on southeastern North Carolina, where longleaf persisted the longest in the state in the late nineteenth century.

The aspects of longleaf forests that people noticed and their reactions to the removal of most of the old-growth longleaf by the early 1900s were interrelated with the ceaseless question of how to make a living from the land. The view of longleaf as critical to eastern North Carolina's prospects for advancing economically influenced the actions of many North Carolinians, both before and after the Civil War. In this view, longleaf was a vital resource that North Carolinians were obligated to use intensively for the region and state to progress. For example, railroad-boosters argued after the war that longleaf was the ideal carrot to attract railroad investment, in that investors could rely on naval stores and timber for initial freights to get railroads up and running, and the roads could then enjoy a longer-term business in hauling freights such as farm products or coal and iron from along the Deep River.

³⁴ Wells, *Natural Gardens*, 114-18.

For many people who embraced this vision, such as Fayetteville business leaders who craved railroads, the steady decline of longleaf was not particularly troubling, since they imagined that greater economic opportunities would arise. Indeed, using longleaf intensively was necessary, in their minds. Eastern North Carolinians such as smaller farmers who used longleaf on their lands to supplement their farm income, or larger turpentine and timber operators, were affected more directly by the decline of longleaf. Choosing to move south for new turpentine and timber opportunities, or for a chance at cotton lands, was a response for some as mature North Carolina longleaf was tapped out or cut. Staying in North Carolina and trying to grow tobacco or cotton with the aid of fertilizers was another choice that people made. Such choices amounted to a resignation to the decline of longleaf.

Another response to the decline of longleaf over time was to emphasize, and at times to exaggerate, the areas of old-growth longleaf that did remain, and to focus on exploiting that remaining longleaf even more fully. The *Fayetteville Observer* tended to take this position in the 1870s and later, and many people in Cumberland, Robeson, Sampson, and nearby counties selling land before and after the Civil War often sought to use this perspective in their favor. When possible, owners emphasized that their lands included good-quality pine stands valuable for turpentine and/or timber, and that the lands were within reach of streams and eventually rail lines, harping on – and surely overstating at times – the value related to longleaf.³⁵

With longleaf seen as integral to individuals' economic well-being and to larger visions for advancing the region and state, the great majority of people found it difficult to step outside

³⁵ I interpret newspapers like the *Fayetteville Observer* as presenting the professed ideas and desires of individual editors and publishers, and “speaking” for a significant number of readers and/or local residents who generally agreed with the newspapers' positions, which often were openly partisan. Newspapers also provide glimpses of the perspectives of local people through letters and opinion columns, and news articles in which perspectives are revealed. I see newspapers as both reflecting some of the perspectives that people held within their communities, while also seeking to influence those perspectives as opinion-leaders.

that view and advocate in a meaningful way for less-destructive approaches to using the existing longleaf forests. Near the end of the nineteenth century, there were occasional, meaningful calls in North Carolina for some form of “preservation” of longleaf. They ranged from an appeal for protecting longleaf seedlings by an old Cape Fear steamboat captain and business owner in Fayetteville, to a report by Joseph A. Holmes, the state geologist. William W. Ashe, the first state forester, also voiced concerns in the 1890s about the fate of North Carolina longleaf, as discussed more fully in Chapter Four. However, concerns focused primarily on the desire to protect longleaf seedlings and young trees from destruction, and made no fundamental challenge to how people were using mature longleaf. When it came to the old-growth forests of eastern North Carolina, longleaf not turpented or timbered was longleaf wasted – pearls whose value was left unrealized. That view held the greatest sway and set the course for the near elimination of longleaf, a transformation that left people like Bertram W. Wells at N.C. State College shaking their heads in the 1920s and later, regretting what previous generations of North Carolinians had done and failed to do.

Exploiting Longleaf in Colonial and Antebellum North Carolina

Longleaf could be an obstacle to North Carolinians where it occupied soils with potential for growing crops, such as transition areas between sandy uplands and wetlands. But most often, longleaf was a signpost for the sandiest soils, where little could be gained in clearing the trees for agriculture. Longleaf was also a resource that North Carolinians consumed in a number of ways, such as using the wood for construction and fires on farms. They cut up fallen trees and branches and burned the “lightwood” in kilns to make tar and pitch, gashed the trunks of living trees to collect the resin or crude gum and distil it into turpentine, and cut down tall, old-growth trees to saw into lumber for local use and for market. In relative terms, making tar and pitch probably was the least destructive of the longleaf forests, since people primarily used fallen trees and

branches to fuel their tar kilns. Making turpentine and lumber were the most destructive activities, as turpentine repeatedly gashed the trees and killed a percentage of them over time, while lumbering, of course, required removing the trees altogether. North Carolinians made significant dents in the longleaf forests over the colony/state's first two centuries, so that by the 1880s, they had reduced longleaf dramatically. Still, longleaf had been so plentiful that enough remained by 1880 that intensive timbering was possible over the next two decades.³⁶

The extensive presence of longleaf enabled the colony of North Carolina to become the leader in naval stores production in North America in the eighteenth century, largely to meet the demand from Great Britain for a source of naval stores within its growing empire. Naval stores originally were materials critical for building and maintaining wooden ships, mainly tar and pitch for waterproofing, and wooden components like masts and spars. By comparison, the demand for crude and distilled turpentine was significantly smaller for much of the eighteenth century. But while the term "naval stores" traditionally included turpentine, manufacturers developed new uses for turpentine in the nineteenth century that boosted its value significantly, especially as a solvent in rubber-making and an ingredient in lamp oil. Rosin was a byproduct of the distillation of crude turpentine – the residue at the bottom of the still – and its value for manufacturing uses increased as well.³⁷

The shift to turpentine was important in part because, while tar and pitch were made primarily from the wood of dead trees, turpentine came from living trees. Tar-makers cut pieces of longleaf "lightwood," or the wood of trunks and larger fallen branches. People also likely

³⁶ For a valuable discussion of trees and soils in the South Atlantic colonies, see Tim Silver, *A New Face on the Countryside: Indians, Colonists, and Slaves in South Atlantic Forests, 1500-1800* (Cambridge: Cambridge University Press, 1990), 107-110 and 121.

³⁷ Bradford J. Wood, *This Remote Part of the World: Regional Formation in Lower Cape Fear, North Carolina, 1725-1775* (Columbia, SC: University of South Carolina Press, 2004), 187; Outland, *Tapping the Pines*, 6; Carroll B. Butler, *Treasures of the Longleaf Pines Naval Stores* (Shalimar, FL: Tarkel Publishing, 1998), xvi, 15, and 210.

derived a portion of their lightwood over the decades by girdling longleaf trees to kill them, but using fallen trees was easier. Workers built a kiln around the lightwood, fired the kiln, and a stream of tar eventually ran from the kiln. The men boiled tar to make pitch.³⁸

As the region of the most intensive naval stores production shifted over the 1700s, the impact on longleaf shifted as well. From around 1700 to the 1720s, Carolina colonists and slaves produced naval stores on a fairly small scale, primarily in the longleaf forests between the Cape Fear River and southward toward Charles Town. After British authorities divided the colony into North and South Carolina, settlers began to move further up the Cape Fear valley in the 1720s, and expanded naval stores work further into the longleaf forests. South Carolinians increasingly cast their fates with growing rice, while North Carolina became the largest colonial producer of naval stores and primary supplier for Great Britain. The center of naval-stores production shifted north to the forests near Washington and New Bern and slowly westward up the Neuse and Tar rivers. By 1768, North Carolina provided about 60 percent of the 135,000 barrels of naval stores that Great Britain imported from its colonies.³⁹

As they produced naval stores over the eighteenth century, North Carolinians also sawed longleaf into lumber, using much of the lumber locally but also shipping it outside the colony. Colonists and slaves mainly cut longleaf that grew close to waterways and rafted the logs downstream, or in some cases sawed the logs into boards and timbers at a stream-side mill and sent the rough lumber downstream to Wilmington and smaller shipping points. In 1762, for example, some forty sawmills were running on streams feeding the Cape Fear River. Along with

³⁸ Wood, *This Remote Part of the World*, 188; Carroll, *Treasures*, 10-12. Carroll cites evidence that naval stores workers in colonial New England and New York relied on fallen pine trees as well, but also sometimes de-barked trees to kill them and create lightwood; see Carroll, 4 and 10-15.

³⁹ Outland, *Tapping the Pines*, 8, 19, 20-36; William Link, *North Carolina: Change and Tradition in a Southern State* (Wheeling, IL: Harlan Davidson, 2009) 50-53.

lumber, the colony exported significant amounts of barrel staves, headings, and hoops made from oaks, as well as cypress shingles.⁴⁰

One of the eighteenth-century sawmills in the Cape Fear valley was on Hunthill, John Rutherford's 4,000-acre plantation about thirty miles north of Wilmington. Holly Shelter Creek or a tributary powered the sawmill, and Rutherford's enslaved workers also used the creek to raft lumber and naval stores to the northeast branch of the Cape Fear and downstream to Wilmington. Rutherford established himself as a member of the eastern North Carolina elite, holding colonial offices and partnering with merchants in Wilmington. Hunthill made "a great deal of tar and turpentine, but [the] grand work is a saw-mill, the finest I ever met with," observed Janet Schaw, a Scottish woman who visited in early 1775. About 300 acres at Hunthill were planted in corn and possibly other grains and indigo, but Schaw recognized that lumber was central to Rutherford's enterprise, along with naval stores for export to Great Britain and wooden shingles and barrel materials for the West Indies.⁴¹

The longleaf on Rutherford's land and the sandy soil constrained his use of the land for crops, but longleaf was also a valuable resource, and he established a pattern – farming a small percentage of land while leaving the bulk covered in longleaf – that persisted in parts of eastern North Carolina for many decades. "The woods round [the plantation] are immense, and he has a vast piece of water, which by a creek communicates with the river, by which he sends down all the lumber, tar and pitch, as it rises every tide sufficiently high to bear any weight," Schaw reported. Along with property rights, capital, enslaved workers, and technology, the non-human

⁴⁰ Earley, *Looking for Longleaf*, 155-58; Lefler and Newsome, *North Carolina*, 100-01; Wood, *This Remote Part of the World*, 193-94.

⁴¹ Janet Schaw, *Journal of a Lady of Quality: Being the Narrative of a Journey from Scotland to the West Indies, North Carolina, and Portugal, in the Years 1774 to 1776* (New Haven: Yale University Press, 1921, Evangeline Walker Andrews, ed., with Charles McLean Andrews), 184-85 and 297; Alan D. Watson in William S. Powell, ed., *Dictionary of North Carolina Biography* Vol. 5 (Chapel Hill: University of North Carolina Press, 1994), 276-78; Wood, *This Remote Part of the World*, 174; Earley, *Looking for Longleaf*, 156.

environment made this enterprise possible, especially the longleaf forests, soils, climate, and waterways. And many of the daily interactions between Rutherford, overseers, and enslaved people revolved around the quest to profit from these features of the nonhuman environment.⁴²

Naval stores remained important market products for North Carolinians into the 1800s, as the state had less land with soils productive for cotton, and did not experience the same cotton boom as the lower South. North Carolina accounted for about 96 percent of the country's turpentine and rosin exports in 1840. Planters, farmers, and slaves continued extracting resin from longleaf between the Cape Fear and Tar rivers, and took this work into counties such as Cumberland and south of the Cape Fear as well. By 1847, North Carolina longleaf yielded about 800,000 barrels of turpentine, and Fayetteville became the inland trade center for turpentine.⁴³

The potential for tapping even more longleaf helped to spur the first railroad construction in antebellum North Carolina. By providing new links to markets, the roads indeed made more longleaf forests attractive both for turpentine and timbering. The pace of railroad development in North Carolina was frustratingly slow for antebellum advocates of internal improvements. Nevertheless, enough mileage was finished in North Carolina to help sustain the business of turpentine and cutting longleaf. Crews finished a railroad between Wilmington and Weldon in 1840, connecting the longleaf region with the coast. The Wilmington and Manchester Railroad reached into the longleaf forests of South Carolina in 1853, and three years later, the North Carolina Railroad connected Goldsboro in the coastal plain with Charlotte in the piedmont. Another line running from Wilmington to just beyond Lumberton was constructed by the start of the Civil War. In addition, the Cape Fear and Deep River Navigation Company built dams and

⁴² Schaw, *Journey of a Lady of Quality*, 184-85; Wood, *This Remote Part of the World*, 6.

⁴³ Earley, *Looking for Longleaf*, 98; Outland, *Tapping the Pines*, 39-41 and 58-59.

locks to make the Cape Fear navigable westward to Chatham County, largely to create better access to coal beds but also to benefit naval stores production.⁴⁴

New York journalist and poet William Cullen Bryant took the new railroad between Weldon and Wilmington during a trip through the South in 1843. He boarded the train at night in Weldon in northeastern North Carolina, and the next morning, he saw “vast tracts of level sand – overgrown with the long-leaved pine, a tall, stately tree, with sparse and thick twigs, ending in long brushes of leaves, murmuring in the strong, cold wind – extended everywhere around us.” Bryant described a landscape with widely scattered log cabins and an occasional larger home, fields of corn and some cotton, and intermittent marshes with cypress and other wetland vegetation. But mostly he saw longleaf as the train rolled southward, and he noted that North Carolinians were damaging many of the longleaf trees they worked for turpentine.⁴⁵

Bryant reported widespread areas where turpentine crews had cut the working faces into the trees and cut “boxes” in the bases of trunks, which turpentiners used as reservoirs for dripping resin. “The collection of turpentine is a work of destruction; it strips acre after acre of these noble trees, and, if it goes on, the time is not far distant when the long-leaved pine will become nearly extinct in this region, which is so sterile as hardly to be fitted for producing anything else,” he predicted. “We saw large tracts covered with the standing trunks of trees already killed by it; and other tracts beside them had been freshly attacked by the spoiler.”

⁴⁴ Earley, *Looking for Longleaf*, 133-34; Outland, *Tapping the Pines*, 2 and 50-53; James Sprunt, *Chronicles of the Cape Fear River: Being Some Account of Historic Events on the Cape Fear River* (Raleigh, NC: Edwards & Broughton Printing Co., 1914), 145-47.

⁴⁵ Parke Godwin, ed., *The Life and Works of William Cullen Bryant* Vol. 6 (New York: D. Appleton and Co., 1889), 27-28; also quoted in Kirby, *Poquosin*, 32-33.

Bryant added that loblolly pine often grew up to replace longleaf that turpentine had killed, but it was a “tree of very inferior quality and in little esteem,” at least in comparison to longleaf.⁴⁶

In 1850, North Carolinians were operating about 785 turpentine stills, more than ten times the number of stills in the other longleaf states. Smaller farmers and landowners continued to work trees for turpentine if they had access to longleaf. Records such as census data do not necessarily tell this story directly, but land-use patterns suggest it. For example, Joseph Hollingsworth and his wife, Caroline, had a farm of about 683 acres in central Cumberland County in 1850. They had five children, and raised corn, oats, peas, beans, potatoes, hay, and livestock on about eighteen improved acres of the farm. Joseph, about 45 years old, also described himself as a merchant. Like many Cumberland farmers without access to the more fertile bottomlands, the Hollingsworths grew no cash crops such as tobacco or cotton at that time. The 665 “unimproved” acres of their farm likely included a significant amount of longleaf, given the location, and the Hollingsworths probably worked the longleaf for turpentine – and also cut timber – to generate cash, or leased their pine woods to someone else.⁴⁷

Likewise, in western Cumberland, Daniel Priest and his family raised corn, rye, beans, peas, Irish and sweet potatoes, livestock, and hay on twenty acres, while another 680 acres of their farm were unimproved, and Duncan McLauchlin and his family raised the same crops as well as rice on 150 acres, on a farm that also included 1,288 unimproved acres. Lazarus

⁴⁶ Godwin, *Life and Works*, 27-28.

⁴⁷ Earley, *Looking for Longleaf*, 98; 1850 U.S. census, Agriculture Schedule, Alamance-Duplin Counties, Agricultural and Manufacturing Census Records; 1850 U.S. census, Population Schedule for Fayetteville District, Cumberland County. For the year preceding the 1850 census, Cumberland County farmers did raise some cash crops, but those crop totals were significantly lower than the leading counties, mostly in the piedmont. For example, Cumberland farmers raised about 2,000 pounds of tobacco, compared to 3.4 million pounds of tobacco in Granville County. For cotton, Cumberland totaled 156 bales of ginned cotton (400 lbs. per bale), compared to 21,369 bales in Surry, and 10,864; also see Harry L. Watson, *Jacksonian Politics and Community Conflict: The Emergence of the Second American Party System in Cumberland County, North Carolina* (Baton Rouge: Louisiana State University Press, 1981), 27-33.

Pleasants and his family farmed one hundred acres in eastern Cumberland and owned another 506 unimproved acres. One hundred acres of Martha Faircloth's farm in Sampson County were improved, and another 920 acres were unimproved. Farmers like these drew on the unimproved acres for their wood needs, but if they had enough longleaf, they also could generate cash from turpentine or timber, to pay taxes and buy items they could not produce. Thus, longleaf was a means for such smaller farmers, who likely used most of their farm produce for their own needs, to participate in the market economy expanding in the U.S. since early in the century.⁴⁸

Across the entire county of Cumberland, residents had cleared or "improved" about 77,260 acres by 1850 for raising crops and grazing livestock, while another 557,473 acres remained unimproved. About 91,463 acres in Robeson County were improved, compared to 459,029 unimproved acres, while 112,987 acres were improved in Sampson County, along with 358,148 unimproved acres. Overall, the larger planters increased their control over longleaf and production in these later antebellum years, in some cases putting more of their enslaved people to work in the woods and investing in stills on their land as well. Other larger landowners rented out their forested land turpentine operators. An average area or "orchard" of longleaf being worked for turpentine had about 25,000 boxes cut into the trees in the 1840s, and the average rose dramatically to 85,000 boxes in the next decade. In 1860, the state produced nearly 97 percent of the country's naval stores by value.⁴⁹

Local leaders who desired economic development and population growth often touted the abundance of longleaf, not only as a resource for naval stores and lumber enterprises, but sometimes for the actual construction of buildings in new towns. In 1843, the Montgomery

⁴⁸ 1850 U.S. census, Agriculture Schedule, Alamance-Duplin Counties and Pasquotank-Yancey Counties, Agricultural and Manufacturing Census Records; Kirby, *Poquosin*, 202-04.

⁴⁹ Ibid.; Earley, *Looking for Longleaf*, 98; Outland, *Tapping the Pines*, 3, 40-48.

County Commissioners set about establishing the new town of Troy as the county seat, on the road between Fayetteville and the backcountry town of Salisbury. Chairman William Coggin announced plans to sell lots for the town, and called for bids for constructing a two-story courthouse. The winning bidder would be able to draw easily on abundant longleaf for the lumber to construct the courthouse, the commissioners promised. “There is an inexhaustible supply of the best longleaf Timber convenient to the Town of Troy, and may be had on the cheapest terms,” they claimed. The commissioners were holding out the same promise of “inexhaustible” and inexpensive longleaf to others who might build homes or businesses in the fledgling town, or perhaps start turpentine or lumber enterprises in the surrounding woods.⁵⁰

Officials for the new Western Railroad Co. similarly emphasized abundant longleaf as a source of construction materials in 1854, when they sought contractors for the railroad’s first sections. The Western Railroad would run initially for about thirty miles from Fayetteville on the way to coal deposits along the Deep River in Moore, Lee, and Chatham counties. The route “passes through a healthy section of the country, well watered, and timbered with the best quality of the long leaf pine,” railroad officials claimed. The construction crews would have more longleaf than they could use for making bridge timbers, crossties, and other lumber, plus a good water supply and a relatively disease-free environment, the officials promised.⁵¹

When owners of forested land in southeastern North Carolina advertised their properties in the 1840s and 50s, they offered large acreages in many cases, and if at all possible, they touted

⁵⁰ “Notice is hereby given,” advertisement in *Fayetteville Observer*, Nov. 15, 1843.

⁵¹ “Western Railroad, notice to contractors,” *Fayetteville Observer*, June 12, 1854. The Western Railroad reached the Egypt coal mine (present-day Cummock, NC) in the late 1850s, built with public funds from Fayetteville and Cumberland County, and private funds. Directors reorganized the railroad after the Civil War as the Cape Fear and Yadkin Valley Railroad. See “Meeting of the rail road company,” *Fayetteville Observer*, March 22, 1858; James Henry Myrover, *A Short History of Cumberland County and the Cape Fear Section* (Fayetteville, NC: North Carolina Baptist Publishing Co., 1905), 17; Roy Parker Jr., *Cumberland County: A Brief History* (Raleigh: North Carolina Division of Archives and History, 1990), 57.

the land's longleaf and its potential for timber and naval stores, primarily turpentine. The availability of longleaf and the means of exploiting it were key selling points. Thomas J. Curtis advertised an unusually large assemblage of land with longleaf in 1847, some 100,000 acres in southern Robeson County that was in large part "finely timbered, and convenient to the Lumber River." The land was on both sides of the river, a valuable route for floating logs downstream to the coast at Georgetown, South Carolina.⁵²

Curtis had purchased the 100,000 acres from the estate of a member of the Dubois, most likely Abraham Dubois, a merchant in Philadelphia who had owned large acreages of southern pine lands. "These lands are very valuable both for Timber and Turpentine, for which purpose a large part is well suited, being in a region where the Turpentine yields more abundantly than any other section of the state," Curtis asserted. Some degree of turpentine and timbering almost certainly occurred on the land before 1847, since Curtis did not claim the trees were "virgin," uncut and untapped, a selling point that landowners used whenever possible – and even when it likely was stretching the truth. He also mentioned that people were trespassing on the land at present, probably carrying on the long tradition in North Carolina of using the longleaf on land whose owner was not watching it closely. Nevertheless, Curtis promised, a great deal of value remained to be extracted from the pines covering much of the land.⁵³

In Cumberland County, Jonathan Waddill Jr. and Thomas Lutterloh offered 8,000 acres in 1847 that they billed as "superior land for turpentine, tar and timber." The land was near Big

⁵² "100,000 acres valuable timber land for sale," *North Carolinian* (Fayetteville), Oct. 16, 1847. The Lumbee or Lumber River flows into the Little Pee Dee in South Carolina, and then the Great Pee Dee.

⁵³ Ibid. Curtis stated that he bought the land from the estate of Abram Dubois. This likely was Abraham Dubois, or Abram, born in Philadelphia around 1751. He was a silversmith and merchant and also owned land around Savannah, GA. At least three generations shared the name Abraham Dubois; see finding aid, Abraham Dubois Papers, Historical Society of Pennsylvania, accessed Sept. 29, 2015, http://hsp.org/sites/default/files/legacy_files/migrated/findingaid1636dubois.pdf; and C.W. Larison, *Silvia Dubois, a Biography of the Slave who Whipped her Mistress and Gained her Freedom* (New York: Oxford University Press, 1988), 9.

Rockfish and Puppy creeks, which held enough water during the year to float logs down to the Cape Fear and to Wilmington. Waddill and Lutterloh claimed no timber had been cut from their land, although the longleaf most likely had been turpentine in the past. They also described the land as a good location for a turpentine distillery and they noted creeks with good mill sites. This was a large property on the market in the late 1840s, with a sizeable, intact stand of longleaf.⁵⁴

John B. McNatt decided the same year to sell his plantation in Robeson County, including 1,100 acres, a house and several outbuildings, and “a great deal of good timber on it, lying within hauling distance of good navigation.” Logs could be dragged to streams that flowed southward to the Lumber River. McNatt did not identify the tree species but they almost certainly included longleaf along with hardwoods.⁵⁵ In 1849, Robert S. French sought buyers for his 1,300 acres in Robeson on the west side of the Lumber River. Some fifty acres of French’s land were under cultivation, while the rest was “heavily timbered,” likely a combination of longleaf on the uplands, and hardwoods in lower areas near the river.⁵⁶

In nearby Montgomery County, members of the Peacock family offered their 1,800 acres along the Little River for sale in 1851, as the family was intent on emigrating southward and they sought to convince buyers that these lands still had value. The Peacocks had been raising cotton on about 400 acres of bottomland near the Little River that they claimed was “equal in fertility” to any farm land in North Carolina. They also highlighted the two houses, cotton gin,

⁵⁴ “Turpentine and timber land for sale,” *North Carolinian* (Fayetteville), Feb. 6, 1847. Curtis, Waddill, and Lutterloh did not identify the trees on their lands in Robeson and Cumberland specifically as longleaf pine. But given the location in the heart of the longleaf region, and the emphasis on naval stores, the great majority of the trees clearly were longleaf, although there perhaps were mature hardwoods as well in the stream bottoms.

⁵⁵ “Land for sale,” advertisement in *North Carolinian* (Fayetteville), Oct. 2, 1847.

⁵⁶ Ibid.; “Fine timber land for sale,” *North Carolinian*, Nov. 17, 1849. On the term “ton timber,” see William W. Ashe, *The Forests, Forest Lands, and Forest Products of Eastern North Carolina*, North Carolina Geological Survey Bulletin No. 5 (Raleigh: Josephus Daniels, 1894), 118.

outbuildings, and grist mill on the property, and promised there was another good site for a mill on the river. “A saw mill can be built with but little cost; and as lumber is in considerable demand, would be a profitable business,” they offered. About 500 acres were “well timbered, mostly long leaf pine, and convenient to the mill [site].” The Peacocks did not describe the other 900 acres of uplands except to state, “The high land is also good” – perhaps the longleaf there had been used heavily or had other qualities that could hurt the value.⁵⁷

John McKellar apparently was readying in 1856 to move to the Deep South as well, or he and his family had taken on so much debt they had to sell most of their possessions, including 5,000 acres in Cumberland County. The land was twelve miles west of Fayetteville and within four miles of the planned Western Railroad. McKellar claimed the 5,000 acres were “well adapted to the Turpentine and Timber business,” and a large portion was “virgin forest of the finest quality of long-leaf Pine.” The property for sale also included two timber wagons, a turpentine still, and two road wagons. In addition, McKellar owned 20,000 acres just to the west in Richmond County, which he put up for sale at the same time. The 20,000 acres were “within reach” of navigable streams and the Wilmington and Charlotte Railroad, and were “probably the largest body of Pine land of the same quality to be found in the state,” McKellar boasted. He had worked at least some of his lands for turpentine and timber, given that he owned timber wagons and a turpentine still. Indeed, while McKellar considered himself primarily a farmer, he and several laborers also made 800 barrels of turpentine in 1850. In that sense, his landholdings enabled him to engage in the market economy to a greater degree than smaller farmers with less

⁵⁷ “Two valuable plantations for sale,” *Fayetteville Observer*, Sept. 16, 1851.

longleaf. Still, McKellar was not shy about claiming a “virgin” quality for the longleaf on his land, in the quest for buyers eager to extract the trees’ remaining value.⁵⁸

These examples are a few steps in the larger process of North Carolinians changing the longleaf forests over time, transforming the forests from great abundance to scarcity. There was enough mature longleaf to offer economic benefit from turpentine and timber, but owners were sure to highlight the longleaf value when possible in part because it was becoming harder to find larger acreages. We should take many of the land ads with several grains of salt, assuming owners often exaggerated the amount and “pristine” quality of their longleaf stands, but also that they were not making up the presence of longleaf entirely. Overall, the amount of untouched longleaf surely was less than owners claimed, but significant acreage remained. Landowners were motivated to sell their portions of the longleaf forests according to their individual interests. They recognized that a portion of their longleaf’s value derived from the fact that, overall, the acreage of unhacked or untimbered longleaf was declining. But that recognition did not lead many such landowners to see past the trees to the forests, if you will, and express any ideas about longer-term conservation of longleaf in North Carolina and the South.

To realize some of the value that such land ads promised, antebellum North Carolinians erected hundreds of sawmills. Within the longleaf forests of the South, there were about 3,500 sawmills in operation in 1840, and nearly one-third of the mills were located in North Carolina.⁵⁹ Most of these mills relied on water power, although lumber enterprises were beginning to apply steam technology as well. In the 1850 census year, sawmillers in Cumberland County reported

⁵⁸ “Large sale of valuable property,” *North Carolinian* (Fayetteville), Oct. 4, 1856. McKellar was 27 years old in 1850, and the family household included his mother, Henrietta, and siblings Anabelle and Peter, as well as an overseer and a cooper. The apparent absence of McKellar’s father could have been a factor in the family’s decision to sell so much property, 1850 U.S. census, Western Division, Cumberland County, North Carolina, accessed March 10, 2016, <https://www.ancestry.com>.

⁵⁹ Earley, *Looking for Longleaf*, 157-58.

producing 8,685,000 board feet of lumber, with a total value of \$58,215. For example, Henrietta McKellar owned a mill that used 1,000 pine logs to make 200,000 board feet of lumber.

McKellar also owned twenty-five black North Carolinians, some of whom worked at least part of the time in the longleaf woods. The McKellar farm west of Fayetteville included about 200 acres on which the family raised food crops and livestock, and 4,300 unimproved acres. The McKellars likely worked their longleaf for turpentine, as mentioned elsewhere in this chapter, and probably cut longleaf from their land for the sawmill.⁶⁰

Cumberland also produced 5,530,000 board feet of “ton timber” in 1850, with a value of \$27,372. Ton timber referred to thick, strong timbers made from both longleaf and loblolly pine in eastern North Carolina. Between ton timber and other lumber, the total for Cumberland was 14,215,000 board feet, the bulk of it from longleaf.⁶¹ By comparison, lumber production in Robeson and Sampson counties for 1850 was negligible, one example of the overall lack of industry in those two counties. Sawmillers in Robeson made just 85,000 board feet of lumber for the year, and 140,000 board feet of ton timber. Sampson’s totals were 60,000 board feet of lumber and 186,000 board feet of ton timber, giving those two counties a total of 471,000 board feet. However, in addition to operating sawmills in the three counties, people also sent an

⁶⁰ 1850 U.S. census, Agriculture Schedule, Alamance-Duplin Counties, Agricultural and Manufacturing Census Records; Agricultural and Manufacturing Census Records of Fifteen Southern States for the Years 1850, 1860, 1870, and 1880, microfilmed by UNC library; 1850 U.S. census, Slave Schedules, accessed March 10, 2016, <https://www.ancestry.com>, original data: U.S. Bureau of the Census. *Seventh Census of the United States, 1850* (Washington, D.C.: National Archives and Records Administration, 1850).

⁶¹ Agricultural and Manufacturing Census Records of Fifteen Southern States for the Years 1850, 1860, 1870, and 1880. Data for ton timber is confusing, in that records do not specifically state whether those trees were sawed into the large timbers within the county. My sense is that most of the ton timber was floated downriver to Wilmington and Georgetown, S.C.; see William W. Ashe, *The Forests, Forest Lands, and Forest Products of Eastern North Carolina*, North Carolina Geological Survey Bulletin No. 5 (Raleigh: Josephus Daniels, 1894), 118.

undetermined number of logs downriver to be milled in market towns – from Cumberland and Sampson to Wilmington, and Robeson to Georgetown, S.C.⁶²

Antebellum economic boosters like the *Fayetteville Observer*'s editors advocated frequently for more railroad construction in the region, and while they achieved mixed results, one of the successes was the Western Railroad, constructed in the late 1850s. "For about 25 miles this road will pass through an untouched pine forest," the *Observer* told readers in March 1858. "The timber, lumber, and naval stores from which would furnish a fair business [for the railroad] for the next ten years; and as round pines within a reasonable distance of transportation are becoming very scarce, the boxing and cutting of this new supply [of longleaf] will be simultaneous with the laying down of our rails." The *Observer* calculated the longleaf products would give the road its initial boost over the first decade or so, and the road then would be in a good position to focus on the real source of wealth – hauling coal from deposits along the Deep River and the iron to be produced in that region's furnaces. In the longer term, coal and iron would be "the great, the everlasting and inexhaustible sources" of business for the railroad.⁶³

⁶² Agricultural and Manufacturing Census Records of Fifteen Southern States for the Years 1850, 1860, 1870, and 1880. For ton timber in Robeson County in 1850, it is unclear whether the total was 14,000 b.f. or 140,000 b.f., but I have assumed the higher figure because it makes more sense in relation to the other data. In 1850, Cumberland County had 20,610 inhabitants, with 60.4 white, 35 percent enslaved, and 4.6 percent free people of color. In Robeson County, the population was 56.4 percent white, 34 percent enslaved, and 9.6 percent free people of color, out of 12,826 inhabitants. Sampson County had 14,585 inhabitants, with 57.8 percent white, 39 percent enslaved, and 3.2 percent free people of color; from Census of Population and Housing, *Seventh Census of the United States-1850*, accessed Sept. 19, 2015, census.gov/prod/www/decennial.html. For much of the nineteenth century, census officials usually counted Native Americans in Robeson and adjacent counties as free persons of color, but as white in some cases. However, the 1910 census counted nearly 5,900 people in Robeson as Indians, and another 596 people in Cumberland, Sampson, and adjacent counties. See Karen I. Blue, *The Lumbee Problem: The Making of an American Indian People* (New York: Cambridge University Press, 1980), 46-65; and O.M. McPherson, *Indians of North Carolina: Letter from the Secretary of the Interior Transmitting, in Response to a Senate Resolution of June 30, 1914, a Report on the Condition and Tribal Rights of the Indians of Robeson and Adjoining Counties of North Carolina* (Washington, D.C.: Government Printing Office, 1915), 8.

⁶³ "Meeting of the rail road company," *Fayetteville Observer*, March 22, 1858.

It is unlikely that the pine forest was as “untouched” as the *Observer* claimed in 1858, but it perhaps was a relatively intact pocket of mature longleaf, if distant from streams or rail lines up to that point. Still, it was getting harder to find such “round” longleaf, or old-growth trees that had never been worked for turpentine, the editor conceded in the same column that. But rather than express a concern about the scarcity of mature longleaf, the editor in this case cast the scarcity as a reason for tapping and cutting into the “untouched” forest, since the scarcity meant strong demand for the products and a good start for the railroad.⁶⁴

By late September of 1858, the Western Railroad’s first eleven miles from Fayetteville were complete, and *Observer* officials and one hundred or so residents rode the first section. “The scenery, so far, is not particularly picturesque, there being little to look at but white sand and tall pines,” the editor reported. “It is true that those not familiar with the latter, the long leaf pines, freely accord to them the merit of great beauty.” Indeed, the Marquis de Lafayette, Revolutionary War hero and namesake of Fayetteville, was among those who had described longleaf in North Carolina as beautiful. “And so they are, however little they are esteemed here for any other quality than that of yielding lumber and naval stores,” the editor qualified. This was a brief nod by the editor to the natural beauty that some people, from outside the region, saw in longleaf. But he refrained from being too effusive about longleaf and natural beauty in a place where, with all their familiarity with the white sand and tall pines, and their reliance on longleaf to generate money, most of the local people whom the editor had in mind shrugged at the idea that longleaf offered other charms or non-economic values.⁶⁵

⁶⁴ “Meeting of the rail road company,” *Fayetteville Observer*. For the meaning of “round pine,” see Ashe, *Forests, Forest Lands, and Forest Products*, 88.

⁶⁵ “The rail road,” *Fayetteville Observer*, Sept. 27, 1858. Marquis de Lafayette spent the night in Fayetteville on March 1, 1825, during his late-life tour of the American South; see Thomas C. Parramore, “Lafayette’s Visit,” NCpedia, accessed Feb. 20, 2016, <http://ncpedia.org/lafayettes-visit>.

A Fayetteville resident expressed a related point of view a few years later, after traveling westward for several days to Mecklenburg County, as the time away gave her a new appreciation for the familiar landscape of southeastern North Carolina. As her stage coach rumbled along the telegraph road south from Raleigh toward home, the traveler observed that “the old familiar scenes looked welcome to my eye, though the day was cold, and the way was long, the sand deep, the trees stripped of foliage, and long leaf pines stood like grim sentinels in solemn array.” A stranger probably would find this area dreary and boring, the traveler figured, but the landscape of longleaf and other features evoked many “pleasing associations.” The landscape was not particularly beautiful to her, but she appreciated the scene in that moment of returning home based on familiarity and fond memories, and not on economic values.⁶⁶

The *Observer*’s editor was a bit more willing in 1859 to write in positive terms about natural beauty, when he put aside work one afternoon to ride the Western Railroad to its current end point in Spout Springs, about twenty miles from Fayetteville. “From amidst newspapers and books, it is pleasant to open a leaf of the book of Nature, at this season of forest glories,” the editor offered, enjoying a rare chance to get away from the office and into the woods in autumn. “The woods are very beautiful, not improved by the hand of man, but rich with the brilliant colors so profusely scattered over them by the hand of God,” he observed. The dying leaves of the scrub oaks in the forest’s understory and the wildflowers were strikingly colorful. “Above these tower the tall and graceful long-leaf pines, with their deep green foliage.” This was one instance when the editor paused to appreciate the beauty of the landscape of which longleaf was a part, seeing a value outside of the economic potential. But the moment was brief, as the editor

⁶⁶ “Notes and items of travel in western North Carolina,” *Fayetteville News*, Dec. 25, 1866. The traveler wrote under the pseudonym “Cosmopolitana,” and I have assumed that she was a woman.

promptly returned in this report and in others to discussing the quality of the railroad construction and the road's good prospects.⁶⁷

Historian Robert Outland contends that, by around 1860, extensive turpentine production had left North Carolina with “few stands” of un-hacked longleaf. Quantifying exactly how damaging turpentine had been to the state's longleaf forests is a difficult task. Cutting faces in the trees and boxes in the bases, and hacking away more bark over ensuing years, weakened and killed many trees as they became vulnerable to insects and disease. A Wilmington man whose business interests included turpentine estimated in the early 1880s that about 20 percent of the longleaf trees worked for turpentine eventually died or were toppled by wind. Historian Outland also notes that the greatest destruction from turpentine had been around New Bern, westward along the Neuse River, and northward around Washington. Those were the areas where turpentine expanded most intensively, and where longleaf was the most depleted by 1860.⁶⁸

As all this activity reduced longleaf, one response for those with a continuing interest in turpentine before the Civil War was to seek untapped longleaf forests further to the south and west, primarily South Carolina, Georgia, and Alabama, but also in Florida and as far as Mississippi and Louisiana. Robeson County native John C. Ausley and his wife, Mary, moved to Georgia in 1887 and settled in Wilcox County, where they began farming and also operating three turpentine stills. Others who left North Carolina hoped to improve their lot by growing cotton in the lower South. In the older naval-stores regions of eastern North Carolina, mainly the

⁶⁷ “A ride upon the railroad,” *Fayetteville Observer*, Nov. 7, 1859. I have assumed the editor was male.

⁶⁸ Outland, *Tapping the Pines*, 98-99 and 128-29. Outland also states that, by 1893, only about 56,000 acres of “round” longleaf pine remained in North Carolina – trees never worked for turpentine. By contrast, abandoned turpentine trees stood on more than 560,000 acres by that time, where workers had tapped the trees for several years and then moved on. Around 1840, when turpentine intensified in N.C., longleaf grew on four to five million acres, he states. The Wilmington businessman was Adrain H. Van Bokkelen, president of the Wilmington Chamber of Commerce in the early 1880s, see Charles S. Sargent, *Report on the Forests of North America (Exclusive of Mexico)* (Washington, D.C.: Government Printing Office, 1884), 518.

northern and central counties, some smaller landowners and farmers shifted to growing cotton as well, if they could get access soils that could produce with generous helpings of fertilizers.⁶⁹

People involved in making turpentine in Cumberland, Robeson, Sampson, and other southeastern counties also questioned the future prospects of this enterprise as they exhausted thousands of acres of longleaf, and some headed south as well. A Cumberland man who moved to Baker County in south Georgia described the lay of the land there in the early 1860s. Writing to his former hometown newspaper, he depicted features such as the tree cover, wire grass, soils, wildlife, water supply, and proximity to a navigable river – the features of the non-human environment that people relied on for their living. “The growth on my land and in my neighborhood is entirely long leaf pine,” relayed the man, who hoped to try growing cotton.⁷⁰ He knew of several other North Carolinians who had moved to south Georgia. He claimed he did not mean to “induce any one to move from Old North Carolina, for it is a good old State, and a good place to live in, (especially if one has plenty to live on.)” But there was a “restless spirit in man,” he added. He had felt that restlessness, migrating to a place with familiar features like longleaf forests, but which was unfamiliar enough that he tried to stay connected with Cumberland, and plant the notion that others back home might want to come try their fortunes in Baker County.⁷¹

⁶⁹ Outland, *Tapping the Pines*, 98, 111, and 128-29; Ausley mentioned in Mary Lou L. McDonald and Samuel J. Lawson III, *The Passing of the Pines: A History of Wilcox County, Georgia*, Vol. 2 (Roswell, GA: WH Wolfe Associates, 1987), 5.

⁷⁰ Letter to the editors, *Fayetteville Observer*, Feb. 13, 1860 (letter dated Jan. 27, 1860 from Bond’s Mills, Baker County, GA.). North Carolina historians Hugh T. Lefler and Albert R. Newsome stated that many North Carolinians – at least, white North Carolinians – were “discouraged by the unpleasant political, social, and economic conditions at home and attracted by the better economic opportunities and the greater degree of social and political democracy” in territories and states to the west and south, in the early republic and antebellum decades. Many [moved] to Georgia, Alabama, Tennessee, and Indiana, with the 1830s as the decade of greatest migration. North Carolina ranked fourth in population in 1790 but dropped to twelfth by 1860, which meant a “severe loss of population, labor, leadership, progressive citizens, wealth, and trade.” See Hugh Talmage Lefler and Albert Ray Newsome, *North Carolina: The History of a Southern State* (Chapel Hill: University of North Carolina Press, 1973 edition), 320-21.

⁷¹ Letter to the editors, *Fayetteville Observer*, Feb. 13, 1860.

Overall, the southeastern counties did have more longleaf remaining at the end of the antebellum period than the counties to the north. Those counties perhaps had more longleaf preceding the colonial period and the start of naval stores production, and the patterns of the industry made it less intensive in the southeastern counties up to the Civil War. But in the last quarter of the century, lumbermen were eager for those remaining longleaf stands.⁷²

Postwar and New South Intensification of Timbering

After the disruptions of the Civil War, the North Carolina turpentine industry shipped out some 57,000 casks of turpentine in 1866, and 120,000 casks in 1869. However, naval stores production increased in the Deep South over the next three decades, as turpentiners found new opportunities in vast areas of longleaf. The center of the industry had shifted to the lower South by 1900, and North Carolina accounted for a small percentage of total turpentine production.⁷³

The *Eagle*, a Democratic paper published in Fayetteville, described the status of longleaf in and around Cumberland in the early 1870s. The paper's editor argued that more of the region's laborers, both white and black, should choose farm work rather than turpentining. Farm owners needed more hands, and as for the turpentine industry, "Most of the virgin forests near Fayetteville have been used up, and the tracts of fresh pine land are too small and scattering for large operators who must have their [lands] near together," the editor contended. Many of the turpentine operators had gone to the longleaf forests in South Carolina and Georgia, often taking the workers with them, he noted.⁷⁴

⁷² Outland, *Tapping the Pines*, 108-10.

⁷³ Ibid., 122-26.

⁷⁴ "Labor," *The Eagle* (Fayetteville), Jan. 4, 1872.

J.D. McNeil had put his Cumberland County farmstead up for sale in 1869, describing the property west of Fayetteville as productive farmland. McNeil was cultivating about one hundred acres and another two hundred acres were forested. The two hundred acres were “well timbered” and contained “round pine, never yet used for turpentine,” he claimed. But McNeil pitched the property primarily as a farm, focusing on the orchard, vineyard, and the quantities of corn, cotton, wheat, oats, and potatoes that he grew there. He suggested the prospects were good for using the pine trees, although he did not promote them as the main selling point. McNeil perhaps recognized that two hundred acres of longleaf were not enough to yield a significant amount of turpentine over several years. The land was better suited for growing crops, and perhaps doing some turpentine as a secondary enterprise.⁷⁵

Nevertheless, some fifty-five turpentine stills operated in and around Fayetteville and more were planned, the *Eagle*’s editor noted. Operators intended to tap into “fresh trees in new territory,” thirty miles or so outside of Fayetteville, and other tracts further from town. The region continued to need more rail lines to take full advantage of those “fresh” areas of longleaf, the editor argued. He was treading cautiously in discussing the two economic activities of crop farming and turpentine, both of which needed workers. He likely meant in part to support the interests of larger landowners, who wanted more local men working for them raising crops rather than working in the woods as turpentiners. But the editor also recognized the turpentine industry continued to be important locally, even though longleaf was getting scarcer.⁷⁶

An owner in 1870 offered 2,620 acres of “round pine lands” that supposedly had never been boxed for turpentine, north of Fayetteville near the Lower Little River and Crane Creek.

⁷⁵ “For sale, 300 acres of excellent, level farming land,” *The Eagle* (Fayetteville), Nov. 4, 1869.

⁷⁶ “Labor,” *The Eagle* (Fayetteville), Jan. 4, 1872.

“There are but few such tracts now to be found,” advised land agent James G. Cook, referring to the fact that this was a sizeable tract with large pines, presumably longleaf. While Cook had a financial interest in promoting the land as a rare opportunity, he was correct that finding that many acres of mature, unturpented longleaf on the market was fairly uncommon.⁷⁷

However, the 2,620 acres that Cook promoted were not a truly unique property, as other significant tracts of mature longleaf still came on the market occasionally in the 1870s in southeastern North Carolina, such as the 4,700 forested acres owned by the estate of John C. Williams Sr. In 1875, the estate’s administrator promoted the Williams lands in Cumberland and adjacent Harnett County as prime for timber, turpentine, and farming, including 1,300 acres along the Cape Fear River that were good for corn, cotton, and wheat, and the 4,700 acres of “piney woods land.” The wooded acreage was “valuable on account of its exceedingly heavy growth of pine forest, and admirably adapted to the lumber, timber, and turpentine business,” he claimed. He did not claim the pines had never been cut or turpented, but he did seek to make the potential for exploiting longleaf key to the land’s appeal.⁷⁸

H.A. Munroe marketed a tract of 603 acres in 1872 in the same part of Cumberland, touting the pines on the land as having good value especially for yielding turpentine. The land also included about two hundred acres of swamp land, part of which Munroe or another owner had drained to farm, and the rest with “much pine and juniper timber.” Munroe acknowledged that the most of the pine, presumably longleaf, had been boxed in the past for turpentine, but the pine was “not much worked, and well rested,” he claimed, including a portion that was “rested for more than 20 years and is equal to the virgin forest.” Munroe thus promised there still was

⁷⁷ “Lands! Lands! Lands!”, *The Eagle* (Fayetteville), Nov. 24, 1870.

⁷⁸ “Important land sale,” *North Carolina Gazette* (Fayetteville), Jan. 7, 1875.

significant value to be extracted, as the trees had been left alone long enough that they would again “run well” if hacked anew. Munroe even touted the presence of valuable trees on adjacent lands owned by others, claiming that his land was “open for miles [northward] to the best virgin pine and oak forests.” He was grasping for a way to claim “virgin” status for his longleaf.⁷⁹

Landowners sold smaller tracts, such as 211 acres located about eight miles west of Fayetteville, described in 1875 as “well timbered pine land [that] has been boxed, and is suitable for turpentine, making cross-ties, mill logs, etc.” Two years later, William Wright of Fayetteville put his “plantation” up for sale, including about 138 acres just northeast of the town along the Cape Fear. Portions of Wright’s land were cleared for farming, perhaps half of the total, while the rest was “finely timbered” and “in splendid timber.”⁸⁰ There also were tracts like 600 acres on the market in 1874, located about six miles west of Fayetteville. The sellers highlighted its location on Beaver Creek, which could power a new saw and grist mill. About one hundred acres were being farmed, and that acreage was “as good for cotton and corn as any upland in the county,” the sellers claimed. They said nothing about the qualities of the other 500 acres, which suggests there were no longleaf or hardwood stands on the land with value enough to promote. This was one example of land on which longleaf likely had been tapped or timbered to exhaustion, so that the sellers could not make longleaf a selling point.⁸¹

The *North Carolina Gazette* reprinted an 1873 article from agricultural journal *Southern Cultivator* that discussed the problem of making older southern farms more productive, and included an argument for the “preservation of existing forests and the cultivation of valuable

⁷⁹ “Valuable plantation,” *The Eagle* (Fayetteville), Feb. 1, 1872.

⁸⁰ “Administrator’s sale,” *North Carolina Gazette* (Fayetteville), April 15, 1875; “Who wants a bargain?” *North Carolina Gazette* (Fayetteville), June 21, 1877.

⁸¹ “Public sale!” *North Carolina Gazette*, Oct. 22, 1874.

timber trees.” Owners of the older farms should not clear any more of the remaining trees, the article contended. And from those wooded portions, “If the timber on them is judiciously removed, (*old* and *dead* trees only taken off and an eye had to *thinning* out, instead of indiscriminately cutting) the younger growth will soon replace the older and a perpetual supply of timber be kept up.” The idea was to refrain from clearing more wooded land for farming, and to cut trees more selectively. This article was an instance in which the notion of using forests differently, in very broad terms, circulated in part of longleaf North Carolina in the early 1870s. However, the *Gazette*’s advocacy did not go much beyond reprinting the article.⁸²

The next year, the *Gazette* was eager for construction to start on a railroad between Fayetteville and Florence, South Carolina, that had been planned and surveyed but still not commenced. “Putting in direct communication with us a fine farming country, it would open to transportation also a large section of round pine and timber lands, with an exhaustless capacity for lumber and naval stores,” and enable connections to Wilmington and Charlotte, the *Gazette*’s editor proclaimed. A Harnett County resident argued similarly a decade later that longleaf could support a new railroad between Lillington and Sanford. The resident wanted the road built along a ridge between the two towns that was “clothed with a forest of long leaf pine, varying in breadth from two to four miles,” and he contended the forest would “support [the road] for years,

⁸² “Our old farms – what shall we do with them?” *North Carolina Gazette*, Oct. 16, 1873; original article of same title, *Southern Cultivator* Vol. 31, no. 9 (September 1873), 360. While the *Cultivator*, published in Georgia, made some progressive suggestions on agriculture and forests in this article, it advised readers in the same article, “The thoughtful student of history knows the great power of *land owners* in a country. Perhaps in no part of the world is the ownership of *all* the land more essential to the continued dominancy of the ruling race, than at the South. Thoughtless persons, and some pressed for means, will sell portions of their land to the blacks, we are satisfied however that our people will not generally adopt so suicidal a policy” [emphases in article].

and the good farming belts on each side would be concurrent and permanent feeders.” Longleaf was the foundational resource that investors could use to launch such railroads.⁸³

G.W. Cain, a resident of the Ingold community in southern Sampson County, hoped to see an extension of the Cape Fear and Yadkin Valley railroad there, in part to take advantage of the “large quantity of timber in this section.” A resident of nearby Garland described that community on the sandy ridge between the South and Black rivers as within “one of the finest long-leaf pine sections of North Carolina.” This part of Sampson “seems to be a natural pine land, as the old growth passes away, to be succeeded by another, then another; you can find here forests in all stages of development, from the giant old pine, as he has stood for centuries, to the young sapling just starting from the mast,” the Garland promoter stated in 1890. “I expect to see Garland hold out its advantages to lumber and turpentine men.” Even as longleaf became scarcer in eastern North Carolina, it remained central in the aspirations for economic growth in areas that still could claim the presence mature pine stands.⁸⁴

The *North Carolina Gazette*’s editor chastised eastern North Carolinians in 1875 for continuing to make turpentine even though overproduction was driving down turpentine prices. The paper had advised people the previous year to refrain from putting so much of their time, labor, and capital into turpentine. The *Gazette* was not “among those who deal in wholesale tirades against the production of turpentine and rosin, and decry the whole business as ruinous to the country,” the editor insisted. “There are thousands of acres of land which are fit for nothing but making naval stores.” However, the best course was to focus on growing cotton, corn, and

⁸³ “The Florence railroad,” *North Carolina Gazette*, Sept. 3, 1874; “Letter from Harnett,” *Fayetteville Observer*, Feb. 6, 1884.

⁸⁴ “State news,” *Fayetteville Observer*, Feb. 9, 1888; “An immense gravel bed,” *The Caucasian* (Clinton, NC), April 18, 1889; “The long-leaf pine – ‘The Old North State Forever!’ Garland a thriving town,” *Fayetteville Observer*, May 29, 1890.

other grains over the next year. Again, this was an editor reaching for a balance between criticizing an aspect of turpentine production without engaging in a “wholesale tirade” – as others clearly *were* engaged in – thus supporting the turpentine industry in general terms.⁸⁵

By 1880, human activity had “destroyed” a greater proportion of the pine forests in eastern North Carolina than in the Deep South states, according to a federal forest report created as part of the Tenth Census. In North Carolina’s northeastern counties, practically all of the pre-colonial pine stands were gone by 1880, and the second growth of pines, mostly loblolly, was not nearly as valuable in economic terms as the original longleaf, according to the federal report. “The merchantable pine, too, has been removed from the banks of the Cape Fear and other rivers flowing through the southern part of [North Carolina], and although these streams still yield annually a large number of logs, they are only procured at a constantly increasing distance from their banks and with a consequent increasing cost for transport,” the report added. However, as railroad companies expanded the rail system, timbermen were increasingly willing and able to reach into the remaining longleaf stands that were further from streams.⁸⁶

South of the Neuse River, significant stands of mature longleaf pine remained in 1880, according to census estimates. In terms of potential lumber, the “merchantable” or sawmill-worthy longleaf pine in fifteen counties in southeastern North Carolina equated to some 5.2 billion board feet of lumber, the federal report estimated. That total included estimates ranging from 864 million board feet of longleaf in Robeson County to 21 million board feet in Duplin

⁸⁵ “Naval stores,” *North Carolina Gazette*, Mar. 4, 1875. Fayetteville native and Confederate veteran James Henry Myrover and his brother, George G. Myrover, published the Democratic-aligned *Gazette* in Fayetteville from 1873 to 1892; see William S. Powell, “Myrover, James Henry (Harry),” NCPedia.org, accessed Feb. 22, 2016, <http://ncpedia.org/biography/myrover-james-henry-harry>.

⁸⁶ Sargent, *Report on the Forests of North America*, 515. The U.S. Census Office placed Sargent, a leading botanist and director of the Arnold Arboretum of Harvard University, in charge of assembling and writing portions of the report. This was the first federal effort at taking stock comprehensively of the nation’s forests, primarily as an economic resource.

County. In the amount of merchantable longleaf, the top five counties in order were Robeson, Cumberland, Sampson, Johnston, and Moore, with longleaf in these counties accounting for about 64 percent of the estimated total south of the Neuse River.⁸⁷

The report's lead author, botanist Charles S. Sargent, did not tramp the piney woods of eastern North Carolina to gather such data, but relied mainly on two Wilmington businessmen for his accounting of the state's longleaf. Edward Kidder, a prominent lumber merchant in the city, was his source for estimates of the merchantable longleaf south of the Neuse. Another leading businessman, A.H. Van Bokkelen, whose ventures over the years included a turpentine distillery, provided information on naval stores. Both Kidder and Van Bokkelen were active for many years in Wilmington's economic development.⁸⁸

To generate the longleaf estimates, Kidder used "actual surveys and the reports of a large number of timber-land experts" familiar with the southeastern counties. As a lumber merchant with an economic interest in knowing how much longleaf remained within reach of Wilmington, Kidder likely had connections with such timber experts, which suggests that the estimates he provided were well-founded. Of course, as a Wilmington businessman and booster, he also had an interest in claiming that longleaf remained plentiful and that the region thus was worthy of investment. Nevertheless, the evidence is that a significant amount of longleaf remained in southeastern North Carolina. To put Kidder's estimate of 5.2 billion board feet of merchantable longleaf in perspective, lumber data for North Carolina and the United States in the 1880 census are helpful. Across the coastal, piedmont, and mountain regions of the state, some 776 sawmill

⁸⁷ Sargent, *Report on the Forests of North America*, 516.

⁸⁸ Ibid., 516-17; "The late Edward Kidder," *Wilmington Morning Star*, Feb. 28, 1885. Van Bokkelen was president of the Wilmington chamber of Commerce in 1885, the year when Kidder died; see also "Slight fire," *The Daily Review* (Wilmington), Jan. 8, 1885.

operations produced about 242 million board feet of lumber, using longleaf but also other pines and hardwoods such as oaks and cypress. The sawmills in North Carolina varied in size, but their average annual production was about 311,000 board feet.⁸⁹

For the entire U.S., manufacturers made about 18.2 billion board feet of lumber over that year. The leading lumber state was Michigan, where white pine was the primary timber tree and sawmillers produced nearly 4.2 billion board feet of lumber for the year, followed by Pennsylvania with about 1.75 billion board feet and Wisconsin with 1.5 billion board feet. Individual Michigan sawmills, on average, produced 2.5 million board feet of lumber in that year, or about eight times the average for North Carolina mills.⁹⁰

When compared to Michigan's annual lumber output in 1880, the estimated 5.2 billion board feet of old-growth longleaf standing in southeastern North Carolina hardly seems plentiful. If the same levels of capital, labor, and infrastructure were in place there as in Michigan, sawmillers theoretically could have cut through all of that longleaf in about fifteen months. But North Carolina, of course, did not have that level of investment. For example, lumber producers in Michigan invested an average of \$23,808 in their sawmilling operations in 1880, compared to capital investment of \$2,246 per producer in North Carolina. This difference reflects the fact that the Great Lakes region had become the center of the American lumber industry by the 1860s.

⁸⁹ Edward Kidder was born in New England in 1805 and moved to Wilmington around 1826. He soon joined the sawmill business and continued to build his enterprise until his death in 1885. Kidder also was involved in ventures like textile mills. See "Death of Edward Kidder, Esq.," *Wilmington Morning Star*, Feb. 26, 1885; "The late Edward Kidder," *Wilmington Morning Star*, Feb. 28, 1885; "The Wilmington cotton mills," (Wilmington) *Daily Journal*, Mar. 20, 1874; photo of Kidder's home, Louis T. Moore Collection, New Hanover County Public Library, accessed Dec. 14, 2015, <http://cdm16072.contentdm.oclc.org/cdm/singleitem/collection/p15169coll6/id/974/rec/1>; Sargent, *Report on the Forests of North America*, 486-88.

⁹⁰ Sargent, *Report on the Forests*, 486-88.

When the industry began focusing increasingly on the longleaf forests after 1880 or so, many companies invested in the Deep South, where they could access the largest swaths of longleaf.⁹¹

In Cumberland, Sampson, Robeson, and other southeastern counties, mature longleaf stands did remain as a visible part of the landscapes that people experienced in the early 1880s, and also as significant potential sources of lumber, possibly for several decades. When quantified in board feet, the mature longleaf that remained in southeastern North Carolina equaled about 21.5 times the annual lumber production for the entire state in 1880. Timbermen cut down about 108 million board feet of North Carolina longleaf in the 1880 census year, or about two percent of the estimated remaining longleaf, estimated Kidder, the Wilmington lumberman.⁹² There still were landowners like John Blue, who described his 4,600 acres in Cumberland County as “well timbered with long leaf pine” in the early 1880s, with just seventy-five acres under cultivation.⁹³ But while there was the potential for several decades’ worth of longleaf for making lumber, an increase in the rate of cutting would mean a shorter time frame.

The timbering rate already had increased in Robeson and Sampson counties by 1880, while it had declined in Cumberland since the 1850 census. Lumber production in Robeson rose to 7,842,000 board feet for 1880, from a combined lumber/ton timber total of 225,000 b.f. for 1850. Sampson sawmillers turned out 1,329,000 b.f. for 1880, compared to 246,000 b.f. of lumber and ton timber for 1850.⁹⁴ James McQueen’s sawmill in western Robeson turned out 1.5

⁹¹ Ibid., 488.

⁹² Ibid., 486-88 and 516. The figure of 108.4 million board feet is described in Sargent’s report as the amount of longleaf “cut” during the year. The calculation of 45 percent assumes the cut in Sargent’s report and the lumber production are measured in the same terms. However, if one assumes that the amount of cut timber eventually yields a lower amount of manufactured lumber, then the 45 percent figure is too high. But clearly, longleaf lumber was a significant portion of the overall lumber production of the state in 1880.

⁹³ D.P. McEachern, ed., *All About Robeson County* (Lumberton, N.C.: W.W. McDiarmid, 1884), 14.

⁹⁴ 1880 U.S. census, Agricultural and Manufacturing Census Records, Alamance-Franklin Counties, North Carolina.

million board feet of lumber for 1880, the highest total for a single mill in Robeson that year. McQueen put the value of that lumber at \$21,000. He reported investing \$5,000 in the mill, and employing up to fifteen men at total wages of \$2,200. McQueen was not using steam technology, as his mill relied on the flow of Shoe Heel Creek, although the mill did have multiple saws. McQueen's sawmill and four others in the same township turned out 4.3 million board feet for the year, or about 55 percent of the county's total.⁹⁵

In Cumberland, sawmillers reported making about 1.3 million board feet of lumber for the 1880 census year, compared to 8.7 million b.f. of lumber and 5.5 million b.f. of ton timber for 1850. This change was due partly to the fact that state lawmakers sectioned off the northern portion of Cumberland in 1855 to form Harnett County. But even with that change, the decline in Cumberland resulted mainly from lumbermen going elsewhere to find the trees, as longleaf increasingly was cut out in Cumberland or controlled by turpentiners.⁹⁶

In 1883, the *Fayetteville Observer* highlighted some of the details from the 1880 census for Robeson County, such as the 8,846 bales of cotton and 360,000 bushels of corn that farmers produced, along with "vast quantities" of naval stores. In addition, the editor pointed out that Robeson's forests "contain more long leaf pine, soon to prove a mine of wealth, than any other county, [totaling] 864,000,000 board feet" – the figure from Sargent's federal forest report.

Around that time, civil engineer Jonathan R. McDuffie began crafting a new map of Robeson.

⁹⁵ Ibid. Cumberland's population reached 23,836 inhabitants by 1880, with about 53 percent white, and the other 47 percent of inhabitants labeled as "colored." Robeson's total population of 23,880 people was about half white and half "colored," while Sampson's population of 22,894 people was about 58 percent white and 42 percent "colored." See "Statistics of the Population of the United States at the Tenth Census," accessed Jan. 22, 2016, www.census.org.

⁹⁶ 1880 U.S. census, Agricultural and Manufacturing Census Records, Alamance-Franklin Counties, North Carolina. The 1880 manufacturing schedules for Cumberland, Robeson, and Sampson do not list any figures for "ton timber," as in 1850. This could reflect changes in terminology or data collection, but it also could suggest that timbermen had removed all of the largest longleaf and loblolly pines designated for ton timber by 1880. I have not yet found evidence for how much land was taken from Cumberland to form Harnett County in 1855, but I estimate Cumberland lost 25 to 30 percent of its land mass to Harnett. A smaller piece of Cumberland went to the creation of Hoke County in 1911, along with a part of Robeson County.

Assessing the county's natural resources such as timber was one of his aims, and he described his findings in the *Manufacturers' Record*, which often advocated for greater exploitation of the South's natural resources. "I found large quantities of pine, cypress, oak, dog-wood, hickory, ash, poplar, persimmon, sweet gum and black gum, with several other kinds of wood," McDuffie wrote. "The most valuable timber is the long-leaf pitch pine, of which there is a vast quantity standing in the forest." McDuffie stated that he consulted "many lumber-men" and came up with 864 million board feet as the most conservative estimate for the longleaf standing in Robeson, but it seems likely that either he, or the people he talked to, repeated the 1880 census estimate. Still, McDuffie provided another indication that a significant amount of longleaf remained.⁹⁷

Even as railroads developed to access that longleaf, the practice of rafting logs on streams continued in southeastern North Carolina. A Clinton resident urged the Wilmington and Weldon Railroad in 1889 to create a first-class car for passengers coming into Clinton. The cars sometimes were full of raft hands, and the Clinton resident claimed with distaste that most of the hands were drunken black men who were offensive to the female passengers, and thus the first-class car was needed – presumably for whites only. The men likely had rafted timber down the Cape Fear to Wilmington, and were taking the train back home to the southeastern counties.⁹⁸

In October 1890, 29-year-old Edgar Knowles, who lived in the Taylor's Bridge township of Sampson County with his wife and two children, was killed while rafting logs. Knowles, a member of the Farmers' Alliance in Sampson, was crushed between two logs, possibly on the Black River. Earlier that year, another resident of Sampson noticed so many logs floating on the Little Coharie, it seemed to him that a person could walk on them for a long distance. George H.

⁹⁷ "Superior court of Robeson County," *Fayetteville Observer*, April 26, 1883; "Our pines and other timbers," *Fayetteville Observer*, April 16, 1885.

⁹⁸ "Locals," *The Caucasian* (Fayetteville), March 14, 1889.

Hall planned to build a sawmill on the Black River in Sampson in 1890, and he was eager for logs coming down the river. “Stop and give me a chance at your rafts,” Hall appealed to men rafting logs, beseeching, “You can get your money, get on the train and get home the same day.” A Dismal Township resident in Sampson County reported in January 1894, “Many of our citizens have gone to Wilmington on timber, and others are preparing to go.” Rafting logs was an activity in which smaller farmers and other local people benefitted from the timbering of longleaf, and also witness the flow of longleaf from living forests to streams to the sawmills.⁹⁹

Meanwhile, snippets of speeches from a small campaign event in Sampson County around the same time suggest how the status of North Carolina’s longleaf appeared at times in political discourse. A Populist attendee at the event before the 1892 election mocked two Democratic speakers, one of whom painted a bleak picture of the landscape in eastern North Carolina, especially the pine forests and soils. His depiction probably was not too far off the mark. In his remarks, Democrat F. R. Cooper had tried to convince the gathering that “the turpentine trees being worn out and so much of the timber being sold, and the soil being washed off the hills, and other elevated fields being worn out that we could never expect anything but stringency of money, and a lot of other uncertain sounding, extreme radical stuff,” claimed the Populist. Dismissing the Democrats’ arguments was his primary aim in writing about the event for the *Caucasian*, published locally by Farmers’ Alliance and Populist leader Marion Butler, a Sampson County native.¹⁰⁰

While Cooper was making a partisan argument, his remarks showed some awareness that turpentine and timber enterprises were having destructive impacts on longleaf, with turpentine

⁹⁹ “Taylor’s Bridge,” *The Caucasian*, Oct. 14, 1890; “Honeycutts,” *The Caucasian*, July 10, 1890; “Dismal,” *The Caucasian*, Jan. 18, 1894; “When a fresh comes in the Coharies and Black River,” *The Caucasian*, July 10, 1890.

¹⁰⁰ “Straightout speaking,” *The Caucasian* (Clinton), Sept. 29, 1892.

“wearing out” trees and timber interests buying up the best remaining stands, putting the pine forests’ future as an economic resource for smaller landowners in question. Cooper wanted the audience to accept this view of a damaged, marginally productive landscape, along with his related political arguments. The Populist rejected everything the Democrats said that day. But he took issue primarily with Cooper’s conclusion that the Populists had no chance at lessening the “stringency of money,” or tight money supply, and therefore should stay in the Democratic fold. The Populist was not as intent on arguing the pines and soils were in better condition than Cooper suggested, and perhaps even agreed that longleaf had been reduced significantly.¹⁰¹

Cooper’s mention of worn-out pine trees points to an important question in North Carolina and the rest of the longleaf region, about whether hacking trees for turpentine over several years weakened the wood, and thus made the trees less valuable or even unsuitable for lumber. Many producers and consumers of lumber in the late nineteenth century contended that turpentine indeed left the wood from those trees less durable. Charles S. Sargent reflected this perception in his forest report from the 1880 census in stating, “Lumber made from trees previously worked for turpentine is of inferior quality, although it is probably less injured than has been generally supposed.”¹⁰² Sargent’s statement was an initial step toward changing the negative views of lumber from turpentine trees, but federal officials went on to challenge this view in stronger terms, in part because the Forestry Division of the Department of Agriculture did not want to see vast acreages of longleaf passed over as a source of lumber. For division chief Bernhard Fernow, the issue became even more pressing as turpentine increased across the longleaf belt in the Lower South. He noted in 1893 that crews at that time were hacking into

¹⁰¹ Ibid.

¹⁰² Sargent, *Report on the Forests*, 518.

an additional one million acres of trees annually across the region. Meanwhile, Fernow knew that lumber capitalists were looking increasingly southward as they cut out the white pines and other forests of Michigan, Wisconsin, and Minnesota.¹⁰³

Fernow's division studied the question and claimed results in 1893 showing that turpentine trees yielded lumber that was just as strong and durable as from un-tapped longleaf trees. Fernow proclaimed "without reserve that the timber of Long-Leaf Pine is in no way effected by the tapping of turpentine." The study results "should be worth several million dollars to the forestry interests of the South, permitting readier use and sale for a product that left uncut endangers the future of the forest," Fernow contended. He was referring to the belief that turpentine pines, with their resin-covered scars, made fires burn more destructively – so it was best to cut them for timber. The scale of longleaf timbering that followed in the late 1890s and the early twentieth century suggests that the study by Fernow's division did lead to greater timbering of turpentine trees, along with vast areas of untapped longleaf.¹⁰⁴

Moving to the south and southwest continued to be the course that some North Carolinians chose near the end of the century, with longleaf part of their visions of past and future. A former resident of Fayetteville was in Louisiana in late 1897 in hopes of building a sawmill. The man wrote a friend that he was considering Leesville, situated by a railroad running "for a hundred miles through a magnificent forest of virgin long leaf pine." He had found a place where longleaf still grew on a scale that no longer existed in North Carolina by 1897.¹⁰⁵

¹⁰³ Outland, *Tapping the Pines*, 212; "Effect of turpentine gathering on the timber of long leaf pine," *Fayetteville Observer*, Feb. 16, 1893; Andrew D. Rodgers III, *Bernhard Eduard Fernow: A Story of American Forestry* (Princeton, NJ: Princeton University Press, 1951), 183 and 193-94.

¹⁰⁴ Ibid.

¹⁰⁵ "100 miles of virgin pine," *Fayetteville Observer*, Dec. 9, 1897.

A Cumberland County family that moved to eastern Texas in December 1898 found a landscape with significantly more old-growth longleaf remaining than back home. A family member writing as “Kip Kimpton” described the family’s new home in Polk County, Texas, noting that several other “resolute ‘Tar Heels’” lived in the region. She made sense of the new landscape in terms of four features. Along with bottomlands, uplands, and prairie lands, there was a feature that locals called “sand hills,” although in Kimpton’s opinion, they did not really compare well to sand hills back in Cumberland, except for the presence of longleaf pine. “Before the saw mills [were built], a magnificent forest of these stately [longleaf] trees covered the sand hills,” she wrote about Polk County. “Turpentine was never worked here, and despite the havoc wrought by the merciless mills, thousands of acres are still covered with a growth of long leaf pine superior in size and number to the slaughtered monarchs of Carolina’s depleted forests.”¹⁰⁶

As Kimpton compared the family’s new home to Cumberland, the presence of longleaf made east Texas somewhat familiar. Kimpton noticed differences as well, such as her report that no significant turpentine had taken place in that area. In her eyes, the trees in Texas were bigger and the stands more dense than the longleaf that once stood in North Carolina. Still, Kimpton could not avoid noticing that lumber companies were working relentlessly on the east Texas longleaf. She also recognized the destruction of longleaf that turpentine and timber operators had caused back home, in writing about the “slaughtered monarchs of Carolina’s depleted forests.” Perhaps the more abundant longleaf remaining in Texas made the decline of North Carolina longleaf more striking to Kimpton. And once she was distant from Cumberland

¹⁰⁶ “From Quewhiffle to Texas” (two parts), *Fayetteville Observer*, Dec. 30, 1897, and Jan. 20, 1898. Quewhiffle was a township in western Cumberland County, but it became part of newly established Hoke County in 1911. Based on my reading of Kimpton’s two letters, I am guessing that she was a woman.

County, Kimpton could more easily see longleaf as “slaughtered monarchs,” and not solely as an economic resource.¹⁰⁷

Historian Robert Outland contends that many people in North Carolina and the rest of the longleaf South never conceded fully that the longleaf forests were being reduced dramatically, even as the start of the twentieth century neared. “They ignored the reality of the pine’s consumption, incorrectly believing that ample resources remained and complete depletion lay only in the distant future,” Outland argues. Non-southerners were more willing to call the destructive impact of turpentining an “avoidable disgrace,” a critique that fit within the larger national context of growing interest in forest conservation near the turn of the century.¹⁰⁸

In North Carolina, Alonzo Garrason of Fayetteville did notice enough destruction of longleaf in his native state’s eastern counties by the spring of 1890 that he was compelled to state his concerns publicly. Originally from Brunswick County, Garrason owned a grocery business in Fayetteville and previously captained a steamboat between that city and Wilmington on the Cape Fear River for many years. In an article, Garrason called for North Carolinians to take steps to ensure a future growth of longleaf in the state. His suggestions focused primarily on protecting young longleaf trees from damaging forces such as free-ranging hogs, which relished devouring the buds and roots of longleaf seedlings, and also eating pine seeds.¹⁰⁹

¹⁰⁷ “From Quewhiffle to Texas,” *Fayetteville Observer*, Jan. 20, 1898.

¹⁰⁸ Outland, *Tapping the Pines*, 208-10.

¹⁰⁹ Garrason’s article was published in the Fayetteville-based *Farmer and Scottish Chief*, closely preceding May 1, 1890. The *Fayetteville Observer*’s editor discussed Garrason’s article in “The Preservation of the Pine,” *Fayetteville Observer*, May 1, 1890. I have not yet found that edition of the *Farmer and Scottish Chief*. See “Death of a Fayetteville Merchant,” *Wilmington Messenger*, Nov. 7, 1903; “Old Times on the Cape Fear River,” (Wilmington) *Weekly Star*, July 28, 1893; “Captain Alonzo Garrason,” accessed Nov. 8, 2015, <https://bgibson135.wordpress.com/2009/07/04/captain-alonzo-garrason/>.

The *Fayetteville Observer* endorsed Garrason's suggestions in May 1890 and added that, if North Carolinians were to protect longleaf in some way, "it is certain that posterity would honor the wisdom of their fathers which had devised an effectual plan for preventing the utter destruction and obliteration of a great natural growth which furnishes one of the staple articles of commerce." In writing about the future prospects for longleaf, Garrason and the *Observer's* editor implicitly acknowledged that a significant amount of destruction had taken place and likely would continue. The editor also briefly mentioned several local instances in which landowners enclosed patches of longleaf seedlings, mainly to keep out hogs, and the seedlings grew into "splendid specimens of the round long-leaf pine" – which required several decades of growth. That was the kind of action that the editor endorsed, largely in the interest of encouraging new pine stands to use for turpentine and timber in the future. "We believe that the land-owners in the territory of the pine would universally welcome with pleasure any plan which would ensure the protection of the young growth," he concluded.¹¹⁰

The editor and Garrason highlighted a problem – the potential demise of longleaf in North Carolina – and they gestured toward a solution. But if the decline of longleaf indeed was a problem, this problem had important aspects that they ignored. For one, the editor and Garrason did not address whether any changes were needed to how people used the mature longleaf that still grew in eastern North Carolina, that is, boxing trees for turpentine or timbering them. It is likely they endorsed these current uses of mature longleaf, although they might also have felt that advocating any meaningful changes in use was foolish or bound to fail. And hogs were the only damaging agent on which the *Observer* explicitly focused. The two writers' ideas were

¹¹⁰ "The preservation of the pine," *Fayetteville Observer*, May 1, 1890.

intriguing, as far as they went. But neither man advocated for a specific plan of action for protecting longleaf seedlings, or any steps toward drafting a plan and working to implement it.¹¹¹

The *Observer's* editor again argued for the “preservation” of pines in North Carolina in September 1890, commenting on a recent article in another paper in which Wilmington minister Thomas H. Pritchard praised the state’s pine trees, at least for their economic value. “I take my hat off and bow with profound respect to the Pine Tree,” Pritchard enthused, “for of all the products of the forest which have conferred such incalculable blessing upon man, none has proved so great a benefit as this noble tree.” Pritchard’s aim was to promote both his adopted home town of Wilmington, and a local manufacturer that was using pine needles.¹¹²

A native of Charlotte, Pritchard was pastor of First Baptist Church in Wilmington for about ten years starting in 1884. He was pastor for several other Baptist churches before coming to Wilmington, and also had been president of Wake Forest College and a trustee of the University of North Carolina. Pritchard highlighted a local company using pine needles to make a fiber with several manufacturing applications, and also extracting oil from pine needles for medicinal and other uses. That was the extent of his explicit admiration for pine trees.¹¹³

Pritchard was wise to promote the value of pines, the *Observer* stated. Indeed, the editor claimed to be more convinced than ever about the “paramount importance of making systematic efforts for the preservation of the pine and the protection of the springing roots and shoots from

¹¹¹ One wonders if this focus on hogs connected to larger questions in the late 1800s about free-ranging of livestock in the southern forests, although the *Observer* did not make any explicit references to that issue in this article.

¹¹² “The pine tree,” (Raleigh) *State Chronicle*, Sept. 21, 1890; for biographical information on Thomas Henderson Pritchard, see John R. Woodard in William S. Powell, ed., *Dictionary of North Carolina Biography* Vol. 5 (Chapel Hill: University of North Carolina Press, 1994), 149-50.

¹¹³ “The pine tree,” (Raleigh) *State Chronicle*, Sept. 21, 1890; Powell, *Dictionary of North Carolina Biography*, 149-50. A letter writer from Wilmington, perhaps Pritchard, in 1884 touted the start of the same company that Pritchard promoted in 1890. See “Letter from Wilmington,” *Fayetteville Observer*, Mar. 19, 1884.

the ravages of hogs and other destructive agencies.” As new manufacturing uses made longleaf even more valuable, the editor cautioned, at the rate that North Carolina pines were being used, “the time is not far distant when the already sparsely wooded territory will be denuded of its growth.” The editor thus acknowledged, again, that the longleaf forests of the state already had been significantly reduced, and could be completely destroyed. But his message was weakened by the focus on hogs destroying young pine trees, and on new manufacturing uses for parts of the trees such as the pine needles – when it was the turpentiners and timbermen who were impacting the pine forests most significantly.

In contrast to occasional nods to the idea of protecting young longleaf, it was in promoting the use of the remaining mature longleaf to the fullest that people like the *Observer*’s leaders and others were most consistent and enthusiastic. In 1888, brothers W. J. and A. K. McDiarmid built a steam-powered sawmill in the Spout Spring area of Robeson County, and invited the *Observer* to see the new enterprise. The brothers had extracted turpentine for several years from a large forested area in the region, an “immense acreage of the finest long leaf pine in this section.” The brothers controlled another large area of “virgin pine untouched,” and were preparing to cut that longleaf for the new sawmill in Spout Spring, near the Cape Fear and Yadkin Valley rail line.¹¹⁴

The new mill had “all the latest improvements” and could produce 10,000 to 15,000 board feet of lumber per day, which made it one of the area’s largest mills. “It is here one continual hum; each man has his particular duty, and to do it he is kept ever busy,” the *Observer*’s editor cheered. The McDiarmids were “of the energetic and enterprising kind, and to push forward and make everything move before them is their motto, and nothing proves it more

¹¹⁴ “A big enterprise,” April 26, 1888, *Fayetteville Observer*.

than this big enterprise at Spout Spring.” The mill was a site of energy and economic activity that promised New South-style benefits for the area, which in some ways had been a “barren spot” before the mill began “circulating a great deal of money among the needy of that neighborhood,” the editor contended.¹¹⁵ Compared to the mills that soon would be built in the Deep South, the capacity of 15,000 board feet per day was quite small – only about 10 percent of the capacity of those large mills. But the McDiarmid mill was relatively large for southeastern North Carolina at that time, and it was one of the lumber enterprises increasingly cutting the mature longleaf remaining in this part of the state.

Indeed, some twelve mills were sawing longleaf with an “unceasing hum” in the Red Springs area of Robeson by the next year. The *Observer* praised two of the sawmill owners as among the “most active and moving spirits of the grand manufacturing corps,” as they had set up their sawmills near Red Springs and also built the first part of an envisioned eight-mile rail line, with the aim of reaching more of the area’s longleaf. The Red Springs area still contained significant stands of mature longleaf because they previously had been too far from a cost-effective means of transportation, such as the Lumber River or the Cape Fear and Yadkin Valley Railroad, to draw investment from saw-millers, the *Observer* explained.¹¹⁶

The newspaper men indulged in a ride on the locomotive newly purchased by two of the sawmill companies. “On either side of the [rail] road, the tall majestic pines, ere long doomed to meet their fate, can be seen as far as the eye will reach,” the editor wrote, mixing appreciation for the “majesty” of the pines with praise for the lumbering enterprise. “It is a country that makes the

¹¹⁵ Ibid.

¹¹⁶ “Red Springs, a growing place,” *Fayetteville Observer*, Jan. 3, 1889; see also “Map of Robeson County, North Carolina, 1884,” surveyed by John McDuffie, re-drawn by Lawrence E. Bethune in 1995, accessed Nov. 15, 2015, <http://www.usgwarchives.net/maps/northcarolina/countymap/1884robeson.gif>.

heart of a saw mill man rejoice, and this timber for miles on either side of the road has been secured by these two enterprising firms.” Sawmills there were paying more than \$5,000 a month in wages, the editor claimed. A new planing mill had just been built, for finishing rough lumber from the mills, and a sash, door, and blind factory was under construction. A second hotel for Red Springs was planned, a new Presbyterian church was almost completed, and a new section of streets and lots had been laid out. “It will be thus seen what railroads accomplish for a country, how they open up the way, and help to develop the otherwise unavailable products of the land, giving work to thousands, and these thousands from their necessities by purchase and otherwise affording a livelihood to nearly as many more,” the editor grandly concluded, pinning the progress of the entire community to railroads paired with intensive use of longleaf.¹¹⁷

While the longleaf in Robeson and elsewhere in southeastern North Carolina might have been vaguely majestic, it was, first and foremost, the resource that made possible such expanding economic activity, in the minds of many. Local leaders and other citizens with that view might agree with the wisdom of protecting longleaf seedlings. But they did not want to see any obstacles to cutting as much mature longleaf as possible. They would not see much appeal in embracing a more comprehensive approach to protecting young longleaf, while also leaving aside some areas of mature longleaf and only selectively cutting other portions, rather than clear-cutting. The stakes were high in terms of economic and social progress, and the appetite for more railroads and more growth of the towns superseded concerns about the remaining longleaf.

Longleaf likewise was a critical element of the vision for expanding the economy and population of Fayetteville and the surrounding region that the *Observer* promoted regularly in pieces like “Cumberland’s Timber Resources, Equaled by Few and Surpassed by None,” written

¹¹⁷ “Red Springs, a growing place,” *Fayetteville Observer*, Jan. 3, 1889.

by the paper's "forest editor" in 1889. The editor described the standing forests in the county in terms of potential board feet and revenue, with longleaf at the top of the list of valuable trees. Even in 1889, enough mature longleaf grew in Cumberland to yield some 700 million board feet of lumber, embodying a "vast amount of wealth" worth an estimated \$4.2 million in lumber. The cypress in the county's wetlands areas were second in potential economic value, followed by shortleaf pine and several hardwood species. In total, Cumberland's trees contained potential lumber worth about \$11.1 million, the editor touted, adding that about 2,200 miles of railroad could be built with that amount of money.¹¹⁸

But if investors would just build two hundred miles or so of rail lines into the longleaf and other valuable trees around Cumberland, the work of converting these trees into revenue could expand. "After the timber has been hauled off, there will be ample business to make these [rail] roads paying institutions, increasing as the years roll by," the editor predicted. As the railroads thrived, they could expand outward from Fayetteville in several directions, with the potential to quadruple the population and businesses of Fayetteville, the editor imagined, and restore the town to its previous prominence as a key market. It was a shame that the community had "wasted" resources in previous decades – or cast away its pearls, in one sense of the phrase – rather than building more railroads, but it was not too late. This perspective cast the use of longleaf and other trees as vital and inevitable, connected closely to railroad development.¹¹⁹

Also in 1889, civil engineer D.G. McDuffie surveyed the first section of a proposed railroad from Fayetteville to Albemarle, and reported the land along the first section was "covered with long leaf pine as a principal growth, yet there is juniper, hickory, oak, dogwood,

¹¹⁸ "Cumberland's timber resources, equaled by few and surpassed by none," *Fayetteville Observer*, June 27, 1889.

¹¹⁹ *Ibid.*

holly, persimmon and maple in large quantities.” The population was sparse because large turpentine operators controlled much of the land, McDuffie noted. But for the future of the landscape that the road would cross, he contended, “after the timber is used up (which will require many years to do) it can be turned into vineyards and orchards. It is the very home of the grape: grapes are now growing wild on the hill-tops and in the valleys.” McDuffie was rather matter-of-fact about how easy it would be to create a region of vineyards and orchards, once the forests were cut. The road would connect to nearby regions growing cotton, tobacco, and grains, and Fayetteville could reclaim its place as the market for that region, McDuffie insisted.¹²⁰

The sales pitches for three Sampson County properties in 1890 and '91 reflected how the drive to timber the remaining old-growth longleaf in southeastern North Carolina continued to impact the landscape. The properties included 300 acres owned by the estate of Owen H. Crumpler, and 250 acres offered by C. W. Corriher along the Cape Fear and Yadkin Valley Railroad. Neither seller mentioned the presence of valuable timber on his land. The following year, when M. M. Hall offered a different tract for sale along the railroad south of Roseboro, he stated that part of the land was good for farming with its clay subsoil, and another portion was “well timbered” with “good turpentine forests.” In these examples, the land either had no longleaf worth mentioning, or in the case of Hall’s land, the owner made a modest claim about the value of the longleaf that remained, in contrast to claims by landowners in earlier years of vast forests of pristine pine.¹²¹

¹²⁰ “Civil engineer McDuffie’s report,” *Fayetteville Observer*, Sept. 12, 1889. D.G. McDuffie perhaps was related to Johnathan R. McDuffie, mentioned earlier in this chapter, since both men were civil engineers, surveyors, and map-makers working in Robeson and Cumberland counties and other parts of North Carolina around the same time. But I have not yet determined their connection.

¹²¹ “Sale of land,” *The Caucasian* (Clinton), May 1, 1890; “A big bargain in a valuable tract of land,” *The Caucasian*, April 9, 1891.

On the other hand, state geologist Joseph A. Holmes had taken stock of the longleaf forests in North Carolina around that time and reported that valuable stands of longleaf remained at least in some parts of eastern North Carolina. “It has been discovered that there are very much larger quantities of long-leaf pine timber still standing than estimated by the last census,” the *Observer’s* editor summarized, eagerly taking a forest-is-half-full view of the results from Holmes. The good news, the editor claimed, was that there still was enough mature longleaf “for a number of years” to meet demand for making lumber, and that longleaf forests, as well as shortleaf, could be “greatly extended” by keeping out hogs and cattle and preventing destructive fires, so the forests could to reseed on their own. But this was not a call for changes to current approaches to using the remaining longleaf.¹²²

The beat continued for longleaf-fueled development, such as an effort in 1895 by C.B. Newberry to promote the community of Endon in Cumberland County, about twenty-four miles west of Fayetteville. Endon was “in the center of the piney woods belt,” Newberry wrote, and home to three sawmills, three turpentine distilleries, and several other businesses. Jonathan Blue was involved in several of the enterprises, and in the Aberdeen and Rockfish Railroad that passed through the area, and Blue “stands on the top round of the ladder in all branches of business,” Newberry boasted. “He is a hard working man, full of business all the time, and with all is clever and a perfect gentleman.” About four miles away, the Duke and Blanchard firm also operated a sawmill making longleaf lumber. Newberry portrayed Endon as a place in which clever, industrious men already were investing and others should as well, with longleaf as a central resource. Blue and others were men to admire and emulate, engaged in the righteous

¹²² “News and comments,” *Fayetteville Observer*, Jan. 11, 1894.

enterprise of making lumber – a bit like small-time, New South versions of the captains of industry gaining prominence in Gilded Age America.¹²³

However, as some in southeastern North Carolina portrayed longleaf as still abundant and promoted its use, the geologist Holmes also included a strong critique in his assessment. Once he had taken stock of the forests in North Carolina in terms of their timber potential, and mentioned that some valuable longleaf remained, Holmes also warned in 1895 that the long-term future of these forests was in doubt. He made a relatively strong call for considering the future, and his argument is striking in that sense. He assailed the notion that North Carolina's forests were somehow "inexhaustible," and he pointed out that current timbering practices were wasteful. Still, while he wanted North Carolinians to do a lot more to protect the young growth of trees, he did not push for changes in the current approach to timbering trees in the state.¹²⁴

Indeed, he wanted to see more sawmills established in North Carolina so that more lumber could be manufactured within the state, rather than in mills over the border in Virginia and Tennessee. Holmes noted that the lumber industry in North Carolina had grown fairly rapidly since the mid-1870s and was making "serious inroads" in the state's forests. He was critical of the fact that timber operators often sent logs to sawmills outside of the state, such as pines from northeastern North Carolina to sawmills in Norfolk, Va., and hardwoods from western North Carolina to Tennessee. North Carolinians needed to encourage the establishment of more sawmills within their state "in every possible way," Holmes contended.¹²⁵

¹²³ "Endon items," *Fayetteville Observer*, July 19, 1895.

¹²⁴ "North Carolina forestry," *The Caucasian* (Clinton), Sept. 12, 1895.

¹²⁵ *Ibid.*

The state geologist also noted how intensively and rapidly timber companies had cut the vast white pine stands in the North and Great Lakes region in recent decades, and had done so “with a recklessness characteristic of the American lumberman.” His point was in keeping with the growing concern nationally that the cutting of American forests was problematic and wasteful, in ways such as destroying young trees along with the mature trees. Timber interests were buying and cutting the southern pine and hardwood forests at an increasing pace, and Holmes warned that, in North Carolina, “before our people come to realize our situation, our supposed inexhaustible forests will be largely removed.” He predicted the remaining pine forests in eastern North Carolina, including longleaf but other pines as well, would be cut in less than two decades at the current rate, while all the hardwoods in the piedmont and mountain regions would either be cut, or controlled by lumber interests as reserves to be cut as soon as economic conditions were right.¹²⁶

For too long, North Carolinians had indulged in believing they “have more timber than they know what to do with,” Holmes continued. It was time for the state’s people recognize that the remaining forests could not so easily be replaced within a generation, and that “in destroying the young growth of the forests, they are destroying the birthright of the next generation, without any additional return to themselves.” He advocated for the state to establish a “wise and conservative policy which, while it permits the use of the mature timber of today, it also preserves the young forest growth, which is to be the timber supply of tomorrow.” Otherwise, the state would likely use up its timber-worthy forests within a few decades and would have no significant younger generation of trees nearing maturity. Holmes did not object explicitly to the

¹²⁶ Ibid.

pace of timbering of the state's remaining mature longleaf and other pines and hardwoods, and the main problem for him was that timbermen were destroying smaller trees in the process.¹²⁷

In this context of competing messages of abundance and scarcity, the *Observer* continued to promote railroads even when reporting events such as a forest fire in April 1896 that burned over some 10,000 forested acres of northwestern Cumberland County. The fire destroyed a great deal of longleaf pine, along with a number of structures, fences, and cattle, with total damage of \$125,000 or more. Local observers labeled it the most destructive forest fire in the county's history. The *Observer* reported a "great cloud of smoke that hung over Fayetteville Monday evening [April 6] like a huge black canopy and which many mistook for thunder clouds." Editors called the 10,000 acres "the finest long leaf pine timber in that section." A local man rode around the burned area and estimated that two-thirds of the trees were destroyed, while the other third had been killed but still were standing.¹²⁸ The *Observer* took this opportunity to chastise local voters for blocking a proposed tax to raise \$10,000 for extending the Aberdeen Railroad. The dead trees standing in the burned area could have been cut for lumber if the landowners were able to move quickly, the paper claimed. However, the landowners were complaining that they had no cost-efficient way to get the trees to a mill. Well, chirped the *Observer*, that proposed rail extension would have come in handy. If only the voters, including those frustrated timber owners, had the foresight to approve the tax, the extension would have been worth a lot more at that time after the fire than the \$10,000 cost.¹²⁹

¹²⁷ Ibid.

¹²⁸ "The great fire," *Fayetteville Observer*, April 10, 1896; "A disastrous conflagration," *Fayetteville Observer*, April 14, 1896; "Forest fire destroys 10,000 acres in Cumberland," *The Caucasian* (Clinton), April 16, 1896.

¹²⁹ Ibid.

The accounts of the fire suggest that an area of about 10,000 acres of longleaf persisted in 1896 with relatively intact, mature trees large enough to make into lumber. They do not give a clear sense of why that area of longleaf was intact, but it is likely that a timber company owned it and had not yet gotten around to cutting the longleaf, or a turpentine operator controlled the land. Indeed, if a lot of the trees were boxed for turpentine, that could explain why the fire burned so destructively, as turpentine faces encrusted with resin were highly inflammable. Overall, the concerns were strictly about the economic potential of the longleaf lost in the fire.¹³⁰

In some ways, perhaps it was easier to critique environmental impacts and the role of human activities in places distant from eastern North Carolina. An article discussing the nature and causes of flooding in the Mississippi River valley appeared in the *Caucasian* in 1897, by an author clearly familiar with the Mississippi River and its periodic floods. In discussing why the Mississippi and other rivers flooded with such destructive force, the author blamed human activities, such as cutting down forests at the headwaters. “Man alone is to blame for the well authenticated facts that our rivers, of recent years, have swollen, at flood time, to greater proportions than they used to a generation or more ago and that year after year a higher water mark is recorded for our rivers,” the author argued. In publishing this article, the *Caucasian* circulated ideas about humans causing environmental damage, but in a distant region. Likewise, the *Caucasian* ran a short piece in 1899 on the redwood forests on the Pacific coast, expressing the fear that, “Unless something is done to decrease the present rate of cutting redwood timber from the California forests the supply will be exhausted within the next generation.” The writer described the redwoods as beautiful and recognized that they were slow-growing – like longleaf

¹³⁰ This relatively large area of longleaf probably had been worked for turpentine, at least partially, by 1896. Sargent noted that turpentine could intensify fires, as “turpentine orchards, especially when abandoned, are often destroyed by fire. The surface of the box, thickly covered with a most inflammable material, is easily ignited, and a fire once started in this way may rage over thousands of acres...” Sargent, *Report on Forests*, 518.

pine – and in danger of being practically wiped out by timbering. But the writer shined no light on the situation at home in southeastern North Carolina, where lumber companies continued to remove the remaining longleaf.¹³¹

Along with such perspectives on longleaf at home, and environmental issues elsewhere in the country, North Carolinians at times expressed dramatically optimistic notions of how easily cutover longleaf lands could either return to forest, or be converted to another productive form. A good example is the vision for turning a declining North Carolina community where longleaf had been intensively cut into the “garden spot of the South” in the late nineteenth century. In 1894, the community of Chadbourn, sixty miles south of Fayetteville, consisted mainly of a railroad depot surrounded by cutover land with little apparent economic potential. “After the largest of the longleaf pine timber had been cut off and shipped to northern markets, [the land] was regarded as being of little value and hardly worth the taxes,” stated a newspaper account reprinted by the Fayetteville *Observer*. Before the Civil War, the rail stop was called Timberville because of the presence of old-growth longleaf. But when the Chadbourn brothers, sawmill owners in Wilmington, learned of this longleaf, they built a sawmill and rail spur there in the early 1880s and began cutting the longleaf intensively, turning Timberville into Chadbourn.¹³²

A state senator named Joseph A. Brown operated a small store and other enterprises in Chadbourn, and he hatched a plan for generating economic vigor in an area that seemed rather lifeless after the timbering. Brown imagined growing strawberries and vegetables for market would be the area’s salvation, and he tried with no luck to stir up interest among local residents, who were resigned to either “eking out an existence” or moving away, Brown complained. But

¹³¹ “Floods of the Mississippi,” *The Caucasian*, April 27, 1897; untitled article, *Caucasian*, Oct. 5, 1899.

¹³² “The transformation of Chadbourn,” *Fayetteville Observer*, May 25, 1899 (reprinted from *The State*, Columbia, S.C.); Glenn F. Strole, *Chadbourn and her Sunny South Colony* (Whiteville, NC: New Reporter Company, 1976), 5.

he convinced the Chicago publisher of *Farm, Field and Fireside* magazine to help promote the development of the “Sunny South Colony” in Chadbourn, and he acquired 7,000 acres in 1895, dividing the land into plots of twenty to forty acres to sell to Midwesterners. The enterprise claimed that some 150 families, “educated, thrifty, and well-to-do,” relocated there by 1899 and were growing strawberries, potatoes, and cabbage. “These people are great believers in the liberal use of fertilizers, and do not hesitate to use from 1,000 to 1,500 pounds to the acre,” an editor stated approvingly.¹³³

In part, the Chadbourn colony reflected the reformist hopes for diversifying southern agriculture and applying scientific advances, such as new fertilizers, that motivated a number of such schemes in the South around the turn of the century. The migrants to Chadbourn did have some success in truck farming into the early twentieth century, but what they created was not the promised Eden. Meanwhile, they relied on heavy doses of fertilizers to make the land productive, where longleaf once flourished with no human help. Growing a “garden spot of the South” to replace the longleaf forests was not so easy. Indeed, the garden never fully appeared.

Conclusion

North Carolina planter Isaac Croom had grouched in 1834 that longleaf was a “rich pearl” the state was wasting, and cashing in the pearl’s full value required using longleaf with greater intensity. North Carolinians took up this challenge with gusto in the following decades, reducing the state’s longleaf forests through clearing, turpentine, and timbering by more than 95 percent by the 1910s, a transformation that points to the alternative meaning of Croom’s pearl metaphor.

Like pearls, the longleaf forests were a valuable product of natural forces – which some people

¹³³ “The transformation of Chadbourn,” *Fayetteville Observer*; Strole, *Chadbourn*, 14. Strole also notes, “A rather rosy picture had been painted in the ads how you could sit on your cool porch and the singing darkies would do the work at an infinitesimal wage. Pleasant weather existed all year. The sick grew well and the weak became strong” (p. 14); on Chadbourn and other colonies planned for cutover lands in the South, also see de Boer, *Nature, Business, and Community*, 125-30 and 156-57.

considered beautiful and impressive. But North Carolinians squandered the longleaf forests by the early 1900s by virtually using them up, rather than not using them enough.¹³⁴

Most North Carolinians had seemed unwilling to acknowledge they actually could exhaust the longleaf forests, and for the most part, they ignored the occasional warnings to the contrary by the early 1900s. As inhabitants of the first state where longleaf was turpented heavily and then virtually removed, they had an opportunity to be among the first southerners to recognize the consequences of using longleaf so intensively. But, to a surprising extent, most North Carolinians failed to do so, and thus they did not make a compelling case for more foresight in using longleaf to their contemporaries elsewhere in the South.

In Sampson County, a researcher provided a glimpse of the greatly diminished state of longleaf there in the 1920s, and he suggested that some citizens had regrets about the condition of the their county's forests. The researcher, Edward A. Terry, dug into records and talked to people in Sampson to assess the local government, economy, and schools, working for the newly established Institute for Research in Social Science at the University of North Carolina in Chapel Hill. The beleaguered state of the pine forests in Sampson was one of several deficiencies that Terry believed were limiting the county's progress.

The southern part of Sampson once was a "vast pine forest," Terry observed, evoking the historical landscape. "Today most of this timber land is either cut over or burnt over. The people of the county regret it but they have not taken sufficient steps to insure themselves against recurring forest fires." At that time, the county employed a fire warden at a salary \$500 per year, but one warden could hardly patrol the entire county adequately, Terry noted. Still, if the land could be protected from fire, he predicted confidently that the pine forests would return. He also

¹³⁴ "Calcareous deposits in North Carolina," April 22, 1834, *Fayetteville Observer*.

argued that the county's population was too small to productively farm all the land cleared for agriculture, and thus more residents should be fostering the growth of pines to improve the county's future economic prospects.¹³⁵

Terry came away from Sampson with an awareness of how much longleaf once grew there, and how thorough the destruction of the forests had been. Residents were left with economically unproductive and burned-over land. It was a marked contrast to historical evidence from thirty to forty years earlier, such as the 1880 census figure of 602 million board feet of longleaf remaining in Sampson, or the two boosterish descriptions of longleaf in southern Sampson around 1890 cited earlier in this chapter – seeking more turpentine, timber, and railroad investment, G.W. Cain of the Ingold community described a “large quantity of timber in this section,” and a man living a few miles south in Garland claimed that part of southern Sampson County was “one of the finest long-leaf pine sections” in the state.¹³⁶

Terry noted a certain regret among Sampson citizens, when they talked about the poor shape of forests in the county. But this regret, as Terry described it, focused primarily on failing to prevent fires that damaged any remaining pines and perhaps seedlings that had taken root in the cutover areas. The residents were not directly critiquing the human enterprises of turpentine and timbering that were, in fact, the main agents in removing that “vast pine forest,” and also in making fires more destructive. In this sense, Terry and the people from whom he learned Sampson's past were misunderstanding or ignoring a key part of the story.

¹³⁵ Edward A. Terry, *County Government and County Affairs in Sampson County, N.C.* (Chapel Hill: UNC Institute for Research in Social Science, 1928), iii. The Institute for Research in Social Science was founded at the University of North Carolina at Chapel Hill in 1924, and named for Howard W. Odum in 1999. See John Shelton Reed, “Institute for Research in Social Science,” in William S. Powell, ed., *Encyclopedia of North Carolina* (Chapel Hill: University of North Carolina Press, 2006), 617.

¹³⁶ Sargent, *Report on the Forests*, 516; “An immense gravel bed,” *The Caucasian* (Clinton), April 18, 1889; “The long-leaf pine – ‘The Old North State Forever!’ Garland a thriving town,” *Fayetteville Observer*, May 29, 1890.

Speaking to a crowd around the Cumberland County courthouse in March 1926, Fayetteville attorney Henry S. Averitt included an account of longleaf's demise in Cumberland in his narrative of county history, along with the expected praise for early settlers, leading citizens, and prominent businesses and churches. "Perhaps the greatest financial asset that Cumberland County has ever had, or possibly that it will ever have, was its magnificent forest of pine trees," Averitt observed, speaking at the dedication of the new courthouse. He had just twenty-five minutes or so to cover two centuries of history, so including longleaf in his speech was a meaningful choice. Averitt was not a longleaf expert. He had a vague understanding that longleaf in Cumberland and elsewhere had been growing for many centuries before people began exploiting the pines on a significant scale. But he recognized the centrality of longleaf in the county's history, and the destructive effects of turpentine and timbering. "It is sad to contemplate the fate of those great stretches of territory that were so thickly set with the long leaf pine," Averitt said. He confessed that he often thought humans were inherently greedy, and in the case of longleaf, their greed emerged when turpentine became a profitable product. As turpentine faded by the turn of the century, he pointed out, crews continued to cut the remaining longleaf for lumber. "Saw mills followed in the wake of the turpentine men and now the entire growth of the pine tree is almost a thing of the past," Averitt reminded the crowd.¹³⁷

In that ceremonial setting, among friends and business associates, Averitt was bold enough to talk about greed and the destruction of longleaf to his audience, which surely included people who had profited from turpentine or longleaf lumber. He called the erstwhile longleaf forests "magnificent" and expressed sadness they were so drastically reduced. He seemed on the verge of suggesting that Cumberland had lost more than just an economic asset in longleaf, but

¹³⁷ H.S. Averitt, *Historical Sketch of Cumberland County* (n.p., 1926), 7-8. My estimate of twenty-five minutes is based on the fact that the text of his speech is twelve pages.

in the end, he did not articulate his sense of “magnificence” any further. The local attorney opted mainly for politeness, and he talked in passive voice about the exploitation of longleaf. He did not push the conception of longleaf forests beyond their economic value, even in looking back.

CHAPTER TWO: LOUISIANA LONGLEAF FROM FOREST TO COMMODITY

On an early March day in 1903, John Barber White grew mildly annoyed with two men who worked for him, shaking his head and frowning while reading reports from the men. From his offices in Kansas City, Mo., White oversaw several lumber enterprises, including a large, newly constructed sawmill in northern Louisiana for which he needed more trees – a lot more trees, tens of thousands of acres' worth. Two men, Clarkson and Webb, who investigated forested lands for him and estimated how much potential lumber they contained, had lapsed into their habit of giving him widely divergent estimates for the same property, in this case several thousand acres of pine lands in Louisiana that White's company was eager to acquire.

In his response, White described the tasks of measuring carefully and quantifying the wood within a forest that were at the heart of such lumber ventures, the first point of contact for the company's agents with forests and a vital step toward converting them into marketable products. For one swath of land in Louisiana that was surveyed into sixteen parcels of forty acres each, White noted, "ten 40s are estimated by Mr. Webb to be 2,383,000 [board feet of lumber], while Mr. Clarkson estimates it at 6,340,000 ft." Clarkson was estimating about twice as much potential lumber as Webb for most of the parcels. "On the SW/NW of Sec. 23, Mr. Webb makes 552,000 ft. and Mr. Clarkson makes 1,000,000 ft.; and on the SE/NW where Mr. Webb makes 406,000 ft., Mr. Clarkson makes 920,000 ft.," White continued, and directed his general manager, Clarence Slagle, in Clarks, La., to go back into the woods with Webb. "To avoid Mr. Webb's tendency to underestimate and to figure on only about 100 ft. to the log," White instructed, "I wish you would take a tape and measure the circumference of the tree at where you

would cut it, deduct three inches for bark, then divide by 3 and deduct 1 [inch] for taper and you will thus get an acre nearly accurate.”¹³⁸

The directive from White, as president of the Louisiana Central Lumber Company, was a snippet of the ongoing dialogue among managers and directors that relied on a vocabulary of quantifying trees and labeling them first as timber and logs, along the way to turning them into valuable commodities. The enterprise of cutting longleaf and manufacturing it into lumber was the most influential factor in the physical destruction of the longleaf forests across the South, in that it removed trees from tens of millions of acres and almost never encouraged or even allowed for a persistent, thriving new growth of longleaf on the cutover land. Activities like clearing woods for farms and working pines for turpentine made significant inroads in the longleaf forests, but the timber and lumber companies by far had the largest impact, in particular during the intensive period roughly between 1880 and 1920 or so, when the longleaf forests became the center of the American lumber industry.

Therefore, looking more closely at how such companies dealt directly with the forests is critical to a deeper understanding of the transformation of the longleaf South. Analyzing how lumbermen like White thought and communicated about longleaf demonstrates that, in places like the north-central Louisiana longleaf forests, they simplified the natural complexity of the forests and commodified longleaf in the acts of estimating, cutting, hauling, sawing, drying,

¹³⁸ John B. White to Clarence E. Slagle, March 2, 1903, folder 65, Louisiana Central Lumber Company Records (LCLC), State Historical Society of Missouri (SHSM), Columbia MO. A board foot is a piece of wood twelve inches by twelve inches, and one inch thick. Under the federal surveying system, a section was one square mile and included 640 acres. Sections could be subdivided into quarter-sections of 160 acres, and quarters-of-quarters of 40 acres. A township consisted of 36 sections. The American Rectangular Survey System was established by the Northwest Ordinance of 1785, and much debate followed over the details, such as how many acres individuals were allowed to purchase, and whether buyers should be able to get land on credit. See Paul W. Gates, *History of Public Land Law Development* (Washington, D.C.: Public Land Law Review Commission, 1968), 59-74; Everett Dick, *The Lure of the Land: A Social History of the Public Lands from the Articles of Confederation to the New Deal* (Lincoln: University of Nebraska Press, 1970), 6-11; and Charles R. Goins and John M. Caldwell, *Historical Atlas of Louisiana* (Norman, OK: University of Oklahoma Press, 1995), 33-34.

planing, shipping, and selling the lumber at retail outlets. The company's work was an example of the process of "getting nature to market," as environmental historian William Cronon phrased it, although this chapter argues there was an earlier step in the process that Cronon overlooked. Throughout this process, LCLC's leaders usually ignored or discounted the diverse, thriving life in the longleaf woods that included the trees themselves, along with all the other flora, animals, and smaller organisms associated with the longleaf ecosystem.¹³⁹

The dialogue running through the business records of White's Louisiana Central Lumber Co. (LCLC) reveals the company leaders' most influential perspectives on longleaf, as it shows their intentions and the actual consequences of these intentions for longleaf on a large scale. Certainly, the lumbermen might have thought and spoke in different terms about longleaf forests or other constituents of non-human nature when in different settings in their lives. At home, in church, at parties or on vacation, perhaps they expressed qualms about the destructive impact their business was having on longleaf, or the condition of American natural environments more broadly. White, for instance, cultivated a reputation for himself as a prominent lumberman with a sincere interest in forest conservation. Nevertheless, their daily communications about acquiring land and removing trees were the realm in which White and his officers and employees got down to the business of cutting longleaf, and had the greatest impact on the forests.

In their relentless use of the language of assessing, quantifying, transporting, and profiting from longleaf, LCLC leaders often were not specific about categories such as species in describing trees that the company intended to cut. They relied instead on vague phrases such as "all the merchantable pine timber," or "all the pine and oak timber," on a portion of land that the company had targeted. That language reflected in part their desire for maximum flexibility in

¹³⁹ William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W.W. Norton and Co., 1991), 95 and 148.

legal documents such as timber deeds. But it also demonstrated the lumbermen's minimal level of interest in deeper knowledge of tree species. Their interest did not often go beyond knowing the qualities of lumber made from different species, such as the appealing strength and grain of longleaf that they emphasized in marketing longleaf lumber. In their written communications, the leaders of LCLC on occasion mentioned longleaf specifically, or shortleaf pine and different oak species, but they rarely were more specific. They communicated in terms of timber, board feet, stumpage, logs, train cars of logs to the mill, and cars of lumber heading to markets.

As experienced and determined lumber capitalists, the company's leaders set an ambitious production goal for LCLC in terms of board feet, and the drive to reach and then surpass that goal directed most of their actions in the northern Louisiana woods. They estimated that 500 million board feet was a reasonable target for the total lumber that LCLC could generate from the forested lands it would control – enough lumber in the early 1900s to construct approximately 167,000 average-sized houses. Longleaf was the most prevalent tree species growing on land the company acquired and it was the core tree for the company's operations, although the company also cut shortleaf pine and hardwoods. A prominent LCLC shareholder and officer referred to the production target in the fall of 1902, as he considered how much lumber the company could produce from the land it had purchased by that point. Based on the company's estimates, it was apparent that “our 500,000,000 feet will necessarily cover a very large territory and consequently require very extensive rail road operations to log the whole proposition,” observed Wilson B. Pettibone of Hannibal, Mo., shareholder and vice president.¹⁴⁰

¹⁴⁰ W.B. Pettibone to Clarence E. Slagle, Nov. 24, 1902, folder 46, LCLC Records, SHCM. The estimate of 167,000 houses figures 3,000 board feet of lumber required for a house of 1,000 square feet; see U.S. Forest Service, “Calculating Board Footage in a Tree,” accessed April 17, 2016, http://www.na.fs.fed.us/spfo/pubs/uf/lab_exercises/calc_board_footage.htm.

The leaders held this target in mind as they proceeded, weighing each cost against the potential revenues that would flow from that amount of lumber. The long-term target helped guide their decisions in buying land, laying rail lines into the woods, and cutting trees, as well as dealing with employees, overseeing the mills, and selling lumber. The company leaders' commitment to quantifying the woods on the way to turning them into commodities directed how they dealt with longleaf, as well as the shortleaf and hardwood stands that they cut on some of the company's lands.

LCLC leaders made virtually no room in their exchanges for revealing any appreciation for the old-growth longleaf forests that they encountered, beyond their potential for generating lumber. For example, the South Arkansas Lumber Co. had acquired about 7,000 acres of longleaf lands in northern Louisiana and was close to buying another large assemblage in 1902, according to general manager Slagle, who heard about the purchase from an associate with the Louisiana Midland Mill Co. The word was, Slagle reported, "this is as fine a [tract of] long leaf pine as can be found in that country." In fact, Slagle had ridden through that stretch of longleaf forest recently when traveling between Tullos and Winnfield, and he noted with touch of envy, "I consider this a very nice tract of long leaf." If Slagle perceived any natural beauty in the longleaf woods or noticed any animals or natural features like creeks and open savannahs on his ride between Tullos and Winnfield, he subverted such thoughts to the imperatives of producing lumber. To Slagle's discerning eye, the 7,000 acres of longleaf were "very nice" solely because they could yield thousands of good-quality pine logs for his company's mill.¹⁴¹

The longleaf woods in reality were full of life. Indeed, if one views the longleaf forests across the American South as one vast ecosystem, as many biologists and conservationists do

¹⁴¹ C.E. Slagle to John B. White, June 19, 1902, folder 19, LCLC Records, SHSM.

today, it was the most biologically rich system in North America. That is not to claim that the longleaf woods were abounding with an Ark's worth of animals large and small. Rather, the living organisms were exceptionally diverse across this ecosystem when considering the entire flora, from grasses on the forest floor to trees, fauna from insects to mammals, and microorganisms as well. The relatively open over-story of longleaf forests promoted the high diversity of grasses and other plants, because sunlight could reach the forest floor, and periodic low-level fires promoted the diversity as well. The plants in turn supported the many species of insects, reptiles, amphibians, and birds that inhabited the longleaf woods, and the system provided critical food and habitat for mammals as well.¹⁴²

In an intact portion of the longleaf ecosystem covering 500 acres or so, several thousand species of grasses, wildflowers, insects, birds, and other animals could be found, according to current estimates by biologists. Among the animals, the red-cockaded woodpecker and the gopher tortoise probably are the most widely recognized inhabitants of the longleaf ecosystem – “keystone” species that play a larger role in sustaining the ecosystem than other animals. In their own living spaces in the longleaf woods, these two creatures create shelters that many other species end up using as well – the woodpeckers’ cavities drilled into living trees, and burrows that tortoises dig in the forest floor.

The forms of life present in a particular area of longleaf varied across the longleaf ecosystem, so a survey of 500 acres of longleaf forest in northern Louisiana would not necessarily turn up all the same species as 500 acres in Georgia or North Carolina. But the diversity of species would be high in both surveys. Animals like white-tailed deer, fox and gray

¹⁴² Botanist and longleaf conservationist Bill Finch states that, based on assessments of the longleaf existing today, “we can declare that it was and still is the most biologically diverse forest system in North America.” See Finch et al., *Longleaf, Far as the Eye Can See*, 1 and 71.

squirrels, opossums, raccoons, and wild turkey have inhabited parts of the longleaf ecosystem, along with bobwhite quail, bluebirds, titmouse, eastern meadowlark, indigo bunting, and more than sixty other bird species. Historically, black bears have passed through longleaf forests, although bottomland hardwood forests were their key habitat. The plentiful reptiles and amphibians in the ecosystem include tree frogs, spadefoot toads, salamanders, pocket tortoises, diamondback rattlesnakes, and eastern indigo, black pine, and corn snakes, while harvester ants, robber flies, dragonflies, tussock moths, butterflies, bumblebees, grasshoppers, katydids, and spiders are among the insect inhabitants.

Shrubs like saw palmetto, blueberry, pixie moss, calico wicky, huckleberry, and Cherokee bean are adapted to thrive in the soils and fire cycles of the longleaf system, while diverse grass species like bluestem, wiregrass, toothache grass, yellow-eyed grass, and many others also thrive. The wildflowers that sometimes form striking, colorful scenes on longleaf forest floors included species like Catesby's lily, golden aster, pineland hibiscus, vanilla plant, tall milkwort, goldcrest, dragonhead orchid, pennyroyal, Rolf's butterfly weed, yellow trumpet, and the pinewoods lily. Among all of this vegetation, there were about thirty genera of plants that grew only in the longleaf ecosystem, compared, for example, to just two genera of plants found only in Appalachian forests. Scientists have identified more than forty species of insectivorous plants in parts of the longleaf ecosystem as well, such as the pitcher plants, butterworts, and sundews that consume mosquitoes, flies, ants, and other insects.

In a patch of longleaf where low-intensity ground fires had not burned through for a number of years, one could find significant changes underway in the plant life. Pine species other than longleaf could gain space in those areas, along with oaks such as water, laurel, and southern red oak, as well as American holly, flowering dogwood, and southern magnolia. The lack of fire

also would favor shrubs such as yaupon, mayberry, and sparkleberry, while it would mean a decline in many of the grasses and wildflowers.¹⁴³

Out of all these possibilities for plant and animal life, some combination of them thrived in the northern Louisiana longleaf forests in the early 1900s, such as the expanse of old-growth longleaf between Tullos and Winnfield that Slagle rode through in 1902. Slagle did not have the compelling reasons to pause and pay close attention to the woods, as would others such as botanists, wildlife observers, or hunters. But he could not have missed the signs of life entirely, such as the calls and movements of birds, or the stirrings of squirrels, turkeys, salamanders, frogs, and other creatures. Depending on the season, he might also have encountered patches of colorful wildflowers and pitcher plants. But Slagle, like most lumbermen, was focused so relentlessly on the forests as storehouses of timber and board feet that he seemingly did not allow the life in the woods to register deeply with him.

Four years earlier, Duncan C. Downing, a native of Cumberland County, N.C., rode through the same area between Tullos and Winnfield, and he commented on the plentiful, striking longleaf as well. Indeed, the longleaf forests seemed to be the only feature of northern Louisiana that Downing found appealing, as he criticized the region's inhabitants and culture severely in a letter to the newspaper back home. As he and his companions rode northwest toward Winnfield, they found the landscape was "covered with long leaf pine for twenty miles – a beautiful turpentine forest," Downing reported, adding that longleaf forests grew on an estimated 200,000 acres in Winn Parish and adjacent Jackson Parish. However, he also pointed

¹⁴³ This description of longleaf forests is drawn from Finch, *Longleaf, Far as the Eye Can See*, esp. the rich description in "The Forest," pp. 69-93; Jose et al., *The Longleaf Pine Ecosystem*, 5; John S. Kush and Ralph S. Meldahl, "Composition of a Virgin Stand of Longleaf Pine in South Alabama," *Castanea* 65, no. 1 (March 2000), 56-63; and Natural Resources Conservation Service, "Bird Use of Longleaf Pine Restoration," December 2005, accessed April 10, 2016, [http://www.americaslongleaf.org/media/8599/Avian%20response%20to%20Longleaf%20Afforestation%20Projects%20\(USDA-NRCS\).pdf](http://www.americaslongleaf.org/media/8599/Avian%20response%20to%20Longleaf%20Afforestation%20Projects%20(USDA-NRCS).pdf).

out most of this bountiful longleaf was controlled by wealthy parties such as the heirs of New York railroad capitalist and financier Jay Gould. Therefore, any would-be emigrants back home in North Carolina need not waste their time fantasizing about coming west and getting their hands on any of this Louisiana longleaf, Downing implied.¹⁴⁴

Downing, a Populist in late 1890s North Carolina, was correct that opportunities for securing large tracts of longleaf in the region were limited for individuals or smaller enterprises interested in making naval stores or lumber. But lumber industrialists like John B. White had the capital, the negotiation savvy, and the experience to gain control of tens of thousands of forested acres. Downing likely shared the view of people like White and Slagle that longleaf primarily was an economic resource, a “beautiful turpentine forest.” The difference was that White and Slagle, and other lumber capitalists in the longleaf South, were able to convert that resource into profit on a large scale.¹⁴⁵

The vocabulary of the lumber industry in northern Louisiana was effective in part because it worked well with the land-surveying system, which created an imaginary but influential grid upon the landscape, in units from forty acres to thirty-six square miles. The surveying system that the federal government used for the Louisiana Purchase and other parts of the country was the means for transferring public lands into private hands, dividing the land so

¹⁴⁴ “Dunk Downing in Louisiana,” *Fayetteville Observer*, March 18, 1898.

¹⁴⁵ Duncan Crawford Downing, or “Dunk,” was a white man born in 1867 and a resident of Cumberland County, N.C. He was a farmer and apparently a Populist in the battles between Populist and Republican fusionists and Democrats in the late 1890s. While other writers exaggerated the appeal of the Deep South, Downing rejected any appeal. He described northern Louisiana as backwards economically and culturally, where most farmers seemed “hopelessly” in debt and men “think they are not a man unless they have killed a man or two.” See Twelfth U.S. Census, Schedule 1, Population, Cedar Creek Township, Cumberland County, accessed April 11, 2016, at <http://search.ancestryinstitution.com/cgi-bin/sse.dll?indiv=try&dbid=7602&h=56945064>; also “Duncan Crawford Downing,” accessed April 11, 2016, <http://www.findagrave.com/cgi-bin/fg.cgi?page=gr&GRid=29559305&ref=acom>; “Mr. Geddie’s declination,” *Fayetteville Observer*, Oct. 23, 1896; “Populist convention nominate a skeleton ticket, but skeleton all on side of Reps.,” *Fayetteville Observer*, Sept. 10, 1898.

that people could settle, cultivate, timber, mine, or otherwise use it for their living. The surveyed grid was meant to “make the land measurable, manageable, and salable,” as historian Walter Johnson describes it. The system provided a uniformity and predictability in the dividing of land that LCLC relied on as it sought to acquire forested lands and remove the longleaf and other valuable trees. With the grid system and maps, different parties could develop a shared mental image of certain units of lands, and purchase or trade these land units effectively. Employing this system, LCLC acquired land or the timber rights – the rights to cut the trees – forty acres at a time in many cases, and in blocks of eighty, 160, or 320 acres in other deals. The company made a smaller number of purchases for thousands or tens of thousands of acres, and in one deal with the Jay Gould heirs, the company acquired some 100,000 acres.¹⁴⁶

At its start, the company steadily pursued land deals and accumulated about 67,000 acres of Louisiana pine lands by November 1902, an indicator of progress and a prompt for more questions from Pettibone, the LCLC vice president. “I want to see in a general way what the timber so far bought will likely estimate to the acre,” Pettibone inquired. “As I presume there is a little cut-over lands included in this acreage, it is [probable] that your ideas of what it will cut to the acre [by] log scale might possibly be brought up to [4,000 b.f.] to the acre but not more?” Pettibone wrote again to comment on lumber estimates for several 2,000-acre portions of land. The total estimate was about 27 million board feet, or, “assuming that we could not figure the best 2,000 acres at over 12M to the acre, 24,000,000 [total board feet],” Pettibone calculated. “We would have to account for the balance of the difference by, say, figuring practically double

¹⁴⁶ The grid created under the federal survey system was not absolutely necessary for large-scale timbering of longleaf. After all, companies also were very effective in cutting longleaf from lands where this system was not in place. However, the grid did facilitate the acquisition of land by LCLC and other lumber companies in Louisiana and elsewhere. Broadly speaking, this was the reason for the survey, so that public lands could be acquired by private parties. Quote from Walter Johnson, *River of Dark Dreams: Slavery and Empire in the Cotton Kingdom* (Cambridge: Harvard University Press, 2013), caption for Figure 4.

on the second 2,000 acres or say 5Mft. to the acre instead of about 2,650ft making another 10,000,000 ft and then to get the additional 17,000,000 ft we would have to raise Webb's estimate..." Within this flurry of figuring were the critical details, scrutinized in terms of board feet and acreage and connected implicitly to potential revenue, that drove this lumber enterprise forward through the longleaf forests.¹⁴⁷

Pettibone also was president of the North Missouri Lumber Co., following in the footsteps of his father, who had started in the lumber industry in Wisconsin and moved the family to Missouri to continue building its lumber wealth. Pettibone brought his capital and his knowledge of the industry to the LCLC venture, regularly asking the general manager intricate questions and sharing his own thoughts in detail. "Your estimates on the 7,240 acres in [township] 14-1-E show 27,817,150ft," he stated, about a large purchase the company was considering. "It would seem that your offer of \$50,000 for this was as much as we should pay, though Mr. White may favor going as high as \$2.00 stumpage for this timber. So far as the balance of the 13,000 acres is concerned, as there is only according to your estimates about 2,000,000ft of Pine and 5,000,000ft of other woods, [it] would seem that it was worth nothing to us, and but little to anyone else." In Pettibone's chosen profession as a lumber manufacturer – the role in which he influenced the fate of northern Louisiana longleaf – the worth of such lands for him began and ended with calculations of the lumber that they might yield.¹⁴⁸

¹⁴⁷ W.B. Pettibone to Clarence E. Slagle, Nov. 24, 1902, folder 46, and Pettibone to Slagle, Feb. 24, 1903, folder 64, LCLC Records, SHSM.

¹⁴⁸ Ken and Lisa Marks, *Hannibal, Missouri: A Brief History* (Charleston, SC: The History Press, 2011), 81; W.B. Pettibone to Clarence E. Slagle, Jan. 31, 1903, folder 59, LCLC Records, SHSM. Stumpage ties the price for a parcel of forested land to the amount of estimated lumber, i.e. it is the price per one thousand board feet. Paying "\$2.00 stumpage" for land meant paying two dollars per thousand board feet of lumber that it would yield.

The Path to Louisiana Longleaf as Lumber

A century before LCLC started its work in northern Louisiana, American leaders commissioned several explorers to get a new look at the natural landscapes within the massive Louisiana Purchase. In 1804, expedition leaders George Hunter and William Dunbar noted many features of the landscape in northern Louisiana as they advanced up the Ouachita River, which flowed through Louisiana on its course to join the Mississippi River. “Trees increasing in size... A prairie on the left, [Bayou] Beauf on the right & [a] hill composed of white sandy stone crowned with Tall Pine trees,” Hunter observed in late October of 1804, as his small expedition approached the area that later became Caldwell Parish, La. “Land generally rising in height above the river,” he noted. “The land is generally poor, thin & sandy, [with] timber Pines...” Westward from the Ouachita valley, the topography reached elevations from 100 feet to 300 feet extending “all along to the settlements on the Red river, [and] those high lands from report are poor & badly watered, being chiefly what is termed a pine-barren,” Dunbar added. The extensive “pine-barren” hills would become the core area from which LCLC cut so much old-growth longleaf in the following century.¹⁴⁹

While Dunbar and Hunter could see the abundant pine forests at a quick glance, their mission also required them to make detailed observations about the landscapes, such as the soil qualities and the varieties of wildlife and plant life. They worked primarily as explorers and naturalists, and recognized the diverse forms of life existing in that time and place – including

¹⁴⁹ Trey Berry, Pam Beasley, and Jeanne Clements, *The Forgotten Expedition, 1804-1805: The Louisiana Purchase Journals of Dunbar and Hunter* (Baton Rouge: Louisiana State University Press, 2006), 30-33. The expedition on the Ouachita River October 1804-March 1805 was one of four expeditions that Thomas Jefferson authorized in the newly acquired Louisiana Purchase (along with those of Lewis and Clark, Freeman and Custis, and Zebulon Pike). William Dunbar and George Hunter both were Scottish immigrants. Dunbar was a slave-owning planter and “gentleman scientist” in Natchez, Miss., and Hunter was a chemist and apothecary in Philadelphia. See Berry, *Forgotten Expedition*, esp. xi-xx, 24-41.

animal species like buffalo, whooping cranes, and red wolves that humans would drive entirely out of the region in the next century.¹⁵⁰

After a day on the lower Ouachita, Dunbar chronicled, “Vegetation is extremely vigorous along the alluvial banks; the twining vines entangle the branches of the trees & expand themselves along the margin of the river, in the richest and most luxuriant festoons, and often present for a great extent a species of impenetrable Curtain variegated and spangled with all possible gradations of Color, [from] the splendid orange to the enlivening green down to the purple & blue and interwoven with bright red and russet brown.” When the group reached northern Louisiana a few days later, Hunter wrote, “The timber grows here large many tall pines on the highlands & here & there Cypress & Swamp white oak in moist places by the water sides. The inland has many fine oaks hickory & [we] Saw the first time a flock of Pelicans... caught a few fish in the evening with the net & a fine soft shelld turtle by hook & line.” Dunbar and Hunter were not making deeply scientific observations, but they did have room in their mindsets for recognizing the great diversity of life in the region.¹⁵¹

The Louisiana Purchase had been part of the U.S. for nearly a century when LCLC was established in 1902, while Louisiana had been a state for ninety years, and the drive to exploit the state’s natural resources such as soils and forests had been ceaseless. Nearly 1.4 million

¹⁵⁰ Berry et al., *Forgotten Expedition*, xi-xx.

¹⁵¹ Dunbar’s journal entry for Oct. 24, 1804 (p. 23), and Hunter’s journal entry for Nov. 2, 1804 (p. 37), Berry et al., *Forgotten Expedition*. In addition, Dunbar described intentional fires in northern Louisiana. In the region that became Catahoula Parish, he noted, “Those prairies are planes or savannahs without timber, generally very fertile, producing an exuberance of strong thick and coarse herbage. When a piece of ground is once got into this state in an Indian country, it can have no opportunity of re-producing timber; it being an invariable rule to fire the dry grass in the Fall or winter, to obtain the advantage of attracting game when the young tender grass begins to spring; & thus the young timber is destroyed, & annually the prairie gains upon the wood land...” Further upriver, Dunbar wrote, “The Atmosphere had this day a smokey or misty appearance... This smokey or misty appearance which in our Country is common in the months of November and December is attributed to a common practice [sic] of the Indians and Hunters, of firing the woods, planes, or savannahs; the flames often extending themselves some hundred miles...” See Dunbar’s entries for Oct. 25 and Nov. 5, 1804, in Berry et al., *Forgotten Expedition*, 24-25 and 41.

people lived in Louisiana by 1900, compared to about 76,500 inhabitants in 1810, and while people had cut significant amounts of Louisiana longleaf by 1900, they had focused by necessity on trees within reach of the navigable streams, such as the Calcasieu River, or the relatively few rail lines. This pattern was a key reason so much old-growth longleaf remained at the turn of the century to attract lumber capitalists like John B. White, who knew how to pull together the money to build larger sawmills and new rail lines further into the forests, and generate profit from these investments.¹⁵²

LCLC's experiences in acquiring land reflected the history of Louisiana as a public-lands state, where the United States government had owned much the land following the Louisiana Purchase. Under federal policies, individual families had gained ownership of forested acreage along with farm land in Louisiana via homestead grants. But out-of-state entities such as railroads and lumber companies had gained control of large swaths of forest lands as well, a fact that helps explain why LCLC at times was negotiating for land with entities like Chicago-based lumber companies or the Gould heirs in New York, as it pursued access to Louisiana longleaf. LCLC's experiences also show that, while the federal survey system did establish an orderly, mathematical, and law-based approach to divvying up the Louisiana public lands after 1803, the reality still could be messy.

Spurious land titles, abuses of policies, and outright fraud were important threads in the story of federal lands in Louisiana and elsewhere in the U.S. Many land titles were problematic, as various parties came forward with claims that they insisted were granted by the previous French or Spanish authorities, and federal officials spent more than thirty years trying to sort out

¹⁵² Michael L. Lanza, *Agrarianism and Reconstruction Politics: The Southern Homestead Act* (Baton Rouge: Louisiana State University Press, 1990), 111; Louisiana State Census Data Center, "Historical Census Data," accessed Feb. 11, 2017, http://louisiana.gov/Explore/Historical_Census/; and "Population of Louisiana state," Population.us, accessed April 12, 2017, <http://population.us/la/>.

such claims in Louisiana. Land commissioners in this state and others often found evidence of dates and names being altered in deed books, or pages removed altogether, while many individual citizens – sometimes tacitly on behalf of lumber companies – asked the government to grant them a homestead, when their intention was not to settle there but to get control of the timber or other resources. Others simply squatted on arable lands, or turpented and cut longleaf and other trees without any legal authority, since there rarely was any public official present to keep them off the land.¹⁵³

Even as federal officials struggled to deal with such issues, Congress moved forward with granting millions of acres to state governments and railroads. For example, the federal government granted lands to the Louisiana state government that included about 9.5 million acres classified as swamp lands, for possible future sale or development, and another 1.9 million acres to support construction of railroads, canals, and other projects. Another one million acres in Louisiana were granted directly to railroad corporations. This was the patchwork of ownership that LCLC encountered starting in 1902. The Louisiana Purchase and the federal policies that made the public lands available for private ownership helped to make ventures like LCLC possible, while also enabling the larger westward rush of settlement beyond the Mississippi that helped create the tremendous demand for lumber that such companies sought to meet.¹⁵⁴

Along with the historical public-lands context, LCLC had important antecedents in the last quarter of the nineteenth century in Pennsylvania, Missouri, and Louisiana, related to the

¹⁵³ Discussion of public-lands issues from Paul W. Gates, *History of Public Land Law Development* (Washington, D.C.: Public Land Law Review Commission, 1968), 93-96; Everett Dick, *The Lure of the Land: A Social History of the Public Lands from the Articles of Confederation to the New Deal* (Lincoln: University of Nebraska Press, 1970), 15-18 and 193; Paul J. Culhane, *Public Lands Politics: Interest Group Influence on the Forest Service and the Bureau of Land Management* (Baltimore: The Johns Hopkins Press, 1981), 3; and Roy M. Robbins, *Our Landed Heritage: The Public Domain, 1776-1970* (Lincoln: University of Nebraska Press, 1976), 246.

¹⁵⁴ Gates, *History of Public Land Law Development*, 384.

accumulation both of capital and experience that the company would apply to cutting longleaf. LCLC's history thus is one of several elements that relate to exploiting pine forests, first shortleaf pine in Missouri, and then longleaf in Louisiana. At the center of most of these ventures was John White, born in Jamestown, N.Y., in 1847, later based in Kansas City, Mo., and for much of his career a prominent lumberman. White was ambitious, hard-working, competent, and quick to form new companies in his chosen industry when opportunities arose. He was skilled both at handling the details of cutting trees, manufacturing lumber, and selling it on a large scale, and pulling together the capital and expertise that made these enterprises possible. The corporate structure in Missouri and Louisiana became quite complex at times, but White in a leadership role was the common element in LCLC and many of the various subsidiaries.

White moved as a young man to Pennsylvania and began finding his way in the lumber business, from cutting and skidding trees in the woods, to sawmilling and selling lumber on a fairly small scale in the late 1860s and early 1870s. He made contacts in this work with a number of older Pennsylvania businessmen who had built wealth in lumber, oil, and banking, such as Pittsburgh lumber titan O. H. P. Williams and son-in-law, E. B. Grandin, a member of a prominent lumber and oil family.¹⁵⁵

As these Easterners looked westward for new forests from which to build wealth, they focused on extensive old-growth pine forests in the Ozark highlands in southeastern Missouri, which had a rugged, rocky landscape that discouraged settlers from trying to clear forests for farms. Attracted by the relatively low prices for pine lands, Williams made a small purchase in Ripley County, Mo., in the late 1860s. He and Grandin took a bolder plunge in 1871 by

¹⁵⁵ Leslie G. Hill, "History of the Missouri Lumber and Mining Company, 1880-1909" (Doctoral dissertation, University of Missouri, 1949), 10-13; William T. Childers, *Echoes from the Millpond: A Brief History of the Louisiana Central Lumber Company, Clarks, Louisiana, 1902-1953* (Columbia, LA: Caldwell Parish Library, 1987), 5-6; see also John A. Galloway, "John Barber White: Lumberman" (Doctoral dissertation, University of Missouri, 1961).

purchasing about 30,000 acres in adjoining Carter County, in the particularly rugged Courtois Hills region of the Ozarks. They held this land, forested mainly with shortleaf pine, for several years, then sent John White to Missouri in 1878 to assess the prospects for lumbering.

Encouraged by his findings, Williams, Grandin, and several other men organized the Missouri Lumber and Mining Company in 1880. They made White the general manager and also a one-sixth partner, and sent him west to Carter County to start cutting trees and making lumber.¹⁵⁶

White oversaw construction of an initial sawmill in 1880, and a larger mill and other facilities that began operation in 1888 in newly named Grandin, Mo. By then, the Missouri Lumber and Mining Co. (MLM) had acquired about 100,000 acres in the Ozark highlands, and expanded the sawmilling capacity in Grandin while also building houses, churches, and other structures to create a mill town there. The company was producing up to 180,000 board feet of lumber per day in Grandin by 1894. The core consumer markets for this lumber were in Kansas, Nebraska, and the Indian Territory (future Oklahoma), accounting for about 80 percent of the lumber sold, with Kansas City, Mo., as an important market and distribution point. At its peak around the turn of the century, MLM employed about 1,200 workers in Grandin and owned 324,000 acres of forested lands, laced with sixty-six miles of rail lines the company had laid.¹⁵⁷

The company logged about 15,000 acres to 20,000 acres each year, but even as MLM gained momentum in turning Ozark shortleaf pine and hardwoods into lumber, White faced the reality that those trees were not an infinite resource. Like many lumbermen, he looked to the South for the next opportunities in making lumber as the turn of the century approached,

¹⁵⁶ Hill, "History of Missouri Lumber and Mining," 10-13; Childers, *Echoes from the Millpond*, 5-6; and David Benac, *Conflict in the Ozarks: Hill Folk, Industrialists, and Government in Missouri's Courtois Hills* (Kirksville, MO: Truman State University Press, 2010), 19-20.

¹⁵⁷ Hill, "History of Missouri Lumber and Mining," 82-84; and Lawrence O. Christensen and Gary R. Kremer, *A History of Missouri: Vol. IV, 1875-1919* (Columbia, MO: University of Missouri Press, 1997), 83-85.

especially to the still-extensive longleaf forests. By the time he ventured into Louisiana, forty northern firms had acquired more than 1.7 million acres of forest lands in the state. As early as 1874, the *Wisconsin Lumberman* had reported that many “prominent [northern] pine land owners are investigating the pineries of the southern states with a view to investment of capital.” These firms soon were well positioned to start their own sawmilling operations, or to sell large tracts in Louisiana to people like John White.¹⁵⁸

In 1898, White partnered with Oliver W. Fisher, a fellow lumber capitalist and manager of the Cordz-Fisher Lumber Co. in Birch Tree, Mo., to buy about 10,000 acres of longleaf in Sabine Parish on the border with Texas, and prepared to build a relatively small sawmill in a spot that White named Fisher, La. But the two men soon acquired another 100,000 acres of forests in western Louisiana, prompting them to build a larger sawmill at Fisher and organize the Louisiana Long Leaf Lumber Company in 1899, with Fisher as president and White as secretary. The next year, they bought a second sawmill and about 20,000 acres at Victoria, twenty-six miles east of Fisher, and folded that mill and land into the Louisiana Long Leaf Lumber Co.. White and Fisher drew on experiences in lumbering in Missouri, and also on their industry connections and access to capital, as all the stockholders of MLM invested in this first Louisiana venture. Its early success encouraged White to look for another chance in the state, which led him to establish the Louisiana Central Lumber Co. in 1902, several parishes to the east.¹⁵⁹

The startup of LCLC actually built upon two preceding ventures in Caldwell Parish, the first a small sawmill that Joseph S. Chick and John Q. Prestridge had installed on forty acres.

¹⁵⁸ “Southern Pine Lands,” *Wisconsin Lumberman* (September 1874), 565, cited in Cronon, *Nature’s Metropolis*, note 79, 434; Hill, “Missouri Lumber and Mining,” 210; Bennett H. Wall, *Louisiana: A History* (Wheeling, IL: Harlan Davidson Inc., 2002), 300-305.

¹⁵⁹ Childers, *Echoes from the Millpond*, 7-8; Hill, “Missouri Lumber and Mining,” 193-97; and Galloway, “John Barber White,” 38-39.

Starting in 1898, the Chick/Prestridge operation sawed trees, primarily longleaf, into rough boards and hauled them in ox-drawn wagons to the nearby Iron Mountain Railroad, which transported the boards to Alexandria and Monroe. Mill workers there finished the boards into marketable lumber.¹⁶⁰

To take advantage of the foothold established by Chick and Prestridge, the Clark family bought their sawmill and forty acres in late 1899. Charles H. Clark and his brothers, based in Alexandria, moved the saw mill about five miles closer to a new spur on the Iron Mountain Railroad. They established the Clarks Spur Lumber Company and erected a mill that could produce up to 50,000 board feet of lumber each day, roughly five times the capacity of the Chick/Prestridge mill. The Clarks also built a planing mill and other facilities, began construction on houses for workers, acquired timber rights on about 5,000 acres, and bought another 1,600 acres outright.¹⁶¹

However, this investment in Caldwell Parish by the Clarks soon became the new avenue into Louisiana longleaf for White, who had begun scouting for opportunities in Caldwell Parish around the same time the Clarks Spur Lumber Co. put its facilities and land up for sale in late 1901. White and MLM bought the operation for \$45,000 and organized LCLC as the new corporate entity, and moved aggressively to buy forested land and expand capacity for producing lumber. Within six months, LCLC's stockholders had boosted the company's capitalization from \$300,000 to \$750,000 to pay for land purchases and construction of an even larger mill and related facilities, which became the company town of Clarks, La. Everything was on a larger

¹⁶⁰ Childers, *Echoes from the Millpond*, 4-5 and 9-11.

¹⁶¹ Ibid., 4-5. An exact figure for daily capacity of the Chick/Prestridge sawmill was not discernable, but many portable sawmills in the pine woods at that time had capacity of 10,000 board feet per day. The planing mill's purpose was to make more precise cuts to the rough boards that came out of the sawmill, turning them into finished lumber ready for market.

scale than the previous Clark venture – the new sawmill had three times the capacity, facilities like the planing mill and kilns were more extensive, and the village that LCLC built had more homes, a larger company store, and other structures such as churches and a hotel. The company also soon completed the Ouachita and Northwestern Railroad, primarily to haul trees to its mills, and finished lumber to the main rail lines.¹⁶²

Maneuvering to Control Longleaf

In the new sawmill at Clarks, the belts and saws first whirled loudly into operation in the spring of 1903 and began consuming logs and steadily turning out lumber. The company set its timber crews to work cutting the trees on the 6,100 acres or so that it bought from the Clarks, raising rough-hewn camps for these men and their families deep in the woods. General manager Slagle led a relentless project to identify land in the region with valuable longleaf and other trees, and either buy such tracts outright, or the rights to haul away the trees within a set time period. Along with adding forest lands to its holdings, the company expanded in 1906 by purchasing a mill owned by the Standard Lumber Company about nine miles south of Clarks, which gave the company another 90,000 b.f. to 125,000 b.f. in daily capacity.¹⁶³

The extensive old-growth longleaf forests of Louisiana grew in three main areas of the state, including the north-central parishes on which LCLC focused, along with several southwestern parishes adjacent to Texas, and southeastern parishes that adjoined Mississippi. The large land purchases by LCLC and other companies that cut Louisiana longleaf reflected how plentiful longleaf and other species remained in the early 1900s in these parishes. Caldwell Parish had a total land area of 338,500 acres, while Winn Parish to the west covered 608,000

¹⁶² Ibid., 9-15.

¹⁶³ The outlines for these fifty years from Childers, *Echoes from the Millpond*, esp. 1-15, 75, and 107-121; and collection description for LCLC Records, SHSM.

acres, and Jackson Parish covered 364,000 acres. Four other surrounding parishes with longleaf stands had total land areas ranging from 400,000 acres to 519,000 acres. These parishes included large areas of forest, although longleaf and other trees did not grow on every acre.¹⁶⁴

In the summer of LCLC's first year, as Slagle continued making contacts, buying land, and scouting for possible purchases, he soon encountered men doing the same thing for other companies. For example, the Tremont Lumber Co. had established a significant presence in northern Louisiana, an enterprise whose approach mirrored LCLC's in many ways – acquiring tens of thousands of acres of Louisiana pine lands, building rail lines to access the lands and a large sawmill to produce lumber, and selling the lumber outside the region. By 1904, Tremont acquired forests of longleaf and shortleaf pine that it estimated could yield some 600 million board feet of lumber, and it built sawmill capacity to make about 40 million board feet per year.

Robert H. Jenks of Cleveland, Ohio, was president of Tremont, and also head of a major lumber company based in Cleveland that carried his name. Like John B. White, Jenks was a native of antebellum New York State. His family moved in 1856 to Michigan, where his father worked in the lumber industry. Jenks went into lumber as well in Michigan, and later founded the Robert H. Jenks Lumber Co. in Cleveland in 1895, buying wholesale lumber from Michigan and Pennsylvania and selling it in retail yards.¹⁶⁵

LCLC and companies such as Tremont angled constantly for control of land and timber in northern Louisiana, aware of the great abundance of longleaf, along with significant shortleaf

¹⁶⁴ Parish acreages from U.S. Census, Quick Facts, accessed May 20, 2015, <http://www.census.gov/quickfacts/table/PST045214/00>.

¹⁶⁵ Details on Jenks and the Tremont Lumber Company from entry on Robert H. Jenks in *American Lumbermen: The Personal History and Public and Business Achievements of One Hundred Eminent Lumbermen of the United States* (Chicago: The American Lumberman, 1905), 127-133; and "Robert H. Jenks," obituary in *The Lumber World*, March 15, 1911 (Vol. 12 No. 6), 36; on the same page with the obituary for Jenks, a column called "Business Embarrassments" mentioned that the Robert H. Jenks Lumber Co. had failed and was likely to enter receivership.

and hardwood stands, and driven by the competitive pressure among them to profit from that abundance. These lumbermen recognized that, for all their capital and confidence, they could not realistically control all of the available forest lands, and concluded their best course was to agree on “territories” that each could dominate and cut to the fullest. They sought advantage over one another at times, and looked for angles of cooperation at other moments, all the time conversing in the shared vocabulary of timber and board feet, acres and quarter-sections and the other standardized units of Louisiana forest lands.

Slagle and W.G. Collar, vice president of Tremont, spent a long day in June 1902 at the main hotel – or perhaps the only hotel – in Monroe, La., sizing each other up, trying to get a better sense of their companies’ intentions, and talking about how they might cooperate. They discussed recent land purchases and the prices paid per acre, the prospects for buying more land, and the apparent value of the trees on such lands. Most importantly, they reached a tentative agreement on the outlines of territories where each company would focus its efforts on buying land and/or timber rights, with the explicit aim of keeping down competition with each other for land – thus keeping down land prices. For example, Slagle reported to White, “While nothing definite was accomplished, it was decided [Tremont] would not interfere with our operations” in at least two townships in Jackson Parish, which adjoined Caldwell to the northwest.¹⁶⁶

Slagle and Collar also agreed the two companies should consider cooperating to buy lands owned by the Chicago-based S.K. Martin Lumber Co. With the portion of the Martin lands that LCLC would get, along with another 2,500 acres known as the Pardee lands, LCLC would secure “at least 10,000 acres of long leaf and probably the same amount of short leaf,” Slagle figured. As he maneuvered, Slagle faced competition from ventures such as the Urania Lumber

¹⁶⁶ C.E. Slagle to John B. White, June 19, 1902, folder 19, LCLC Records, SHSM.

Co., headed by Henry Hardtner, who had offered \$15 an acre for the Martin lands. “Mr. Collar thinks that the Martin people will insist on something like \$25.00 an acre and in my opinion this is an unreasonable price and we should arrange among ourselves to let him hold them a while,” Slagle offered, hoping LCLC and Tremont would work together. The Martins were asking \$20 an acre, which still was too high for Slagle.¹⁶⁷

The Martin lands totaled about 18,000 acres in Winn and Jackson parishes, covered with longleaf and likely a smaller amount of shortleaf pine and hardwoods. “The country is fairly level, with very little underbrush, and is a good logging proposition,” Elmer B. Martin reassured Slagle about the 18,000 acres. “The timber is extra fine quality and while we of course do not guarantee it, we are satisfied after careful and thorough investigation that it will average 10,000 [board feet] per acre or more. Our price is \$20 per acre, Cash.” LCLC was eager to acquire a share of the Martin lands but not at that price, so it strategized with Tremont and the South Arkansas Lumber Co. to get the land at less than the \$20 asking price.¹⁶⁸

Samuel K. Martin, founder of the Martin Lumber Co., had died in 1896, and his sons Elmer and Wilton Martin represented the family in selling assets. In its heyday, the company owned more than fifty lumber yards in the U.S., along with property such as the forest lands in Louisiana, and the elder Martin’s wealth was estimated at \$6 million to \$7 million when he died. Samuel Martin was another native New Yorker who moved west as a young man to make a fortune in lumber. Born in 1837, he moved to Chicago in 1865 in the midst of that city’s development into a major lumber center, where wholesalers bought lumber shipped from mills in

¹⁶⁷ Ibid.

¹⁶⁸ E.B. Martin to C.E. Slagle, June 27, 1902, folder 21, LCLC Records, SHSM.

Michigan, Wisconsin, and Minnesota, and sold the lumber to retailers in growing farm communities on the prairielands.¹⁶⁹

Once the Martin heirs revealed their interest in selling the Louisiana lands, Slagle and White coordinated privately with Tremont and South Arkansas officials on a plan to buy the lands together. “Mr. Martin has quoted us a price of \$20.00 an acre, which price however has been quoted [to] a number of others but by joint action believe [the land] can be purchased for less money,” Slagle wrote in July 1902. The three companies planned to refrain from bidding against one another, which would have favored the Martins. Instead, they would agree on the prices that they would each offer, with LCLC as the winning buyer. In reality, the companies planned to buy the lands together, so that each could take a portion. LCLC would get about 8,400 acres, South Arkansas about 7,000 acres, and Tremont some 2,200 acres.¹⁷⁰

As the deal neared completion, White told Elmer Martin that he was sending one of his people to write an up-to-date estimate of the potential lumber. Another of White’s estimators had checked out the lands previously, but White worried the man had worked too quickly and that his estimate was too high, which would have help the Martins boost their asking price. White’s first estimator had a tendency to overestimate – while the man sent to do the second estimate often put timber values on the low side.¹⁷¹ White and LCLC finalized the purchase of the Martin lands

¹⁶⁹ “S.K. Martin is Dead,” *Chicago Tribune*, Aug. 12, 1896. The *Tribune* noted that Martin and his wife had five children, including Elmer B., Wilton B., Samuel K. Jr., Walter, and Marion. Correspondence such as John B. White to C.E. Slagle, Dec. 17, 1902, folder 51, LCLC Records, SHSM, describes dealings with the Martin heirs and includes correspondence with E.B. Martin and W.B. Martin. The *Tribune* also stated that, in declining health, Samuel Martin sold his company’s interests to the Edward Hines Lumber Co. of Chicago. However, E.B. Martin still was using letterhead from S.K. Martin Lumber, so Hines perhaps acquired the Martin lumber yards, while assets such as the forested lands in Louisiana were retained by S.K. Martin Lumber; on Chicago, see Cronon, *Nature’s Metropolis*, 148-206.

¹⁷⁰ C.E. Slagle to John B. White, July 1, 1902, folder 22, LCLC Records, SHSM.

¹⁷¹ John B. White to E.B. Martin, Sept. 5, 1902, folder 33, LCLC Records, SHSM. J. W. Clarkson did the first estimate, and Frank Webb was sent to do the second estimate. In his 1949 dissertation, Leslie G. Hill stated that both

that fall, apparently for \$15.50 an acre. They crafted the deal relying on a fairly shallow on-the-ground understanding of the actual lands in Louisiana, and with no meaningful connection to the longleaf forests, making the final decisions in distant offices in Kansas City and Chicago.¹⁷²

Tremont Lumber was committed to this approach to getting a sizable piece of the Martin lands, but it remained a crafty competitor to LCLC in general. Also in mid-1902, Tremont was working a different angle for another 3,200 acres owned by the Martin heirs in the same region. Tremont officials proposed exchanging 3,180 acres that they owned south of Beauchamp Creek, for 3,240 acres the Martins owned north of the creek. They pitched the trade based on the relationship between the estimated logging costs and the topography and other features. Tremont officials claimed that, while maps made it appear that the swamp along Beauchamp Creek was fairly easy to cross, the swamp in fact was quite extensive, and spanning it with a rail line for logging would be expensive.¹⁷³

But if they traded the properties, neither party would have to cross the swamp to access their land, nor would they have to build rail lines across a series of hills and ravines, Tremont argued. Tremont already owned most of the forest lands around the 3,200 acres owned by the Martins, which made those 3,200 acres appealing to Tremont. In noting the challenges that the wetlands, and the hills and ravines presented, Tremont demonstrated a simple understanding of the most obvious features of this landscape. The company officials' motivation and skills were in imagining a deal to benefit both parties, and applying their basic understanding of the landscape,

estimators were skilled and respected, though Clarkson tended to overestimate timber values, and Webb to underestimate them; see Hill, "Missouri Lumber and Mining," 216.

¹⁷² John B. White to C.E. Slagle, Dec. 17, 1902, folder 51, LCLC Records, SHSM. White paid the Martin family the remaining balance on the purchase of \$222,500 after a meeting in Chicago in December, and sent the deeds down to Slagle in Clarks.

¹⁷³ Tremont Lumber Company to W.B. Martin, Aug. 7, 1902, folder 26, LCLC Records, SHSM.

the necessary engineering, and the ability to calculate the related costs, to access these longleaf stands for profit. They were good at these tasks, and did not see a need to understand or appreciate the swamp or the longleaf stands from any aesthetic or natural-science angles.¹⁷⁴

When they thought about longleaf, lumbermen like White, Pettibone, and Slagle considered, first and foremost, the potential yield of lumber in board feet of tracts of forested land, and how that would help them reach the target of 500 million board feet. They considered the investment required, such as extensive rail lines, always balancing costs and potential production and revenues. With these calculations in mind, they pursued control of forested lands, and staked claims to certain territories while conceding territory to other lumber companies, constantly positioning themselves to take best advantage of longleaf. “It would seem most important that we should control all the timber both in 13 and 14 1-E [townships] as well as any timber there is between Flat Creek and Beaucoup Creek in 13-1-E & 13-1-W as well as any timber in 14-1-W in addition to the timber we get from Martin,” urged Pettibone, the vice president, in 1902. “We certainly should have the timber in 14-1-E between our Brewer lands and the Martin lands. Of course in the Pardee Howcott lands the 2,000 acres of long leaf in 14-1-E is the cream of the whole... We cannot afford to let it get away and cannot afford to give up any of the good timber in this [township].” The longleaf pine he mentioned was the “cream” strictly in the sense that it promised to yield the most lumber, and Pettibone was determined that his company would control it.¹⁷⁵

Slagle’s job was aggressively seeking new lands and timber rights, while trying not to seem too eager and giving owners hope for higher prices. White advised Slagle in early 1902 that

¹⁷⁴ Ibid.

¹⁷⁵ W.B. Pettibone to C.E. Slagle, Nov. 24, 1902, folder 46, LCLC Records, SHSM.

he supported buying all the forested lands possible between the Iron Mountain Railroad at Clarks, eastward six miles to the Ouachita River, and “picking it up as rapidly as possible, consistent with economy in buying,” he added. But White also reminded Slagle to “not do anything to create any excitement, but simply quietly and expeditiously get all that can be obtained at a reasonable price.” This was an instance of LCLC starting to establish part of its “territory” between Clarks and the Ouachita River. The men communicated in terms of timber without specifying any tree species, although longleaf would have been the primary species on these lands.¹⁷⁶

Slagle developed a number of strategic relationships with local officials, people like A.B. Hundley, the district attorney in Caldwell Parish who helped broker a possible land purchase. Hundley told Slagle in June 1902 that he recently talked with a local man who had about 320 acres for sale at \$15. “Can you handle it at that price?” Hundley wondered. “I had him promise not to sell until I could see you.” If interested, Slagle was to meet Hundley at the train station in the parish seat of Columbia the next evening. Hundley, who also advertised his services as a private attorney in three of the local parishes, presumably represented the landowner in brokering the deal with Slagle and expected a fee if the deal closed. All parties looked to convert the forested land to money, the current owner in the near term, and LCLC once the forests had been transformed into lumber.¹⁷⁷

When W.H. Allen, tax assessor for Jackson Parish, answered an inquiry from LCLC about the tax bill on the S.K. Martin lands, Allen answered not only as a parish official, but also an eager booster for the parish. Allen sent Slagle information on other lands in the parish that he

¹⁷⁶ John B. White to C.E. Slagle, Feb. 15, 1902, folder 1, LCLC Records, SHSM.

¹⁷⁷ A.B. Hundley to C.E. Slagle, June 24, 1902, folder 21, LCLC Records, SHSM.

hoped LCLC would consider buying.¹⁷⁸ Allen also was working for his personal financial interests, as a potential middle man for land and timber deals. His letterhead as parish tax assessor pointed out that he was a notary public and real estate agent as well, with “timber lands [as] a specialty,” and promised “prompt attention given to the payment of taxes of non-residents.” Trying to stoke Slagle’s interest, Allen urged him to act promptly and claimed that the parish was deluged with inquiries from other interested parties. “Nearly every mail brings me letters from investors who are calling for from 10,000 to 100,000 acres,” Allen advised. The reality in Jackson Parish was somewhere between the constant clamor for land that Allen claimed, and the genuine interest that many lumber investors indeed had in Louisiana longleaf.¹⁷⁹

Jackson Parish leaders preferred for LCLC to buy the forested lands there, Allen added, in part because they hoped the company would extend its railroad through the parish all the way to Ruston, and even help to get the parish seat relocated. “These lands are near the geographic center of our parish and if we could induce you to build a R.R. [here] we could easily have our parish seat moved to the center, and could build up a nice little town there,” Allen suggested wistfully. One property included about 4,000 acres, and the owner wanted to sell only the pine trees growing there, while keeping the hardwoods and the land itself. “The tract embraces some good pine and has never been culled,” Allen noted. There were another 2,000 acres from which LCLC likely could buy the timber rights as well. Allen also mentioned that, by the way, he personally had about 1,500 acres he wanted to sell, a “choice tract” of pines and oaks that he

¹⁷⁸ John B. White to C.E. Slagle, Dec. 17, 1902, and W.H. Allen to C.E. Slagle, Dec. 18, 1902, folder 51, LCLC Records, SHSM. Taxes owed on the Martin lands in Jackson Parish totaled \$1,372.22 in parish, state, and school taxes.

¹⁷⁹ W.H. Allen to C.E. Slagle, Dec. 18, 1902, folder 51, LCLC Records, SHSM.

offered at six dollars an acre. If LCLC acquired these lands and others that could be made available, Allen promised, both the company and the people of the parish would benefit.¹⁸⁰

The Martin lands and the tracts touted by Allen were examples of larger purchases that LCLC pursued through constant maneuvering that centered on longleaf as a resource, and yet was disconnected from the actual forests and their natural complexity. The company also pursued many other smaller-scale deals in stockpiling trees. For example, Slagle paid \$1,025 to Lee Rogers in early 1903 for his “160 acres of long leaf,” a rare case in which the company mentioned the specific pine species. Rogers had reserved a site on the land for a small sawmill as part of the transaction, but he proposed to drop that condition if LCLC would give his family a house that currently was on the land.¹⁸¹

Around the same time, Slagle pursued a trade with R.M. May, in which the company would give 160 acres to May in exchange for land that he owned. Slagle raised the idea of LCLC keeping rights to the timber on the 160 acres that May would receive in the deal. But May rejected that offer and also rejected the proposal that he keep the rights to all the oaks and a small portion of longleaf for his farm needs. May held his ground, reminding Slagle that the company had already offered previously to swap land with him without any such strings attached.¹⁸²

While LCLC focused its purchases on such forested lands, it also bought unforested tracts like prairie lands in eastern Caldwell Parish near the Ouachita River, mainly to keep other companies from buying those lands, and also so that it could trade for other tracts when opportunities arose. For example, Slagle sought an arrangement in late 1902 with local

¹⁸⁰ Ibid. It appears that the lands that Allen was promoting to Slagle were owned by citizens, and were not lands that the parish had taken over due to unpaid taxes. Allen gave the initials for the private owners on the plats that he sent to Slagle.

¹⁸¹ C.E. Slagle to J.W. Clarkson, Jan. 5, 1903, folder 55, LCLC Records, SHSM.

¹⁸² Ibid.

landowner A.P. Stewart, in which LCLC would swap some of its land “on the prairie” for some of Stewart’s forested property. Stewart lived near the village of Copenhagen, about one mile from the Ouachita River, and perhaps the deal appealed to Stewart because he could farm the prairie land, while he could not do much with the forested lands – except to extract some of their economic value by selling them to LCLC.¹⁸³

One of the acquisitions of forty acres illustrates how the company’s aggressive drive for land related at times to the racial and socio-economic hierarchies in the Deep South of the early twentieth century. Along with acquiring forested lands, the company also was busy in 1902 assembling properties in Clarks where it would construct its production facilities and company village. Slagle had hit a snag with a particular forty acres targeted for the mill site, but he found a solution in two parts. The first was pulling a string with a man in the parish who, as a white landowner, invoked his influence over a black man who worked on his land. The second was exerting the company’s own influence more directly, as a newly significant employer with jobs to offer, and to take away if necessary.

A black man had filed a homestead claim for the forty acres in 1897, and sometime after that, he sold the claim to a white man for fifty dollars. However, once he had sold his claim, the black man apparently lost interest in completing the process of “proving up” the homestead claim, or gaining the federal government’s final approval of his ownership. When LCLC decided it needed these forty acres in 1902, the unresolved status of its ownership became a problem.

That summer, the white man who had bought the claim to the forty acres and the black man, possibly named John Johnson but whom Slagle, who was white, referred to only as a “darky,” met at the courthouse in Columbia to settle the matter. However, in an added twist,

¹⁸³ C.E. Slagle to J.W. Clarkson, Dec. 17, 1902, folder 55, LCLC Records, SHSM.

since the ownership remained an open question, another white man named Finlynson had cleverly swooped in and filed his own homestead claim on the forty acres. Slagle heard about Finlynson's action and moved to assert LCLC's interests. "I found out that the darky was working on the place of Mr. R.R. Redditt and through Mr. Redditt's influence we persuaded the darky to [keep his claim]," Slagle reported. And since Finlynson had a job with LCLC working on construction of the mill facilities, Slagle added, he soon was "willing to withdraw his application" for the forty acres.¹⁸⁴

Slagle and Redditt convinced Johnson to apply for final approval of his homestead claim, and the company planned to get the forty acres by deeding Johnson another property of eighty acres that the company owned outside the mill location. As a white landowner who employed Johnson, R.R. Redditt held a measure of real power over Johnson, drawn from the interconnected racial and economic prerogatives of white landowners in the early twentieth century South. Redditt exercised this power because he wanted to do business with Slagle and LCLC.

For example, as the company was building the sawmill and buying lands, Redditt positioned himself regularly as a middle man between the company and landowners in Caldwell Parish, drawing LCLC's attention to certain lands and negotiating between the parties over prices. Redditt also proved useful as a contact with the local government, since he was clerk to the Police Jury in Caldwell, the parish's elected governing body. He and LCLC were useful to one another in several ways.¹⁸⁵

¹⁸⁴ C.E. Slagle to J.B. White, June 19, 1902, folder 19, LCLC Records, SHSM. The dry kiln in question was being installed in the new sawmill complex at Clarks, designed to dry the freshly cut lumber from the mill.

¹⁸⁵ R.R. Redditt wrote two letters to C.E. Slagle and LCLC on Oct. 10, 1902, one in his capacity as clerk to the Caldwell Police Jury, stating that the Jury had approved Slagle's request to install a telephone in the parish courthouse, and another reporting on his progress on a possible land deal, folder 38, LCLC Records, SHSM; see also See R.R. Redditt to C.E. Slagle, Sept. 6, 1902, folder 34, Redditt to Slagle, Jan. 10, 1903, folder 55, and Redditt to Slagle, Jan. 24, 1903, folder 57, LCLC Records, SHSM.

As for Finlynson, the implied threat to his job at Clarks was enough to get him to drop his pursuit of Johnson's forty acres. Interestingly, he already owned another forty acres within the envisioned mill location, which gave him a small measure of leverage. Since the company was determined to control every parcel within the mill complex, the officials figured they either would have to pay Finlynson's inflated asking price of \$100 per acre, or more likely, trade him another property. In these kinds of negotiations, the crux of the matter was how to gain the most leverage to assert one's interests, given the local economic and social relationships. The drive to use the surrounding longleaf forests as intensively as possible was never in question.

When the Louis Werner Saw Mill Co. of St. Louis had nearly 30,000 acres of forested lands west of Clarks that it hoped to sell to LCLC, each party described the lands with their competing interests in mind. Werner emphasized the best qualities, related solely to the timber potential, and downplayed the most obvious shortcomings. White and Slagle played up the potentially problematic features, but expressed just enough interest to keep the conversation going with Werner. The essential quality that mattered to both parties was the potential lumber contained in the longleaf and other trees on the lands.

"We believe, as an operating proposition, that this is the best one now purchasable in the state of Louisiana," Werner officials boasted in July 1902 about their lands in Winn Parish. The company suggested that these lands, "if properly cut, will average somewhere between six and eight thousand feet per acre of Pine, in addition to several tracts [including] five or six million feet of fine white oak." Werner's estimate of up to 8,000 feet per acre was dubious, in comparison to figures such as an estimate of 3,700 board feet per acre, on average, that Slagle

cited for all LCLC's lands at that point. Nevertheless, by "properly cut," Werner meant removing every tree worthy of sending through the mill.¹⁸⁶

Slagle cited several conditions that detracted from the potential value, thinking as a lumberman focused solely on logging as efficiently as possible. Contrary to Werner's claims, the lands in fact were "badly scattered" in fourteen different townships in Winn Parish, so that Werner did not "entirely control the situation." Slagle was referring to 10,000 acres or so interspersed with Werner's lands that were owned or controlled by other companies, a fact that "presents its complications." LCLC wanted the fewest possible obstacles to clearcutting the land. But cutting the trees on the Werner lands not only would mean working around the tracts that made up the 10,000 acres, but also risking the conflicts with other lumber companies that LCLC had sought to avoid by agreeing privately to territories among several companies.¹⁸⁷

Slagle also stressed doubts about ownership of the lands that Werner claimed to control, such as the fact that a number of the homestead claims there remained "unperfected." In other words, the parties who claimed those tracts under homestead laws had not completed the process of getting official ownership. Werner officials were forced to acknowledge this issue, stating they had not been willing to risk buying those unperfected homesteads outright, since they did not want to "take the chances that some of our mill friends in Louisiana are now taking of running [afoul] of Uncle Sam's laws against violation of homestead acts." While Slagle was being relatively cautious and Werner was at least claiming to be cautious, this was a context in

¹⁸⁶ Louis Werner Saw Mill Co. to LCLC, July 12, 1902, folder 22, and W.B. Pettibone to C.E. Slagle, Nov. 24, 1902, folder 46, LCLC Records, SHSM.

¹⁸⁷ C.E. Slagle to Louis Werner Saw Mill Co., Oct. 22, 1902, folder 40, LCLC Records, SHSM.

which the hunger for longleaf and other species led some companies to buy lands with uncertain ownership, aiming to clearcut the lands before authorities could raise any legal challenges.¹⁸⁸

On a smaller scale, such matters of law did not stop a number of local residents from actions such as busily cutting oak trees to make barrel staves on lands that they did not actually own in Winn Parish. Aware of this activity, Slagle noted that LCLC would have a hard time keeping these people from cutting the oaks growing on the Werner lands. In addition, some of the Werner property carried agreements that the trees could not be cut for several years, and in other cases, farmers who sold their lands to Werner had been assured that they could keep a few acres. Slagle presented these issues of logging practicalities and land-ownership legalities as factors that affected the value of the lands. The negotiations turned completely on the lumber value of the longleaf and other trees, versus the hassles and costs of extracting that value, with an implicit understanding that maximum use of the forests was the proper course.¹⁸⁹

Similarly, Slagle, John White, and Pettibone, the vice president, went back and forth about the prospect of buying certain lands in Jackson Parish, with Pettibone urging Slagle to downplay the notion that any other companies would be interested in the lands. After all, Pettibone scoffed, no one would even look at the 5,000-acre portion of those lands for \$110,000 or even \$100,000. The man promoting the sale, a land and timber agent based in Wisconsin, claimed the lands would yield about 6,000 board feet per acre of longleaf lumber. White feared that Werner might try to acquire these lands, mainly to keep LCLC from getting them. Pettibone was not as worried, calling one of the owners a “great bluffer” whose claims could not be trusted. Nevertheless, Slagle offered \$50,000 for about 7,200 acres, which Pettibone figured was

¹⁸⁸ Ibid., and Louis Werner Saw Mill Co. to Louisiana Central Lumber Co., July 12, 1902, folder 22, LCLC Records, SHSM.

¹⁸⁹ Slagle to Werner Saw Mill Co., Oct. 22, 1902, LCLC Records, SHSM.

a lot more than anyone else was willing to pay. In this competitive environment, as they tried to make smart choices with their capital and navigate several uncertainties, these men relied on the vocabulary of acres, board feet, and the rest of the language of land and lumber to bring some certainty to their decisions.¹⁹⁰

A Caldwell Parish man named Mixon, made a request of LCLC in 1909 that provides insight to his and the company's perspectives on longleaf. Mixon was in the process of selling eighty acres to another local man named Parker, who was making payments on the land and was to receive the deed from Mixon after his final payment. The complication was that LCLC had acquired the rights to "all the merchantable pine timber" on half of the eighty acres, probably before Mixon bought the land, since he claimed that he learned of LCLC's timber rights only recently. Mixon worried about the condition in which LCLC would leave the forty acres, once it cut the trees. "Since Mr. Parker is a very poor and needy citizen [I] would ask that you request your woods [foreman] to do as little injury to this 40 acres of land as you can while removing the timber," Mixon requested of Slagle.¹⁹¹

Mixon did not describe specifically the damage that he feared loggers would cause to the land, nor how the damage might impair the ability of Parker, probably a subsistence farmer, to get a living from the land. However, his request indicates that he had seen the aftermath of other logging operations by LCLC crews or other companies, and he knew what to expect. In addition, from the general record of logging in the South and elsewhere in the U.S., we can assume that Mixon was worried about impacts such as soil erosion from skidding logs across the ground, siltation of creeks by the exposed soil, accumulation of debris like tree branches that could fuel

¹⁹⁰ W.B. Pettibone to C.E. Slagle, two letters from Jan. 31, 1903, folder 59, LCLC Records, SHSM.

¹⁹¹ A. Mixon to Louisiana Central Lumber Co., March 6, 1909, folder 496, LCLC Records, SHSM.

fires, and the wasteful destruction of smaller trees in the process of cutting and hauling the larger trees. Since he still owned the land, Mixon stated that he fully intended to “protect the land until I deed it to Mr. Parker.” Perhaps he also feared Parker might decide he no longer wanted the land, if the logging were too destructive.¹⁹²

Nevertheless, while Mixon did not trust LCLC to tread with care on the forty acres, he did not take issue directly with the company’s intention to remove the trees, stating, “I have no desire whatever to deprive you of your rights and priveliges [sic] to any of your belongings.” He did not want to see LCLC wantonly tear up his land and ruin its value to Parker, but his explicit concerns did not extend beyond the forty acres. Mixon did not hint at any worries about the overall depletion of longleaf pine or other species that lumber companies were cutting rapidly Caldwell and adjacent parishes. He grounded his perspective in the authority of property rights – both his rights, and the rights of LCLC to extract value from the trees that the company owned.

In records of the Mixon matter and the myriad other land deals and logging operations by LCLC, explicit thoughts of conserving longleaf in any meaningful sense were about as hard to find as elephants or flamingos wading in the nearby Ouachita River. One might be tempted to explain the perspective of White and other lumbermen toward forests by arguing that ideas about conservation simply never gained their attention in a serious way, or perhaps never even occurred to them. But that was not the case at all for White, who engaged directly in national discourses about conservation, and advocated for particular paths that American conservation should take. In his engagement, White showed that he had strong ideas about conservation, and

¹⁹² A. Mixon to Louisiana Central Lumber Co., March 6, 1909, folder 496, LCLC Records, SHSM.

also that he recognized other Americans were calling for much stronger conservation measures than he advocated, such as government regulation of timbering in private forests.¹⁹³

White took an early step in his involvement in conservation debates in 1905, when he lobbied against allowing timbering on part of the Cass Lake Indian reservation in Minnesota, a position on which he agreed with President Theodore Roosevelt. It was no sacrifice for White to take this stance, given that it did not hinder his own lumbering in Louisiana and Missouri, and indeed it might have served his interests – since the Cass Lake forests were a potential lumber resource for competitors. Still, Roosevelt appointed White in 1908 to the forests group of the National Conservation Commission, a body that Roosevelt established to report on the state of America’s forests, waters, lands, and minerals, essentially the first such inventory of the country’s natural resources.¹⁹⁴

While the commission was a prominent body, it did not provide a platform for its members to offer their detailed opinions on conservation. But White clearly wanted such a platform, and he helped to create it the next year by joining the effort to establish the first National Conservation Congress, for which he served as an executive committee member and later as president. The congress was established in 1909 by the Washington Conservation Association, a creation of the Washington Forestry Association. White was chairman of the executive committee for the first congress in Seattle. He also gave a speech at the Seattle

¹⁹³ Lewis, *Forest Service and the Greatest Good*, 93.

¹⁹⁴ Galloway, “John Barber White,” 166; and “The National Conservation Commission,” *Science*, New Series 27, no. 704 (June 26, 1908): 994-96.

Congress on behalf of the National Lumber Manufacturers' Association, and his stated views on conservation in 1909 and later were grounded firmly in the interests of the lumber industry.¹⁹⁵

The idea of reducing waste in the timbering of trees was central in White's take on conservation. "Conservation means the saving of trees and making trees worth saving," he contended. "We must try to find a use for the 'waste' which now has no market value." White was talking about the top portions of trees, especially pines, above the thickest and most valuable trunk sections. Logging crews generally left the top portions on the ground, and the debris either slowly decayed or became fuel for uncontrolled fires. The top sections did contain usable wood, but the lumber made from them was of a lower grade. In his lumber enterprises, White introduced two lower grades to the grading system, so that the wood from these top portions could be marketed under the lower grades, and he urged other manufacturers to do so.¹⁹⁶

He also tried to convince lumber retailers to offer the lower-grade products, and lumber consumers to use them when possible in building homes and other structures. "Unless economy is practiced by the builder of the home, and with the farm buildings, there is no market for the lower grades, and conservation cannot be made a success in forest and mill," White contended in Seattle. "Wise economy or frugality is an indispensable aid to conservation. Use cheaper goods and lower grades [of lumber], where they will do just as well for the purpose."¹⁹⁷ White in effect sought to give consumers the major share of responsibility for conservation, and he tended to

¹⁹⁵ Executive Committee of the National Conservation Congress, *Addresses and Proceedings of the First National Conservation Congress Held at Seattle, Washington, Aug. 26-29, 1909*, xv and 212-16, accessed May 26, 2015, <http://babel.hathitrust.org/cgi/pt?id=mdp.39015069785510;view=1up;seq=1>.

¹⁹⁶ *Addresses and Proceedings of the First National Conservation Congress*, 215; and Galloway, "John Barber White," 171-73.

¹⁹⁷ *Addresses and Proceedings*, 214.

dwell in his rhetoric mainly on general ideas about forests, speaking little to the specific challenges of conserving longleaf pine or other species that his companies cut.

Lumber prices were another topic on which White opined regularly, contending that conservation “will not bring cheaper lumber, but it will help to regulate and keep a more even price.”¹⁹⁸ In this sense, White’s conception of conservation was to incrementally reduce the amount of lumber being produced in large sawmills, not just in White’s mills but across the industry. Reducing production would tend to support lumber prices, and in effect it also would mean cutting trees at a slightly slower pace. However, White was not challenging the long-term goal of removing all the trees large enough to send through sawmills. Seeking a favorable balance between production levels and prices for lumber had been on White’s agenda for much of his time in Missouri and Louisiana, as would be expected of someone investing in and running lumber companies.

In addition, like many owners of forested lands in the South and other regions, White criticized the contemporary policies for taxing those lands, which often factored in the value of the trees as potential lumber when setting property values for taxes. From the landowners’ perspective, this was a problem because they could not, of course, realize the lumber value while the trees were still standing. “Relief from taxation, to those who will grow forests, and to those who will conserve the forests in wise use as manufacturers, is absolutely essential,” White argued. “As it is now, estates are not left in timbered lands on account of the uncertainty of taxation and the danger of fire and loss through storm and disease, [and] the question of conservation is largely one of profit and appeals to our selfish interest, as well as to our spirit of philanthropy and public interest.” White made a valid argument, in that these tax policies helped

¹⁹⁸ Ibid., 215.

to create a set of possible choices, and landowners had to decide how they wanted to balance their short-term financial interests with any longer-term conservation goals. For owners of large acreages such as LCLC, the choice in the early 1900s usually was for clearcutting to serve the shorter-term interests.¹⁹⁹

At the Second Conservation Congress, White urged attendees to get serious about developing ideas that could be refined into “proper National and State laws for the regulation of Conservation of public resources.” He wanted to see “we, the people, instead of “we, the politicians,” developing these ideas. White knew very well that some Americans interested in forest conservation were advocating measures that lumbermen deplored as too intrusive, such as possibly regulating the cutting of timber on private lands. White’s concern was that lawmakers might pursue such measures if he and his fellow lumberman failed to take the initiative and develop alternative measures.²⁰⁰

In his involvement in conservation over the first two decades of the twentieth century, White worked, first and foremost, to serve the interests of the lumber industry. Exactly how sincere he was in expressing concerns about American forests of the present and future is an intriguing question. He clearly was doing public-relations work for the lumber industry, in claiming a voice for lumbermen in the conservation debate, and trying to head off some of the more radical conservation arguments. Another possible interpretation is that White truly wanted the lumber industry to reform some of its practices and make more thoughtful, long-term use of the forests, and he was trying to influence the thinking of his industry colleagues in that direction. However, his actual practices suggest he did not see a feasible path for his companies

¹⁹⁹ *Addresses and Proceedings*, 215-16.

²⁰⁰ National Conservation Congress, *Proceedings of the Second National Conservation Congress at St. Paul, Sept. 5-8, 1910*, (Washington, D.C.: W.F. Roberts Co., 1911), 617.

like LCLC to lead the way by acting alone on steps such as cutting production. More importantly for the history of longleaf, what LCLC actually did was to cut the longleaf and other trees on the lands it controlled with little restraint, and to take no steps to reforest the lands. These actions help to explain the transformation of the longleaf regions of north-central Louisiana, much more than does White's conservation rhetoric.

The production of lumber in Louisiana, primarily from longleaf but other trees as well, reached its peak in 1913 with an annual total of 4.16 billion board feet. By 1920, the state had some thirteen million acres of cutover lands. John White passed away in 1923, but business was good for LCLC generally for the rest of the 1920s. Early in the Great Depression, the company cut production and laid off workers, and then closed down its secondary mill in Standard, La., in 1933. The renewed demand for lumber before and during the Second World War gave the company a boost, but its production declined again in the postwar years, as the company steadily cut its remaining timber and took increasing interest in the oil, gas, and minerals businesses. The company permanently closed the Clarks mill in 1953, and continued selling much of its cutover lands to paper companies. Over the fifty years, the company had manufactured approximately 2.5 billion board feet of lumber from pine trees, mainly longleaf, and another 350,000 board feet of hardwood lumber, ultimately exceeding – by more than five times – the goal of 500 million board feet that the directors had envisioned in 1902.²⁰¹

After White's death, LCLC took steps such as striking a deal in 1926 with the Brown Paper Mill Co., so that, as LCLC cut the largest, most valuable pines and hardwoods that remained on its lands, the paper company would buy the cutover lands. In other words, LCLC

²⁰¹ Figures on board feet in 1913 and cutover acreage in 1920 from Ed Kerr, *History of Forestry in Louisiana* (Baton Rouge, La.: Office of the State Forester, 1958), 2 and 11; broad strokes on LCLC's fifty years from Childers, *Echoes from the Millpond*, esp. 1-15, 75, and 107-121, and collection description for LCLC Records, SHSM.

would use the best trees for manufacturing lumber, and Brown Paper would take over ownership incrementally, and use whatever smaller trees were left behind for manufacturing paper. Brown Paper, which had built its paper mill two years earlier on the Ouachita River near Monroe, also would replant pines on the cutover lands.²⁰²

LCLC reserved the right to cut the pines down to a fairly small size, that is, all trees with a diameter near the ground of at least nine inches. The minimum size that LCLC reserved for hardwoods was fourteen inches in diameter near the ground. The company also kept the right to cut even smaller trees if necessary when constructing rail lines into the woods, while LCLC promised to use “due regard to the preservation of the young timber on said lands so far as may be predictable and consistent with its present methods and operations.” Brown Paper would pay about \$6.12 per acre as it acquired the cutover lands over the next fifteen years.²⁰³

The paper company planned to buy about 74,500 acres from LCLC in Caldwell, Winn, Jackson, La Salle and Ouachita parishes, though Brown’s directors had approved buying nearly 130,000 acres if LCLC were willing to sell that much. The contract also cited the potential for fires – fueled largely by the debris left after timbering – and the companies agreed there was “no greater enemy to reforestation and to the growing of crops of timber on cut-over lands than forest fires.” LCLC promised to use “reasonable care and caution in its operations and to adopt employ and enforce such reasonable means and agencies” to minimize the fire risk, as it continued timbering the lands.²⁰⁴

²⁰² Brown Paper Mill Company’s history in Mason C. Carter, Robert C. Kellison, and R. Scott Wallinger, *Forestry in the U.S. South: A History* (Baton Rouge: Louisiana State University Press, 2015), 19-22.

²⁰³ Land records, folder 3396, LCLC Records, SHSM. The contract in the records is very detailed and appears to a copy of the final contract, although it includes no signatures.

²⁰⁴ Ibid. In the interest of reducing fire risks, LCLC officials noted they already had converted most of the locomotives on the logging roads to oil burners – replacing the wood burners that could emit sparks and embers.

Discussions of forest fires and the potential for reforestation were about the future of the cutover lands, and what trees would grow there, and the paper company had the only real interest in that future. Brown was buying LCLC's lands "primarily for the value of future crops of timber that may be grown thereon," indicating that the company planned to reforest the cutover lands and manage them as pine plantations, the model that would become increasingly common in the pine regions of the South in subsequent decades. However, this approach most likely meant that Brown would plant species such as loblolly and slash pine, considered at the time to be faster-growing, and thus they could be cut on shorter cycles for making paper. Longleaf pine was not the pine of choice in the tree-farm approach, so longleaf had no significant place in the future that the paper company envisioned for LCLC's cutover lands.²⁰⁵

At the same time, LCLC had an eye on other natural resources possibly contained within the lands it held – specifically the potential resources below the surface. The company reserved the rights to oil, gas, iron ore, or other minerals that might be discovered on the lands, and also the right to drill water wells. Both parties agreed they could "freely take and use without charge, water therefrom for their sawmill plants, mills, quarters and railroads, provided the flow of water from said wells is sufficient to take care of the needs of both parties..." LCLC officials were looking toward a future in which other natural resources, such as oil, gas, minerals, clay, and gravel, would be increasingly important, while longleaf declined in importance, as the company cut through its forest holdings with no intent to reforest.²⁰⁶

Five years later, LCLC still held about 56,600 acres of forested land in Caldwell and adjoining parishes, plus the timber rights on another 13,600 acres. The company estimated those

²⁰⁵ Ibid.

²⁰⁶ Ibid.

remaining trees would yield about 170 million board feet of pine lumber, and another 40.5 million board feet of hardwood – a significant amount of potential lumber, to be sure, but only about five years' worth for a company that could produce more than 150,000 board feet per day. The “denuded” or cutover lands in 1931 totaled about 43,000 acres, and presumably a portion of that acreage was to be purchased by Brown. By that time, the paper company had acquired about 300,000 acres from several landowners, including LCLC, where it was timbering any smaller pines that remained and starting to replant with faster-growing pines. The deal with Brown thus was another step along the way to cutting over the longleaf forests of northern Louisiana, and more broadly, to transforming the longleaf ecosystem.²⁰⁷

Conclusion

The shared vocabulary that lumbermen used in northern Louisiana was logical and effective for their purposes, but it also was utterly devoid of a sense of the great diversity and activity of life within the longleaf forests. The vocabulary portrayed forests like inert wooden columns, or crops that had reached maturity and awaited the harvest. As conservationist Bill Finch observes, “The lumbermen could see only the tree, the straight poles, the wood that graded out higher than any other pine lumber, the Cadillac of yellow pine lumber, the pine strong enough to be an oak. There was no need to let quail and grasslands and wildflowers get in the way.” The truth was that life went on ceaselessly, from the trees to the microorganisms and insects living on the trees, the birds and other animals inhabiting the woods, and the species-rich plant life on the forest floor.²⁰⁸

²⁰⁷ Land records, folder 3332, LCLC Records, SHSM. The figure of five years was calculated by adding the lumber estimates, dividing by 150,000, and then by 260 (52 weeks x five working days per week); and Carter et al., *Forestry in the U.S. South*, 19-22.

²⁰⁸ Finch et al., *Longleaf, Far as the Eye Can See*, 83.

Lumbermen like White and Slagle knew just enough about the forests and other features of the landscape to be very good at directing the work of timbering trees and producing lumber, but their knowledge and interests did not run much deeper. They demonstrated no thirst for greater knowledge about the complexities of the living longleaf forests because they were not concerned about the long-term future of these forests. This way of thinking helped White and his company to remove hundreds of thousands of acres of longleaf and other trees without any substantial qualms about impacting all the interrelated life within the forests, nor about other components of the landscape such as soils and streams. They sought in effect to reduce much of the complexity of the longleaf ecosystem, and to treat the process of removing forests and manufacturing lumber as natural and unequivocally beneficial.

The lumber vocabulary, in conjunction with the survey grid system, enabled LCLC's leaders to envision forests as individual trees, and to begin paring away all the pieces of the trees and forests that offered no economic value. In this sense, the vocabulary played an integral role in the "commodification of nature," a process that William Cronon and other scholars have positioned as central in American environmental history. Cronon examined the flow of commodities into and out of Chicago, most importantly grain, lumber, beef, and pork, in the second half of the nineteenth century. This was the work of "getting nature to market," from the wheat, cattle, and hogs raised on the prairie farms west of Chicago, to the white pine and hardwood lumber produced in the northern woods of Michigan, Wisconsin, and Minnesota. Cronon interpreted activities such as cutting white pine logs into rough lumber in Michigan, or grading newly harvested wheat at a grain elevator in Illinois, as the starting points for commodifying nature. The process was complete when those items were sold in the Chicago

marketplace, “where the products of rural nature entered the urban market to become commodities,” and often were transported back out of the city for sale to consumers.²⁰⁹

The forests that helped make the Chicago marketplace possible were part of the extensive historical range of white pine, from the edge of the Great Plains to New England. Men logged and milled white pine in the northern forests and loaded the lumber for transport down to Chicago, where workers at the wholesale yards graded and sorted the lumber. “With the completion of this step, the [lumber] that had arrived at the cargo market as a raw, homogeneous mass was carefully differentiated into the conventional categories of the marketplace,” Cronon observed. “What had begun as a natural pine tree had been progressively transformed from log to board to artificially standardized commodity.”²¹⁰

LCLC was engaged in a very similar process of commodifying nature in the Louisiana longleaf forests, but this history presents an opportunity to refine Cronon’s concept. He stated that lumber had “begun as a natural pine tree.” More accurately, the white pine lumber from Michigan, and the Louisiana longleaf lumber, began as part of a forest ecosystem, not individual trees. The first step toward creating the commodity of lumber was not cutting individual trees, but assessing and acquiring forests. Lumbermen like LCLC’s leaders began to employ the lumber vocabulary in that first step, enabling them to get control of the forests and then send the trees from forest to consumer.

For lumbermen like John B. White, part of the payoff from downplaying or even dismissing the life of the longleaf woods was the ability to see their work as creative and productive, in the sense of creating an essential product for construction, creating jobs, building

²⁰⁹ Cronon, *Nature’s Metropolis*, xiv-xv, 120, and 148.

²¹⁰ *Ibid.*, 151-52 and 176-77.

wealth, and contributing directly to the building of the expanding United States, as well as other nations – and indeed their work did so. But facing the other side of the coin forthrightly would have meant recognizing their industry also as destructive of forests, wildlife, flora and fauna, and landscape features such as streams. That was a challenge that White and most of his contemporaries left to future generations.

CHAPTER THREE: FEDERAL FORESTERS IN THE FLORIDA PANHANDLE

Federal forester Joseph C. Kircher visited the Choctawhatchee National Forest in the forest's early years, traveling several hours by boat from Pensacola, Fla., and along Santa Rosa Sound to reach the main ranger station, situated on a small bayou connected to the Gulf of Mexico. In touring the Choctawhatchee – one of the first two national forests in the longleaf pine region, along with the Ocala forest in central Florida – Kircher was struck by the progress that supervisor Inman Eldredge and his small crew had made since the forest's establishment in 1908, on tasks like building fire look-outs, planting test plots of non-native trees, and fending off trespassers. Eldredge also had overseen a “flourishing [timber] sale and turpentine business” from the longleaf that formed about eighty-five percent of the forest cover, Kircher reported. Indeed, supporting the turpentine and timber businesses was a priority for the U.S. Forest Service from the start in the Choctawhatchee, a choice that strongly influenced the forest's history over three decades.²¹¹

In reminiscing about this early visit, Kircher contended that foresters eventually developed the Choctawhatchee into a well-regarded national forest that was “doing a \$53,548 business” annually by 1940, thanks to the Forest Service's application of manpower and forestry practices. The Choctawhatchee was “a going concern – a successful timber farm,” generating revenue and providing jobs for local people. Many of the less-destructive practices that southern turpentine operators were using by then had been developed first in the longleaf stands of the

²¹¹ Kircher visited in 1913; see Joseph C. Kircher, “The Choctawhatchee, 1908-1940,” *The Dixie Ranger* newsletter 6, no. 7 (July 1940), in Eglin AFB/Camp Pinchot file drawer, National Forests in Florida (NFF), U.S. Forest Service, Tallahassee, FL.

Choctawhatchee, which meant that “no other area of longleaf pine has had the influence on the naval stores industry” as the Choctawhatchee, Kircher proclaimed. He also stressed that leases with turpentiners to use the Choctawhatchee pines had generated more than \$500,000 in total for the federal government by 1940.²¹²

Kircher’s recollections in one sense were a eulogy for the Choctawhatchee National Forest upon its demise, since he wrote just weeks after President Franklin D. Roosevelt ordered transferring the forest to the War Department for a military reservation that became Eglin Air Force Base, in the buildup to America’s involvement in World War Two. As eulogizers do, Kircher emphasized the best qualities of the national forest as it passed into history, asserting that the forest and its managers played vital roles in noteworthy accomplishments. The Choctawhatchee had “served us well as a fine example of conservation and as the father of modern turpentine,” Kircher declared. He gave the forest a laudatory send-off into its next life as a military base in the growing global conflict. But the Choctawhatchee’s story went beyond Kircher’s fond remembrances, to include the challenges that the Forest Service encountered in the forest, the disappointing results in regenerating longleaf pine there, and the meanings for the environmental history of longleaf.²¹³

The first two chapters of this dissertation examined the intensifying timbering of longleaf in North Carolina, and then the Deep South in the forests of Louisiana in the early 1900s. In this chapter, the history of the Choctawhatchee National Forest provides a counterpoint in part because, while there were privately owned longleaf lands with this forest’s boundaries, they were interspersed with federal lands. Large lumber enterprises like the Louisiana Central Lumber Co.

²¹² Kircher, “The Choctawhatchee, 1908-1940.”

²¹³ Ibid.

had no chance to acquire tens of thousands of adjoining acres covered with longleaf within the Choctawhatchee, and thus they had no incentive to invest in mills and rail lines there. The Forest Service, on the other hand, had a chance to manage a large area of longleaf for longer-term forestry goals, rather than purely for short-term profit. The Choctawhatchee was established in a context that included including a growing national interest in conservation, meaning wiser use of natural resources, along with the ongoing destruction of the southern longleaf forests. However, the foresters in Florida came to the work with little knowledge of longleaf. They made advances in the Choctawhatchee, and Kircher's praising this forest as a "fine example of conservation" was generous though not completely unjustified. But overall, the forest was a missed opportunity for advancing the conservation of longleaf.

The federal government had the chance to manage a sizable area of longleaf pine with forestry practices and a longer-term vision for sustaining the forest, and possibly to serve as a model for conserving longleaf that private landowners in the longleaf South might emulate. The Forest Service was founded on the principle that a significant level of human management of such forests was necessary and good, and the Choctawhatchee therefore was never going to be a place that the agency simply roped off and left alone. Rather, the forest was a chance to develop more scientific and practical knowledge for managing longleaf effectively, on questions such as how to better protect existing longleaf forests, and also to boost the regrowth of longleaf on cutover lands. In the midst of the relentless removal of longleaf across the Deep South by the early 1900s, the Forest Service had an opportunity, at the least, to address the challenge of how forest owners could continue using longleaf to make money, while also keeping some areas of mature longleaf intact and ensuring that new generations of longleaf were thriving over the long

term. In other words, the Choctawhatchee was a place and a moment to demonstrate how Americans could be better stewards of this once-plentiful resource.

The Forest Service's most consequential choices in the history of the Choctawhatchee were setting the support of turpentine as its first priority; giving lower priority to expanding the knowledge of what longleaf needed to regenerate and thrive; and taking an overly confident view of its ability to create the conditions for longleaf to regenerate naturally. When the Choctawhatchee was established, there still was "scanty scientific data available" about the natural dynamics of longleaf forests, such as the best growing conditions for longleaf, a forestry official pointed out in an early report. He hoped the service would send a "high class technical man" to the Choctawhatchee to study growth rates, and how fires and turpentine affected longleaf. The first management plan for this national forest included practically no details on the natural characteristics of longleaf.²¹⁴

The Choctawhatchee was the first place in which the Forest Service engaged with the turpentine business and held a measure of leverage to push for changes. A 1912 report on key aspects of the initial management plan noted that supporting the turpentine business in the forest was the first priority, while also requiring turpentine operators to start using less-destructive practices for hacking and draining trees – at least, less destructive than traditional methods. For example, the agency's plan for "managing the longleaf pine for the protection of turpentine" required crews to use the newly developed turpentine cups, instead of the longstanding method of hacking a "box" at the base of the tree to collect the dripping resin. The

²¹⁴ See Frank Pooler, report on Choctawhatchee inspection and settlement to the District Forester in Albuquerque, NM, April 29, 1911, file drawer Eglin AFB/Camp Pinchot, NFF; Forest Service assistant forester W.B. Greeley observed that "there is practically no discussion of either the silvicultural characteristics of [longleaf] or its general management" in the report, in Inman F. Eldredge and A.B. Recknagel, "Management of Longleaf Pine with Special Reference to the Turpentine Industry" (U.S. Forest Service, Department of Agriculture, 1912), appendix, 2, report in white notebook, NFF.

mandate for the Forest Service included using national forests as proving grounds for new approaches to using forests in a more sustainable way. The idea was that new practices developed in the forests might also be applied to privately owned forests, and in the Choctawhatchee, the task of promoting best practices for turpentine was shouldered by the federal foresters. In effect, they largely were in the position of managing many areas of this national forest first as turpentine orchards, although their hope for sustaining and renewing the forest in the long term distinguished them from private turpentine operators.²¹⁵

The Forest Service's decision to first "manage the longleaf pine for the protection of turpentine" in the Choctawhatchee set the forest on a different course than if the agency had managed first for the *protection of longleaf*. Choosing that priority likely would have meant a more intensive effort, from the start, to learn more about longleaf as a tree species, and encourage its regeneration across the forest. One of the consequences was that the Choctawhatchee foresters, while often skillful, determined, and insightful, they still were seeking answers in the 1930s to fundamental questions about how longleaf grew.²¹⁶

The federal foresters – and the agency's bureaucrats – made choices that influenced the Choctawhatchee's history, but that is not to say they were working from a menu of unlimited choices for managing the forest. Foresters faced pressures such as the Forest Service's existential need to build and maintain political support as a federal agency, and its related commitment to generating revenue from the national forests to help pay for their management. This was an important consideration, given that, while the Forest Service oversaw national forests comprising about 193 million acres forests by 1909, Congress allocated about \$4.7 million for the agency in

²¹⁵ Eldredge and Recknagel, "Management of Longleaf Pine," 5. Foresters in the Choctawhatchee National Forest records often used the term "naval stores" more generally, but they nearly always were talking about turpentine.

²¹⁶ Ibid.

1909-10. In addition, the on-the-ground challenges in the Choctawhatchee constrained the foresters' choices, such as the fact that more than half of the land within the forest's boundaries actually was owned by railroad companies, turpentine operators, and homesteaders, interspersed with the federally owned lands.²¹⁷

A few years into his work in the Choctawhatchee, Eldredge, the first supervisor, spent much of his workday dealing with administrative tasks at Camp Pinchot, the forest's main office at the edge of Garnier Bayou. At the same time, within sight of the main office, longleaf pine logs often floated at the head of the brackish bayou, steadily accumulating after logging crews sent the logs down Lightwood Knot and Garnier creeks from the Choctawhatchee forest. A local man, S. S. Spence, periodically bound together as many of the logs as he could handle, and towed them by boat through the bayou to the nearby Boggy Lumber sawmill. Most of the logs were cut on private lands within the Choctawhatchee forest, as the Forest Service did not allow much timbering on the government lands in the early years. Men also worked nearby on Garnier Bayou to feed sticky pine resin into the Graham turpentine still, and load barrels of distilled turpentine on steamboats for Pensacola.²¹⁸

If one imagines these activities – forester Eldredge working at his desk, as local men towed pine logs past the Camp Pinchot office to a sawmill, or distilled crude resin from longleaf

²¹⁷ U.S. Department of Agriculture, *Annual Reports of the Department of Agriculture, for the Year Ended June 30, 1910* (Washington, D.C.: Government Printing Office, 1911), 363-65. At the start of the Forest Service, Gifford Pinchot declared the agency would be able to generate enough money through timber and grazing to cover its operations fairly quickly. The agency did not reach self-sufficiency, and Pinchot shifted away from that goal after a couple of years, but generating revenue remained important in the Forest Service's work; see Harold K. Steen, *The U.S. Forest Service: A History* (Durham, N.C.: Forest History Society and University of Washington Press, 2004 edition), 91, and Lewis, *Forest Service and the Greatest Good*, 40 and 89.

²¹⁸ Voncille L. Jones, *Camp Pinchot, A National Historic Site at Eglin AFB, Florida: Fifty Year Tribute* (Eglin Air Force Base, FL: Air Armament Center Office of History and Eglin Multimedia Center, 2001), 22-23; brief item in the *Okaloosa News*, April 30, 1916, accessed May 21, 2016, <http://boggyflorida.com/Niceville/Commerce.html>; and U.S. Air Force, "Natural Resources Management Plan, Eglin Air Force Base, 1993-1997," 20, Eglin AFB/Camp Pinchot file drawer, NFF.

into turpentine – they can illustrate competing ideas for how to use longleaf in the Choctawhatchee that shaped much of this national forest’s history. Eldredge labored to advance the Forest Service’s vision for putting the forest on a long-term, sustainable cycle that would allow continuous use of longleaf for jobs and profit, but also continuous renewal of longleaf with the help of professional forestry. Meanwhile, sawmillers and turpentiners with access to the private lands within the forest’s boundaries often worked in a different direction. They cut longleaf as intensively and quickly as possible, and generally saw no value in trying to promote a second growth, and the turpentine crews on private lands had no obligation to use less-destructive methods for hacking trees. The Forest Service could not fully resolve the competing interests in its favor and apply its vision uniformly, in part because the agency never owned all the land within the forest boundaries.²¹⁹

In this context, the Forest Service did make progress in promoting and demonstrating the use of less damaging practices in turpentine, as it steadily gained traction for these improved practices among the turpentine operators who leased federal lands. The agency also supported the industries of turpentine and timber that were important in the ongoing quest for economic growth in the South, while also generating revenue for the Forest Service through turpentine leases and timber sales. The service’s forestry-based management and its conservation ethic were strong and effective enough that significant longleaf stands still grew in the forest when the War Department took control in 1940, which meant the department received lands that still had potential to thrive as forest lands. Finally, the Forest Service took some initial steps toward a better understanding of how fire related to longleaf forests.

²¹⁹ For a discussion of the tensions between private and public interests within national forests, with a valuable focus on the perspectives of private landowners such as homesteaders, see Dennis L. Lynch and Stephen Larrabee, “Private Lands Within National Forests: Origins, Problems, and Opportunities,” in Harold K. Steen, ed., *Origins of the National Forests: A Centennial Symposium* (Durham, NC: Forest History Society, 1992), 198-216.

However, during the years it controlled the Choctawhatchee, the agency was not able to achieve what it hoped, as the agency acknowledged in the early 1930s. At that time, when they took stock of conditions in the forest, federal foresters conceded that they were not very far along in understanding what longleaf needed to thrive. The Choctawhatchee managers reported in 1931 that they had not nurtured nearly as much of a new growth of longleaf as hoped, “and to this extent [we] have failed in our responsibility as Forest Managers,” stated forester E.V. Roberts and the foresters to whom he answered – an acknowledgement that surely was not easy to include in this official document. As it turned out, the federal institutions known today as the Department of Defense and the U.S. Air Force would inherit the job of managing the Choctawhatchee longleaf stands in future decades, and ultimately they contributed in meaningful ways to longleaf conservation.²²⁰

A Panhandle Landscape as Canvas for Foresters

President Theodore Roosevelt employed the national forest model in the longleaf region for the first time in November 1908, first by designating some 201,000 acres in central Florida as the Ocala National Forest, and establishing the Choctawhatchee in northwestern Florida a few days later. Roosevelt had declared only two other national forests in the American South by that time, both in Arkansas. Roosevelt issued such executive declarations frequently in 1908, his last full year as president, creating more than one hundred new or expanded national forests. The Choctawhatchee forest’s boundaries encompassed roughly 468,000 acres, with saltwater to the south and piney woods, wetlands, and farms to the north. However, the federal government

²²⁰ This chapter focuses specifically on the Choctawhatchee forest, although there were at least two changes to the bureaucratic structure of which the forest was part. In 1911, the Forest Service designated the Choctawhatchee and the Ocala forests as the two divisions of the “Florida National Forest,” and in 1927, the Choctawhatchee and Ocala were re-designated again as separate national forests; see Forest Service, U.S. Department of Agriculture, *Florida National Forests* (Washington, D.C.: Government Printing Office, 1939), 4; materials in the General History file drawer, NFF; quote from E.V. Roberts, Junior Forester, U.S. Forest Service, Management Plan – Choctawhatchee National Forest – 1931 Revision, 20, plan in white notebook, NFF.

owned only about one-third of the 468,000 acres within the boundaries, while individuals or private enterprises owned or controlled the other two-thirds of the land, ranging from the First National Bank of Pensacola to the Milton Mill Co. and the Savage Turpentine Co., a reality that would constrain Forest Service's ability to manage the forest.²²¹

In pre-colonial Florida, forests had covered about 80 percent of the land area, or about 27 million acres, and much of the forest cover remained uncleared for farming or uncut for timber well into the late nineteenth century. Longleaf and slash pines were the primary forest constituents, along with several oak species, while wetland areas were full of juniper, cypress and other swamp hardwoods. Saltwater-tolerant mangroves formed much of the vegetative cover along the coasts. In the Choctawhatchee forest, the land drained southward into the Choctawhatchee, Santa Rosa, and East bays and the Gulf of Mexico. Alaqua and Rocky creeks flowed through the eastern portion of the forest, while Juniper, Garnier, and Lightwoodknot creeks and East Bay River drained the south, and Yellow River, Shoal River, and Ti Ti Creek drained the north. Strips of hardwood swamps bordered many of the streams, where the trees were quite diverse, with cypress and gum as prominent species, but also white cedar, black walnut, shagbark hickory, red mulberry, green haw, buckthorn, and others.²²²

²²¹ "Florida now possesses a big forest," *Pensacola Journal*, Nov. 28, 1908; total acreage of about 468,000 acres cited in Eldredge and Recknagel, "Management of Longleaf Pine"; Douglas Brinkley, *The Wilderness Warrior: Theodore Roosevelt and the Crusade for America* (New York: Harper, 2009), 827; Kircher, "The Choctawhatchee"; Sharyn Kane and Richard Keeton, *Southern National Forests* (Helena, MT: Falcon Press, 1993), 128-35. The interplay of public and private control of land was a central dynamic in the history of Florida preceding creation of the Choctawhatchee, shaped by laws relating to swamp lands, railroads, homesteads, and schools; see Inman Eldredge, "Fire Problem on the Florida National Forest," 166-67; Julie Massoni, *Camp Pinchot* (Eglin Air Force Base, Fla.: Office of History, Armament Division, 1988), 9, 12, and 23; J. E. Dovell, "The Railroads and the Public Lands of Florida, 1879-1905," *Florida Historical Quarterly* 34, no. 3 (Jan. 1956): 256.

²²² Massoni, *Camp Pinchot*, 6; Kircher, "The Choctawhatchee"; Inman F. Eldredge, "Fire Problem on the Florida National Forest," *Proceedings of the Society of Foresters* 6, no. 2 (1911): 166-70; Inman F. Eldredge, "Silvical Report – Florida National Forest (Dec. 30, 1911), 1-3 and 12-16, report in white notebook, NFF; Management Plan – 1931 Revision, 11.

Except for these streams and hardwood wetlands, the Choctawhatchee lands were gently rolling with a deep base of white sand, and a forest that was about 85 percent longleaf pine, with small areas where other pines grew, namely Cuban, slash, loblolly, sand, pond, and spruce pine. For example, small stands of slash, pond, or spruce pine occasionally flourished at the outer edges of swamps or on slightly higher ground within swamps. The longleaf trees were not the towering pines of places like eastern North Carolina or northern Louisiana, as the oldest longleaf in the Choctawhatchee rarely grew taller than about sixty-five feet. Shrub-sized blackjack and turkey oaks grew beneath the pines in many parts of the forest. The highest point in the Choctawhatchee was about 300 feet above sea level along a ridge in the northeast, and the land rolled down to bluffs at the southern bays and the Gulf.²²³

Wells in the forest yielded plentiful, clean water in the early 1900s, and even the surface water flowing in the streams was “of the purest and cleanest kind” throughout the year, except after heavy rains. This part of the Florida panhandle received the heaviest rainfall in the state, averaging about sixty inches per year with June through September as the rainy months, and while Gulf breezes gave occasional relief, the humidity was “rather hard on the comfort of man but is extremely advantageous to the growth of plants,” noted Eldredge, who lived with the discomforts on a daily basis. The sandy soils were not fertile, and even though the rainfall was heavy at times, water usually drained through the soil quickly. But longleaf pine had evolved to draw the nutrients and moisture that it needed from such soils.²²⁴

²²³ Eldredge, “Fire Problem,” Eldredge, “Silvical Report,” 1-3 and 12-16; Eldredge and Recknagel, “Management of Longleaf Pine,” 3; Management Plan – 1931 Revision, 11 and 14. Sand pines are mentioned in Documents on the Union Land and Timber deal, including the Forest Service’s “Report on Land of Union Land and Timber Company #1,” in land acquisition files, NFF.

²²⁴ Eldredge, “Silvical Report,” 4-6. Another aspect of the relation between longleaf pine and relatively infertile soils is the fact that other pine species do not have the same capability as longleaf to grow in those soils. See W.G. Wahlenberg, *Longleaf Pine: Its Use, Ecology, Regeneration Protection, Growth, and Management* (Washington, D.C.: Charles Lathrop Pack Forestry Foundation, 1946), 55.

Local people had cut down some of the most valuable longleaf pines before 1900 within the area that became the Choctawhatchee forest, in many cases removing them illegally from the federal lands and floating the logs down to Choctawhatchee Bay, and then to Pensacola by schooner or barge. But since the trespassing loggers depended on streams, much of the forest was beyond their reach. The Choctawhatchee thus included areas of longleaf and Cuban pine that were very old, but healthy and able to live for many more years if left alone, judged forest inspector Frank Pooler in 1911. However, leaving all the areas of old-growth pine alone was not the Forest Service's intention.²²⁵

In describing the forest, Pooler focused in part on the potential of the pines for turpentine and timber, estimating that the longleaf and Cuban pines on the government lands amounted to roughly 145 million board feet of timber. The pines in the Choctawhatchee at that time were spaced fairly openly, with scattered areas where hurricanes had blown down trees. The sandy soils generally meant a slow growth rate compared to longleaf growth rates in states like Alabama, Georgia, and South Carolina. But the older Choctawhatchee longleaf, like much of the longleaf across the American South, yielded dense wood that made for valuable lumber.²²⁶

While there was significant older longleaf across the forest, forester Pooler noticed that the number of longleaf seedlings was quite low. In other words, a new generation of longleaf was not coming up in many parts of the forest to replace the old growth that eventually would die, or more likely, would be turpented and then cut for timber. Eldredge made the same observation in 1911 but dismissed serious concerns about this scarcity of seedlings, stating that "since it is

²²⁵ Eldredge, "Silvical Report," 7; L. L. Bishop, U.S. Forest Service, Florida Land Exchange Report – Sutton and Harrison (June 1918), 3; and Florida Land Exchange Report (1919), 5, both land exchange reports in box 20, Eglin Air Force Base Archives; Pooler report, 2.

²²⁶ Pooler report, 2; Management Plan – 1931 Revision, 12-13 and 70.

due to the natural habits of the species it is in no way remarkable.” Longleaf pine in this region would not regenerate if the forest canopy shaded too much of the floor, Eldredge argued, but when openings of one acre or larger were made in the forest, “longleaf pine seedlings come in thickly after the first seed year, and if protected from fire the first few years of their existence, make thickets of pine saplings that grow very rapidly up to a certain age.” Eldredge was confident that encouraging a thriving, new generation of longleaf would be simple, as foresters created openings in the forest cover and prevented high-intensity fires, so that longleaf seedlings would flourish in due time. But the foresters would learn that growing longleaf in fact was more complex and difficult.²²⁷

The foresters also faced the reality that the Choctawhatchee was not an uninhabited wilderness, as roughly 3,000 people lived within the forest boundaries, summarized by Eldredge as “homesteaders, cattlemen, turpentine operators, and negro turpentine hands.” The federal government had surveyed the public lands in the Florida panhandle in the late 1820s, about a decade after Spain ceded Florida to the U.S., and the surveying process slowly opened up West Florida to more settlement. Many residents of the Choctawhatchee region had secured homesteads from the federal government before 1900, people like George C. Chambers in 1859, and Milage Cox in 1894, homesteaders who typically lived through hunting, fishing, raising livestock and some food crops, and in many cases also working in turpentine or logging operations. Howard Barnard and his seven siblings lived with their parents in a small house at the western edge of the Choctawhatchee in the early 1900s, raising beans, sweet potatoes, watermelons, sugar cane, and farm animals on about twenty acres. Most of the turpentine workers were black men living in turpentine camps, while many homesteaders and cattlemen

²²⁷ Eldredge, “Silvical Report,” 8-10.

within the forest were white Floridians “of the ‘Cracker’ type,” in Eldredge’s assessment, people who had “little opportunity for advancement, because [they] have been out of touch with the world for many generations.” But they also were sturdy and shrewd people whom Eldredge believed he could work with effectively.²²⁸

People like Harley Cawthon, Handy Green, Elijah Allen, and Mattia, Nora, Mary, and Frances Weekly got final approval for homesteads within the forest in the early 1900s. However, insisted the Forest Service, only a small minority of families were actually farming within the forest boundaries as their primary livelihood by 1911. Forester Pooler figured that most of the people who had sought homesteads within the forest in recent years promptly sold the land and pine trees to turpentine companies, often for \$1,000 to \$1,300, and then dropped their homestead claims. By 1911, three large turpentine companies and several smaller firms owned or controlled about three-fourths of the private lands within the forest boundaries, and smaller turpentine operators held another ten percent of the private lands, Pooler estimated – which meant that homesteaders occupied just 15 percent of the private lands. Turpentiners were “greedily acquiring every acre of round pine timber than can be secured at steadily rising prices, while on the other hand, cleared land cannot be disposed of at any price,” Pooler added. For the average homestead claim of 160 acres, only about four acres were being cultivated, while the rest was covered in the longleaf that drew the interest of turpentiners.²²⁹

²²⁸ Massoni, *Camp Pinchot*, 12; W.F. Hill, Forest Supervisor, U.S. Forest Service, “The Florida National Forest” (Dec. 28, 1925), 4 and 11, report in file drawer Eglin AFB/Camp Pinchot, NFF; Wendy Victoria, “Some still mourn loss of homes to Eglin,” *Tallahassee Democrat*, Sept. 17, 2001; the Barnard family and others were required to sell their land and homes in the 1940s, after the Choctawhatchee National Forest became Eglin Air Force Base; Inman F. Eldredge to E. R. McKee, July 31, 1914, report on homesteads in the Choctawhatchee, 59-64, report in file drawer Eglin AFB/Camp Pinchot, NFF; Eldredge, “Fire Problem,” 167.

²²⁹ Eldredge to McKee report, 59-64; and Pooler report, 14-15. Pooler made these observations in the context of arguing that none of the forest land should be made available for agricultural claims.

Most of those who did live within the forest boundaries, mainly along the bays connecting to the Gulf of Mexico, experienced hardscrabble lives with few luxuries. At that southern edge of the Choctawhatchee, the village of Niceville and settlements around Boggy Bayou in the early 1900s included William Harley's general store, and the homes of at least one doctor, along with a number of captains and sailors, fishermen, carpenters, and sawmill and turpentine workers. Samuel and Elijah Lancaster fished the local waters, Charles Burlison captained a schooner, Henry Edwards rafted logs down the streams to a local sawmill, Oscar and Edgar Burlison worked in one of the sawmills, while Haywood Sutton managed a turpentine still. Along with the wind-powered schooners, steam ships worked Choctawhatchee Bay to carry products to Pensacola for shipping north and abroad. Most of the dense, higher-quality lumber that local sawmills produced from longleaf and other trees was shipped from Pensacola to markets in South America and the Mediterranean in the early twentieth century, while local consumers used most of the lower-grade lumber.²³⁰

National Forest as Turpentine Orchard

From the start, generating revenue in the Choctawhatchee was central to the Forest Service's work. The circumstances at the creation of the forest had "demanded, for the public welfare present and future, a business administration based on solid economic facts for the perpetuation of the Forest," as one of the forest's supervisors put it. The service would accomplish this responsible, business-minded management by first allowing turpentiners to extract as much resin as possible from the existing longleaf over a number of years, and then allowing timber companies to cut the trees. Along the way, foresters would ensure that the longleaf being worked for turpentine would live long enough, so that the next generation of

²³⁰ Documents under the heading of "Commerce," file drawer "Eglin AFB/Camp Pinchot," NFF; Management Plan – 1931 Revision, 10; Massoni, *Camp Pinchot*, 36.

longleaf had time to grow large enough for turpentine. The key was requiring turpentine practices that would enable the “prolongation of the turpentine period; cause far less sacrifice of merchantable timber; preserve the young growth and thus perpetuate the forest as a revenue producer,” foresters stated confidently. The agency would do all this on a “conservative and sustained yield [basis],” and thus it would spread out the process of exhausting the mature longleaf’s capacity for turpentine over fifty years. This approach would put “on a permanent basis” the local turpentine and timber industries, while also providing local jobs. Simultaneously, the foresters would be creating a national forest that actually was more dense and valuable than the forest that existed in 1908.²³¹

This plan reflected the Forest Service’s drive to impose a more systematic, predictable, and productive order on the natural workings of forests like the Choctawhatchee. It also reflected the fact that Florida had become the leading producer of naval stores by 1909, so turpentine was a key economic activity for the state. But the Forest Service set a tall task for itself, in promising to generate revenue and support two industries while also “improving” the forest and making it sustainably productive. Once turpentiners had exhausted a stand of longleaf, and timber crews had removed those trees, foresters “expected that almost uniform reproduction [of longleaf] will follow cuttings,” Eldredge and fellow forester Arthur B. Recknagel stated. “Thus the Choctawhatchee [forest] will be continuously yielding turpentine, continuously producing lumber, and continuously renewing itself,” they assured. They were promising the best of all worlds. But foresters packed many assumptions into this promise about how well the Forest

²³¹ Eldredge and Recknagel, “Management of Longleaf Pine,” 16; Hill, “Florida National Forest,” 6-7.

Service could decipher longleaf's life cycle and meet its needs for healthy growth, while also encouraging turpentine production and timbering.²³²

In keeping with the emerging forestry principles in the U.S., foresters in the Choctawhatchee often viewed the oldest trees, declining as they approached the end of their lives, as “decadent timber.” Old-growth forests with a lot of “decadent” trees were in many ways an obstacle to early foresters, who were eager to employ their ideas in growing and harvesting trees. “The forest primeval contains much material which is of little or no value,” judged Bernhard E. Fernow in 1890. Fernow, a native of Prussia and third director of the new Division of Forestry in the U.S. Department of Agriculture, did not mean that virgin forests literally had no value, economic or otherwise. But they were not the most desirable form of forest. “When at last the stores of the virgin forest are exhausted and it becomes necessary to apply human ingenuity and management to the production of desirable quantities and qualities of wood [materials], a new industry, forestry or forestry management, arises,” he observed. Fernow assumed the old-growth forests inevitably would be exhausted, and embraced the possibilities for professional forestry that would follow. Cutting trees thus was fundamental to the practice of forestry, as it developed in the late 1800s and early 1900s. Reflecting later in his career, Inman Eldredge cut to the heart of this mindset. “You can’t practice forestry without an axe, you know,” he stated. “You’ve got to harvest it if you want to grow another crop, or if you want to grow continuous crops, you have to keep on harvesting as well as reproducing.” Managing the

²³² Massoni, *Camp Pinchot*, 13-14; and Eldredge and Recknagel, “Management of Longleaf Pine,” 14.

harvesting of trees with a more rationalized approach and figuring out how best to grow the next generations of trees were the tasks that energized foresters in their work.²³³

The rise of American forestry related to worries about the future of the country's forests, expressed in forums like the 1873 annual meeting of the American Association for the Advancement of Science. Franklin B. Hough advocated there for steps such as state governments keeping their ownership of any forested lands to allow time for developing a longer-term approach to using them, while also fostering new growth.²³⁴ Hough was a physician, naturalist, and historian from upstate New York who raised concerns about deforestation throughout North America. Extensive removal of trees was contributing to droughts and water-supply problems, he warned. When rain did come, flooding often occurred in areas stripped of trees. Hough called for the AAAS to push for the "protection of forests, and their cultivation, regulation, and encouragement." He urged the association to educate citizens about protecting forests and planting trees, and to lobby for government actions such as tax incentives for re-planting cutover lands, or even a "tree tax" in communities to pay for re-planting.²³⁵

In 1876, Congress assigned Hough to lead a study of how to protect and restore forests, and he helped to gain a small foothold in the federal government four years later when the Division of Forestry was established in the Department of Agriculture. With Hough as division chief and just a few staff members, this proto-bureaucracy provided a new means of gathering data, raising awareness, and advocating for more active government management of public

²³³ Bernhard Fernow quoted in Earley, *Looking for Longleaf*, 175-76; and oral history with Inman F. Eldredge, Feb. 3-4, 1959, interviewed by Elwood R. Maunder, Forest History Foundation, transcript accessed Mar. 10, 2014, http://www.foresthistory.org/Research/Biltmore_Project/OHIs/Eldredge.pdf.

²³⁴ Franklin B. Hough, "On the Duty of Governments in the Preservation of Forests," in *Proceedings of the American Association for the Advancement of Science*, Twenty-second Annual Meeting, Aug. 1873 (Salem: AAAS, 1874), Section B, p. 2.

²³⁵ Hough, "On the Duty of Governments," 3 and 10.

forestlands. The American Forestry Association was established the previous year, with its first president, physician and farmer John A. Warder of Ohio, proclaiming his intent to stir up greater interest in “forest planting and conservation” in North America.²³⁶

In the 1880s, the AAAS called for the federal government to get serious about protecting the federally-owned forest lands in the West from activities like illegal timbering. Department of the Interior officials had raised similar concerns for several years about the unauthorized use of the publicly owned forests in the West. Passage of the federal Forest Reserve Act in 1891 was a critical moment in forest history, as it empowered the president to designate “forest reserves” on federal lands. The Harrison, Cleveland, and McKinley administrations subsequently named about fifty million acres in western states as forest reserves over the next decade, and the total reached 63 million acres by 1905, while Teddy Roosevelt would push the total acreage even further. However, the 1891 act did not spell out means of enforcement, so questions about actually protecting the forest reserves from illegal timbering lingered throughout the 1890s, as did questions about what uses *were* allowed in the reserves by nearby residents who wanted wood and grazing lands.²³⁷

President Grover Cleveland sought greater protection for the forest reserves, and western congressmen pushed back forcefully against the prospect of increased federal vigilance. The Forest Management Act of 1897 addressed some of the western congressmen’s concerns, such as assurances that residents still could get wood from reserves, but the act also reinforced the validity of the reserves concept. Activities like cattle grazing and illegal timbering in the reserves

²³⁶ Hough, “On the Duty of Governments,” 5, and Henry Clepper, *Professional Forestry in the United States* (Baltimore: The Johns Hopkins Press, 1971), 19-21.

²³⁷ Richard J. Ellis, *The Development of the American Presidency* (New York: Routledge, 2015), 295-96; Bernard Frank, *Our National Forests* (Norman, OK: University of Oklahoma Press, 1955), 9; Clepper, *Professional Forestry*, 20-25; G. Michael McCarthy, “The Forest Reserves Controversy: Colorado Under Cleveland and McKinley,” *Journal of Forest History* 20, no. 2 (April 1976): 80.

continued, in some cases stripping reserves of nearly all the trees. But the support for reserves reflected a growing awareness among Americans that forests, at least in parts of the American West, were plentiful but vulnerable, given the powerful drive within an expanding nation to use these forests. At the same time, even with thirty-eight million acres of reserves by the end of the nineteenth century, just a few people in the U.S. had technical training and experience in forestry – primarily Fernow, Carl Schenck, Henry S. Graves, and Gifford Pinchot.²³⁸

In 1898, Pinchot succeeded Fernow as head of the Division of Forestry, which still was a small entity that had neither many friends nor substantial enemies. The division's budget for 1898 was about \$29,500, and for the most part, "the great public knew nothing about us and cared less," Pinchot recalled. He achieved a minor increase in status in 1901 when the division was renamed the Bureau of Forestry, but its staff continued to work mainly with private owners who wanted advice on managing their forests. The Bureau of Forestry had no role in managing the forest reserves, because the reserves were in the Department of the Interior's purview.²³⁹

But with the advocacy of Pinchot and Roosevelt, Congress transferred control of the reserves to the Department of Agriculture in 1905, and turned the Bureau of Forestry into the U.S. Forest Service. This stronger federal commitment to forestry promised to transform the fortunes of the reserves, but opponents also countered aggressively. "From that time on, it was fight, fight, fight," in Pinchot's words, mainly with wealthy westerners determined to keep their access to public timber and minerals. They wanted weak federal oversight of the reserves, not the active management that the Forest Service pursued. "We denied and opposed [the timber and mineral companies'] profound conviction that money and profits are all-important and must

²³⁸ McCarthy, "The Forest Reserves Controversy," 84-89; Lawrence Rakestraw, "Uncle Sam's Forest Reserves," *Pacific Northwest Quarterly* 44, no. 4 (Oct. 1953): 146; Clepper, *Professional Forestry*, 27-28.

²³⁹ Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace and Company, 1947), 137.

control, and thereby we hurt both their pockets and their feelings,” Pinchot observed. By contrast, a publicly owned forest under the Forest Service’s management should be “devoted to its most productive use for the permanent good of the whole people, and not for the temporary benefit of individuals or companies,” as Pinchot and others professed. While his phrasing left much room for interpretation, the core ideal was to use forests over the long term and for broad public benefits. Congress renamed the reserves “national forests” in 1907, and administrators, foresters, and crews soon were exploring some of that forests that still were largely unknown, surveying boundaries, and building roads and simple stations.²⁴⁰

Although much of their attention was on the West, some forestry advocates also had begun to consider the state of forests in the East and South. For example, botanist Charles Sprague Sargent argued in the 1890s for the federal government to reserve lands in the southern Appalachians for recreational uses, and Joseph A. Holmes, state geologist in North Carolina, promoted creating a southern reserve in which to practice forestry. In 1901, Teddy Roosevelt argued that a southern reserve was critical as a step toward flood control and also providing an economic boost. In 1905, the American Forestry Association endorsed the idea of establishing national forests in the East through federal purchases. The idea was defeated in Congress, but it came to fruition six years later with the Weeks Act.²⁴¹

In this context of competing interests, between using forests at maximum intensity and practicing sustainable forestry with the Forest Service as the lead agency, Roosevelt established the Choctawhatchee National Forest in 1908. The southern longleaf forests had become the top source of trees for the country’s lumber industry by that time. As the Forest Service made its first

²⁴⁰ Pinchot, *Breaking New Ground*, 256; Clepper, *Professional Forestry*, 29; Paul J. Culhane, *Public Lands Politics*, 45-47; and Lewis, *Forest Service and the Greatest Good*, 42.

²⁴¹ Williams, “Private Property to Public Property,” 4-5.

push for change and control in the Choctawhatchee forest, many local citizens were skeptical or hostile toward the service, according to W.F. Hill, deputy supervisor for Eldredge in the Choctawhatchee, and later the supervisor. But Hill also claimed that local people gradually came to greater acceptance, as they saw how agency actually managed the forest.

This shift arose partly from the fact that the Forest Service encouraged turpentine and timbering to continue, while also trying to shape local public opinion about the national forest. In language that surely came directly from a Forest Service typewriter, a 1909 article in the Pensacola newspaper pledged that management of the Choctawhatchee would not “lock up the natural resources of the forest.” On the contrary, these lands would be “more widely opened up and the resources made more available than before, and every legitimate enterprise for the utilization of the timber, turpentine, grazing, etc., will receive encouragement by the administration.” Foresters would make dead and over-mature trees available to timbermen, and would grant turpentine leases and grazing privileges as well, all with no “red tape,” the article promised. From the early years, the service also was required to provide 35 percent of its cash receipts from the Choctawhatchee to the three county governments that contained parts of the forest, to support public schools and local roads and trails, since the federal government paid no property taxes on the national forest lands.²⁴²

Nevertheless, people hoping to exploit the land and trees in different ways periodically challenged the Choctawhatchee’s status as a national forest. For example, the federal Farm Homestead Act of 1906 reflected the ongoing tension in the country between the concept of national forests, and competing visions for using federal forest lands. The act allowed citizens to file homestead claims for 160 acres within national forests, if those lands were determined to be

²⁴² “New national forest is organized in West Fla.,” *Pensacola Journal*, Dec. 5, 1909; and Hill, “The Florida National Forest” (1925), 8 and 14.

best suited for farming. The act was meant to address criticism that the government was putting too much potential farmland off-limits within national forests, and it presented a conundrum that foresters in the Choctawhatchee dealt with for several years after the forest's establishment.²⁴³

Not surprisingly, the Forest Service often argued that the best use for lands in the Choctawhatchee and other forests that citizens were pursuing under the Farm Homestead Act was practicing forestry, not farming. The Choctawhatchee foresters feared that, once the service agreed that a particular 160 acres within the forest should be granted as a farm, it would erode the service's authority to deny other claims. Since so much of the land in the Choctawhatchee was similar in character, forester Pooler warned, "if one acre of timbered land can be listed as chiefly valuable for agriculture, it is safe to say that any application for 160 acres would have to be [approved]," and the Forest Service could end losing perhaps 75 percent of the public lands in the Choctawhatchee. The agency continued to insist that the highest value of the Choctawhatchee lay in developing and promoting turpentine methods that were less destructive, and in cutting and cultivating trees on a sustainable cycle.²⁴⁴

Under pressure to quantify the forest's value, foresters estimated that an average "quarter-section" of 160 acres of federal land in the Choctawhatchee could generate about \$6,000 to \$8,000 for the government through leases with turpentine operators for a fifteen-year cycle, and then sales to timber-cutters. As Pooler pointed out, even the people who did receive land within the Choctawhatchee under the homestead laws saw that the real money, at least in the short term, was in the turpentine and timber possibilities of their homesteads, and not in small

²⁴³ Forest History Society, "Forest Homesteads," accessed Jan. 1, 2015, <http://www.foresthistory.org/ASPNET/Publications/region/1/flathead/chap11.htm>. The forest reserves were not re-named "national forests" until 1907, but I have called them national forests here for simplicity.

²⁴⁴ Pooler report, 10.

farms. Nearly everyone who secured a homestead immediately sold the timber to turpentiners, and in many cases sold the land as well, rather than establishing a home and small farm, Pooler reported. Homesteaders were getting \$1,000 to \$3,000 for their 160 acres, as turpentine operators acquired thousands of acres of pinelands “under cover of the general homestead laws.”²⁴⁵

The choice was whether to “exploit these splendid timber resources ourselves, so as to secure the highest returns to the Government and the people by scientific Forest management,” or to let people continue making insincere claims for homesteads, and then selling the land for destructive use by turpentiners and timbermen. The value in managing the Choctawhatchee for forestry also lay in improving the quality of the forest over the long term, by exploiting the existing trees wisely while encouraging a more dense growth of longleaf, Pooler argued. The federal foresters in part were making a Progressive-era argument, based on interrelated ideas about the proper role of the federal government in the wise use of natural resources, and the importance of professional, technically skilled foresters.²⁴⁶

Foresters tried to permanently block any new homestead claims in the Choctawhatchee under the 1906 homestead law by asking that all the federal lands in the forest be declared officially as unsuitable for farming in 1911. However, the chief of the Forest Service declined to pursue this comprehensive declaration, aware of the competing interests that continued to make managing the Choctawhatchee a challenge. The chief argued that formally declaring all the land unfit for farming would “tend to rouse more antagonisms to the Forest policy in Florida than if

²⁴⁵ Pooler report, 12-14.

²⁴⁶ Ibid., 1 and 13-16; District Forester Hall to Inman Eldredge, April 30, 1915, in file drawer Eglin Air Force Base/Camp Pinchot, NFF.

matters were allowed to take their natural course.” How to deal with homestead claims therefore remained an ongoing issue for foresters in the Choctawhatchee.²⁴⁷

Along with the prospect of such claims chipping away at the forest, the service soon faced a greater challenge to its vision for the Choctawhatchee. A number of the private landowners within the forest began pushing in 1914 to get rid of the national forest designation for the Choctawhatchee altogether, which they hoped would clear the way for them to start an agricultural land boom in the forest region. Foresters responded forcefully to this challenge, arguing again that all of the government’s lands within the forest were most valuable for the practice of forestry, and not for growing food or staple crops. They went a step further, and contended that professional forestry was the most appropriate use for many of the privately owned tracts in the forest’s boundaries as well. Forest inspector D. D. Bronson recommended trying once more to get a declaration that all the public lands in the forest were best suited for forestry, as a way to “forestall a movement to have the Forest abolished.” The federal foresters still hoped to resolve this challenge definitively. Foresters worked in July 1915 to craft a report that would sway the Secretary of Agriculture, and the agency was able to hold off the envisioned agricultural land boom.²⁴⁸

There was a certain irony in the fact that, even as federal foresters argued against opening up lands in the Choctawhatchee for farming, the Forest Service answered ultimately to the Secretary of Agriculture. However, the concept of national forests as tree “farms” was central in the agency’s thinking. As Gifford Pinchot put it, “Forestry is handling trees so that one crop

²⁴⁷ Ibid.

²⁴⁸ Hall to Eldredge, April 30, 1915. The effort by private landowners to get rid of the national forest designation and start a land boom apparently applied to both the Choctawhatchee forest and the Ocala forest, which were known as two divisions of the Florida National Forest between 1911 and 1927. The federal foresters also thought that officially classifying all the public lands in the forests as best for forestry was a necessary step toward consolidating both divisions of the Florida National Forest.

follows another.” He contended the best forests, like the best farms, were managed to become increasingly productive over the generations, expression the view held by most members of the early generation of professional foresters in the U.S.²⁴⁹

This remained the guiding ethos long after Pinchot’s tenure, as reflected in documents such as a 1939 Forest Service description of its approach in the Choctawhatchee and other national forests, where “the Government manages timber as a crop and the land is made to produce a steady, permanent income.” The agency was certain that “timber, like other crops, can be made to yield regularly when managed in accord with known sciences and methods, and forest lands may be so handled that they will always contribute to the permanent support of their fair share of the country’s population.” In the Florida forests and elsewhere, “the timber is handled just as the farmer handles his crops,” the agency explained. “It is harvested when ripe – the only difference is that it takes much longer to grow pulpwood, sawlogs, or trees suitable for turpentine than it does to grow a crop of corn or cotton.” While the Forest Service was taking a sustainable, longer-term view than farmers harvesting their entire crops each year, growing longleaf in fact involved many more complexities and interrelated factors than growing annual row crops. The time required was not the only difference.²⁵⁰

In the context of ideas about trees and agriculture, the intermittent contests over the use of the federal Choctawhatchee lands mainly were about the most appropriate and valuable crops to grow there. The Forest Service carried this argument for about three decades in favor of growing trees. However, the agency would face a case for a different use of the Choctawhatchee lands in the 1930s that it could not overcome.

²⁴⁹ Pinchot, *Breaking New Ground*, 31-32.

²⁵⁰ U.S. Forest Service, *Florida National Forests*, 9-11.

Practical Constraints

In managing the Choctawhatchee, foresters worked within a context of significant constraints and competing pressures. For example, the Choctawhatchee was the first national forest in the once-vast range of longleaf, and much of the experience of foresters in the national forests in the American West was not applied easily or effectively in the Florida panhandle. Pine trees were pine trees, to a degree, but longleaf forests also differed in important ways from western forests such as the ponderosa pine forests in New Mexico, Arizona, and California.

In addition, the irregular or “checkerboard” nature of land ownership within the Choctawhatchee’s boundaries constrained the management. Since private owners held roughly two-thirds of the 467,000 acres in the forest boundaries, the Forest Service could not pursue its vision uniformly across the entire forest, from fire protection to strategies for encouraging new longleaf, and the ownership made the agency’s per-acre management costs higher as well. “I have many times said [that] this Forest is hardly a practical Forest Administration proposition with its present ownership conditions,” griped a forester who supervised the Choctawhatchee after Eldredge’s tenure, as he pursued a large purchase of private lands in the forest that would help lower the per-acre costs.²⁵¹

While the federal government did control several large blocks of land within the forest, many lands owned or controlled by turpentine operators were interspersed with the federal lands, which created the “checkerboard pattern” in some areas of the forest. Each square in this pattern was a section of 640 acres. Moving across an imagined checkerboard, one would find a 640-acre

²⁵¹ Such “checkerboard” ownership is the focus of studies like Wesley C. Ballaine, “The Revested Oregon and California Railroad Grant Lands: A Problem in Land Management,” *Land Economics* 29, no. 3 (Aug. 1953): 219-232. Ballaine notes that the Oregon and California Railroad Co. sold some of its grant lands in the 1890s to timber speculators rather than homesteaders, and he points out that entities such as railroads that received public lands were wont to violate the grant terms; the quote about the Choctawhatchee is from A.C. Shaw, Forest Supervisor, to the District Forester in Washington, D.C., April 15, 1930, in Box 20, Eglin Air Force Base Archives.

square owned by the federal government, then a privately owned square, then a government square, and so on. Many of the alternating sections had been granted to the Pensacola and Atlantic Railroad, controlled by the Louisville and Nashville Railroad, nearly thirty years earlier, and the railroad likely sold or leased many of its grant lands to turpentiners. The Pensacola and Georgia Railroad also might have controlled some of the land through grants. The pine trees on private lands were “being exploited for turpentine as rapidly as possible and under the prevailing [destructive] methods,” supervisor Eldredge observed in 1911. “As soon as the timber is exhausted for turpentine it is turned over to the sawmill.” The federal foresters were genuinely frustrated that turpentine and timber operators were giving no consideration to these forested lands’ future condition.²⁵²

As they began to exhaust the privately owned longleaf in the Choctawhatchee, turpentiners increasingly eyed the untapped pines on federal lands. This growing interest in “government timber” was a quandary for the Forest Service, which did not want to see the prevailing destructive turpentine practices used on the federal lands. On the other hand, if the service leased its lands to turpentiners, it would have leverage to require less-destructive methods, according to Eldredge and A.B. Recknagel, an assistant district forester who wrote a plan with Eldredge for guiding some of the work in the Choctawhatchee. Since mature longleaf stands for turpentine had become increasingly scarce in the larger region, the need was urgent to use trees more efficiently and wisely for turpentine, if that industry were to continue, the two

²⁵² Eldredge, “Fire Problem,” 166; the Florida legislature chartered the Pensacola and Atlantic Railroad in 1881, and out of land grants that the state had received from the federal government in the 1850s, the legislature granted the railroad alternating sections of land for six miles on either side of the road, plus additional lands per mile. The grants totaled nearly four million acres initially for the 170-mile road, but ended up at some 2.8 million acres. The Louisville and Nashville Railroad was behind the project, and took controlling interest weeks after the Pensacola and Atlantic was chartered; see Maury Klein, *History of the Louisville and Nashville Railroad* (New York: The Macmillan Co., 1972), 181; Kincaid Herr, *The Louisville and Nashville Railroad, 1850-1963* (Lexington, KY: University Press of Kentucky, 1964), 68-69; and *The Acts and Resolutions Adopted by the Legislature of Florida at its Eleventh Session* (Tallahassee, FL: Charles E. Dyke, 1881), 148-57.

foresters pointed out. This interplay of scarcity, demand, and desire for less destructive turpentine was central in the rationale for how foresters managed the Choctawhatchee.²⁵³

Eldredge, a young forester who had been working out West, provided the first serious oversight at the Choctawhatchee when he arrived in the fall of 1909, assigned there as temporary forest supervisor until a permanent supervisor was named.²⁵⁴ But that permanent supervisor never showed up to take the job, so Eldredge remained in charge for the first nine years of the forest.²⁵⁵ Eldredge was born in 1883 in Camden, South Carolina, a small town just within the historical range of the longleaf forests. Perhaps some fragments of old-growth or second-growth longleaf forests remained in the natural landscape that Eldredge experienced in his early years. But turpentine and timbering would have removed much of the longleaf by the time of his childhood, so that longleaf forests were not a major part of the landscapes he experienced in his early years of roaming outdoors and learning about the natural world.²⁵⁶

Before joining the Forest Service, Eldredge graduated from the Biltmore forestry school in North Carolina in 1905, after two years studying under Carl Schenck, a native of Germany and the first prominent professional forester in the U.S. “Doc kept us busy as bed bugs from morning ‘til night, seven days out of the week,” Eldredge recalled about Schenck. “Primarily he was a practicing forester; he had something over 112,000 acres under his charge [at Biltmore], and that kept him busy all the time. He just lectured to us three or four hours a day, and the rest of the

²⁵³ Eldredge and Recknagel, “Management of Longleaf Pine,” 1-4.

²⁵⁴ Under Eldredge as the first forest supervisor, W.F. Hill was deputy forest supervisor, and the first four district rangers in Choctawhatchee were W.W. Day, James E. Clark, A.G. Brown, and E.R. McKee. Eldredge went to France during World War One, succeeded by L.L. Bishop. See Hill, “Florida National Forest,” 4-5.

²⁵⁵ Julie Massoni, *Camp Pinchot*, 1; and Eldredge oral history, accessed Mar. 10, 2014, http://www.foresthistory.org/Research/Biltmore_Project/OHIs/Eldredge.pdf.

²⁵⁶ Eldredge oral history.

time, we were strung out behind him traveling full-speed, while he tended to his duties, which he explained as he went along.” While Eldredge left Biltmore with a fair amount of scientific and practical forestry knowledge, his training grounds in the western North Carolina mountains were rich in tree species like hemlock, spruce, yellow poplar, sugar and red maple, black walnut, white ash, and plenty of white pine, but no longleaf pine.²⁵⁷

Eldredge next got a short-term job in south Florida, assessing the potential timber value of 120,000 acres or so of old-growth pine forest southeast of Bradenton. Schenck paid Eldredge and two other young Biltmore graduates to qualify and quantify the trees on the Florida acreage, as Schenck had been hired by investors considering buying this land. In addition to teaching forestry, Schenck sometimes worked as a consulting forester to assess timber values. “I don’t think anybody but Ponce de Leon had ever been in it before we got there,” Eldredge claimed about the Florida land, ignorant or dismissive of the history of Native Americans in the region. “It took us a month and we never saw a human track in that whole time.” However, slash pine was the dominant tree species in this uncut forest of 120,000 acres or so, rather than longleaf, so this work offered no chance for Eldredge to build knowledge specifically about longleaf.²⁵⁸

Eldredge joined the Forest Service and spent about five years studying forest lands in California, and overseeing timber sales on national forests in Arizona and New Mexico – with

²⁵⁷ Carl A. Schenck was born in 1865 in Darmstadt, Germany. He worked for the state forest service in Germany and earned a PhD in forestry in 1894. After taking over management of the forests at George Vanderbilt’s Biltmore estate in Asheville, N.C., Schenck founded the Biltmore Forest School in 1898, known as the first school of forestry in North America. See Carl A. Schenck, *Cradle of Forestry in America: The Biltmore Forest School, 1898-1913* (Durham, N.C.: Forest History Society, 2011), and Historical Note, Carl Alwin Schenck Papers, Special Collections, North Carolina State University Libraries, <http://search.trln.org/search?id=NCSU970250#>, accessed Mar. 10, 2014; Eldredge oral history; “Biltmore Forest: An Account of its Treatment, and the Results of the First Year’s Work” (1893), Special Collections, N.C. State University Libraries, accessed Mar. 11, 2014, https://www.lib.ncsu.edu/specialcollections/forestry/schenck/series_v/gfi/PinBilt.html.

²⁵⁸ Eldredge oral history. While Eldredge had a sense that the 120,000 acres in Florida were virtually untouched in 1905, he seemingly ignored the pre-colonial presence of Native Americans in that part of southwestern Florida. The Eldredge oral history suggests the 120,000 acres were in the vicinity of Myakka City and the Myakka River.

tree cover, climate, and soils dramatically different from those in the southern longleaf forests. The Forest Service, just four years old in 1909, had designated the Choctawhatchee in its initial years as part of the agency's Region 3, with headquarters some 1,300 miles away in Albuquerque, N.M. And as Eldredge soon recognized, the qualities of the Choctawhatchee meant that "the general methods of management in use throughout the Forests of the West can be applied to [the Choctawhatchee] but seldom and then only with modifications." He had arrived in Florida in 1909 with no training and experience in working with longleaf pine.²⁵⁹

Nevertheless, Eldredge forged ahead and turned his attention quickly to the business of naval stores in the Choctawhatchee's longleaf. The Forest Service set up a process that enabled turpentiners to use a portion of government longleaf on a fifteen-year lease, and Eldredge spent much of his time checking that turpentine crews were following the lease terms. The first turpentine under federal leases began in March 1910, and within two years, there were twenty-six turpentine operations on federal lands. The choice to focus on turpentine necessarily meant that Eldredge and his small staff had less time and resources for addressing the many questions that remained about longleaf, such as the best conditions for enabling it to thrive and to regenerate once cut. Over time, it meant that foresters in the Choctawhatchee still were struggling twenty years later to understand how to effectively encourage longleaf to regenerate.²⁶⁰

The Forest Service's overall vision for the Choctawhatchee included, as the first stage, allowing turpentiners to lease and exhaust a defined area of longleaf, and a second stage of contracting with timbermen to cut that area of worked-out trees, which still had value for making railroad crossties and other lumber products. The foresters would require leaving a small number

²⁵⁹ Eldredge, "Fire Problem," 166.

²⁶⁰ Massoni, *Camp Pinchot*, 12 and 16.

of the healthy, mature trees in place, to serve as seed trees for the new openings created by the timbering. If all went as planned, new seedlings would sprout, and along with other longleaf still not large enough for turpentine, they would form the “future forest” to be turpentine and timbered on well-defined cycles.²⁶¹

After the first round of this turpentine and timbering cycle over ten to fifteen years, the next “crop” of longleaf in this cycle would be a bit smaller, the foresters acknowledged. In fact, they figured it would take nearly one hundred years to establish a working forest that would yield the same volume of turpentine as the first crop produced under the Forest Service’s management. Nevertheless, they projected great confidence in their ability to impose greater order on the Choctawhatchee and establish this predictable, productive, and sustainable cycle.²⁶²

While they conceded it would take multiple decades, foresters painted an optimistic picture of how this plan would whip the forest into shape, so that it resembled a smoothly running, increasingly-productive farm. After twelve years of turpentine and three years of “rest,” the pines would be ready for cutting. “Where the young growth below [turpentine] size is insufficient, enough trees will be left to scatter seed on the cutting area,” Eldredge and Recknagel stated. Under the initial plan, foresters would have removed all the oldest pines after fifty years, so that a “much denser and better stand” of young pines had taken the place of the mature timber. This vision assumed the reliable functioning of several moving parts, with a combination of human intervention and non-human processes enabling the forest to function at peak efficiency.²⁶³ To ensure a “continuous supply of timber as well as to achieve the greatest

²⁶¹ Eldredge and Recknagel, “Management of Longleaf Pine,” 6-13.

²⁶² Ibid.

²⁶³ Ibid., 14; Hill, “Florida National Forest,” 7.

financial results,” the foresters needed to get the timing just right, so that new portions of forest were ready to cut as soon as the last portions of the original forest had been removed.²⁶⁴

After a portion of longleaf had been fully turpented and logged, “reproduction will be secured in most cases naturally, but where necessary, by artificial means,” Pooler stated confidently. On these parcels that were tapped and then timbered, crews would leave several large longleaf trees per acre as seed trees to provide the natural reproduction that he predicted. This approach would deliver the “greatest return” of benefits from the Choctawhatchee, including a steady flow of revenue, more than enough to cover management costs, while supporting the turpentine industry in the region and demonstrating better methods of turpentine and timbering. Pooler hedged a bit, allowing that foresters could end up having to actively plant a significant number of seedlings. But the managers would steadily create a forest in the Choctawhatchee that was “much heavier, healthier and possibly composed of more valuable [tree] species” that the existing forest.²⁶⁵

Thus, the Forest Service’s aim was not simply to protect longleaf in the Choctawhatchee from the most destructive approaches to turpentine and timbering, and destructive fires, while using the trees as economic resources more conservatively. The underlying vision was to transform the forest, and possibly even make more room in the forest for the “more valuable” tree species that Pooler hinted at in his report. However, the history of the Choctawhatchee between 1908 and 1940 suggests the agency needed to make rigorous study and cultivation of longleaf a top priority, rather than supporting turpentine and timbering as the primary goal.

²⁶⁴ Pooler report, 2-4.

²⁶⁵ Ibid., 4 and 8-9.

Instead, over the first couple years, the service began planting small test plots of camphor, African and red cedar, cork oak, loblolly pine, and maritime pine. The foresters were especially interested to see how well the cork oak and maritime pine grew. They wondered if camphor trees might be planted eventually to replace the “worthless” oaks that grew in the understory of the longleaf forests, and they even flirted initially with the idea of maritime pine replacing large areas of longleaf over the long term. After all, maritime pine was foundation of the turpentine industry in southern coastal France, Pooler noted. If it grew well in the Choctawhatchee, maritime pine might be preferable to longleaf, since it supposedly grew faster, bore more seeds, and might yield more turpentine. But Pooler also acknowledged maritime pine was much more sensitive to fire than longleaf, so foresters would have to be even more diligent in limiting fires. Foresters were experimenting with ideas in the early years that would have made the Choctawhatchee even more like a farm with crops in the form of non-native trees like maritime pine and cork oak, and thus taking time and resources away from learning how best to foster new growths of longleaf.²⁶⁶

Foresters did work diligently for many years to ensure turpentiners adopted methods that gashed the pines less severely, such as using fewer cups per tree, making shallower cuts, and using the new cup system that Dr. Charles Herty had developed. Dr. Eloise Gerry of the Forest Service’s Forest Products Laboratory did influential research that reinforced the value of using shallower cuts. Most turpentiners disparaged such changes and insisted that “the deeper you go into the meat, the more blood you get,” when it came to hacking longleaf, Eldredge observed. “If you’re talking about many and skillful means of evading the terms of a contract, the turpentine

²⁶⁶ Ibid., 5-6; Eldredge and Recknagel, “Management of Longleaf Pine,” 13-14.

man has them all beat,” he cracked wryly. But over time, the turpentiners saw that the new methods in fact yielded more resin and the trees lasted longer.²⁶⁷

In the early years, Eldredge also oversaw the work of establishing the Forest Service’s presence in the Choctawhatchee, erecting small buildings beside Garnier Bayou that were dubbed Camp Pinchot. He hired Elijah R. McKee away from the Bitterroot National Forest in Montana to become a district ranger for him, and he soon added rangers James E. Clark, W. W. Day, and A. G. Brown. They built roads and bridges in the largely roadless forest, and erected the first steel fire tower in the eastern U.S. The men usually traveled on horseback in the initial years, and like the local residents, they also relied on water transportation such as the steamboats running between Pensacola, Niceville, and Fort Walton. The trip to Pensacola was six hours by boat and about the same by car on the primitive road network. The foresters bought basics like flour, sugar, bacon, coffee, and cornmeal in Pensacola, and the nearest hospital was there.²⁶⁸

As he ranged the forest, McKee reported constant problems in the initial years. Almost daily, he found “chipping [by turpentine workers] that was too deep, timber trespasses, burning, or other incidents within the forest, not to mention the appropriation of timber, wood, or logs by the local inhabitants as they saw fit.” For example, in an area where the Owens Reddick Turpentine Co. was working, McKee found twenty-two large pine logs buried in the sand that had been cut illegally from federal land. Another time, investigating the illegal cutting of about

²⁶⁷ Eldredge oral history; Massoni, *Camp Pinchot*, 15; Eldredge and Recknagel, “Management of Longleaf Pine,” 5 and 12-13. The plan allowed no more than three cups per tree, required shallow cuts, set a minimum size for trees, and leases for twelve years, plus a three-year break. On Dr. Eloise Gerry’s research, see Lida W. McBeath, “Eloise Gerry: A Woman of Forest Science,” *Journal of Forest History* 22 (July 1978): 128-135.

²⁶⁸ Massoni, *Camp Pinchot*, 27, 30, and 50.

300 trees, McKee eventually got the responsible man to admit his actions. But the service rarely won convictions in the federal court in Pensacola.²⁶⁹

In such cases, local people were not keen to testify against one another, and they also often shared a particular view about the access that they deserved to the Choctawhatchee lands and resources like longleaf. These local residents felt that, “since the Government had given away half of the forest to the railroads [in the past], they had a right to help themselves to what was left,” according to McKee, referring to earlier government grants to the Pensacola and Atlantic Railroad, and likely the Pensacola and Georgia Railroad as well. The conflict in these interactions between federal forests and local residents – whether in federal court or in the Choctawhatchee woods, grew in part from differing views of who really “owned” the forest, and who rightfully had the power and knowledge to decide how the forest was used for human benefit. Class differences also were in play, in that subsistence farmers and other local people working for low wages were claiming a greater share of the resources that Congress had granted to railroad capitalists. This ongoing conflict was another of the challenges foresters faced in managing the forest under principles of forestry.²⁷⁰

Forest fires, at least in their most intense form, were a challenge as well that the Choctawhatchee’s managers struggled to deal with effectively. The fire season in the Choctawhatchee ran roughly January through May. A typical instance was the day in April 1914 when district ranger McKee spotted smoke drifting up near Camp Pinchot, and rushed around to

²⁶⁹ Massoni, *Camp Pinchot*, 26-29; Eldredge oral history; Hill, “Florida National Forest,” 4.

²⁷⁰ Massoni, *Camp Pinchot*, 28-29. Massoni recounts another interesting story involving McKee and local residents: In March 1917, a man Harrison Davis came to McKee’s Ranger Station around 11:30 p.m. to report that his parents, Marius and Nancy Davis, had been murdered during a robbery in their home, a small farmhouse within the forest’s boundaries. The rangers used lumber stored at Camp Pinchot to make two coffins, and used the government mule team to haul coffins to the Davis’s house the next day, then to their burial site. The story reveals another aspect of relations between the Choctawhatchee foresters and local residents (pp. 31-32).

gather men to help extinguish the fire. The group took until around 8:30 p.m. to get the fire under control, but winds blew flames back across the fire line the next morning, and the fire continued to burn until around 9 p.m., charring nearly 2,000 acres.²⁷¹

At the same time, many local people saw fire as an indispensable tool, such as turpentiners who burned underbrush in the longleaf woods to clear them for their work, and also to clear debris from around the boxed trees, while cattlemen burned to encourage new grass growth, and farmers to prevent uncontrolled fires from reaching their properties. The federal foresters had to decide whether pursuing charges against someone for starting a fire in the forest was worth the potential harm to relations with the local residents. As with other infractions in the Choctawhatchee, actually getting a conviction was exceedingly rare.²⁷²

Initially, the foresters were uncertain about exactly how fires impacted the Choctawhatchee longleaf stands, with Eldredge and Recknagel stating in 1911, “Of course every endeavor will be made to secure reproduction by natural means although past annual fires have resulted in dangerously diminishing the amount of young growth and have produced a crop of scrub oak brush which is always a fire menace and hindrance to future reproduction.” They added that, if “after cutting and with suitable fire protection, longleaf pine fails to reproduce itself naturally, then aggressive steps will be taken to reproduce it artificially.” They were right that fires could kill young longleaf, but they did not note that the intensity of such fires could be increased by the presence of turpented trees with resin-coated faces. And the foresters did not

²⁷¹ Ibid., 28-30.

²⁷² Ibid.

note that lower-intensity fires tended to limit the scrub oak and benefit longleaf that had grown past its first few years.²⁷³

However, the foresters did make meaningful advances in the Choctawhatchee in understanding how fire and longleaf related, and they began to follow an approach that did not necessarily square with Forest Service philosophy. The foresters observed practices in the Choctawhatchee such as turpentine crews raking dead branches and pine needles from around the trees they were working, and burning the debris each year to prevent more destructive fires. The foresters began to recognize that annual, low-burning fires rarely did significant damage to mature longleaf trees that had not been worked for turpentine. On the other hand, fires that burned through after several years without annual burning could be quite destructive.

Eldredge therefore decided to try a program of controlled burning in some of the mature longleaf stands. He would seek to prevent all fire on other parts of the forest, where the original pines had been cut and new longleaf seedlings were growing naturally or because foresters had planted them. By using creeks, roads, and constructed fire breaks, the foresters figured they could “probably assure ourselves of the re-stocking of denuded or worked out areas, even though the adjacent timbered areas are annually burned [with controlled burning].” This was a more complicated, intricate approach, compared to trying to prevent all fires on every acre of the forest, or not preventing fires at all. And in truth, the foresters also were thinking practically, since they recognized local peoples’ interests in setting low-level fires. The foresters knew the agency could not afford the cost of trying to prevent and quickly put out all fires across the entire

²⁷³ Eldredge, “Silvical Report,” 11; Eldredge and Recknagel, “Management of Longleaf Pine,” 13.

forest. Still, the Choctawhatchee foresters took a relatively bold position in the initial years, as the Forest Service did not advocate for controlled burning in other national forests.²⁷⁴

When Eldredge began to embrace controlled fire in the Choctawhatchee, he was not in keeping with the fire-suppression policy taking hold in the Forest Service. In the spring and summer of 1910, intense forest fires had burned several million acres in Washington, Idaho, and Montana, and at their peak, known as the “Big Blowup,” some eighty-five firefighters and others were killed. The Forest Service was just five years old that year, and after the catastrophic fires, the agency increasingly built its identity and mission around the policy that all fires in the forests were potentially destructive and should be prevented, which left very little room for low-level, controlled burning. The agency essentially argued that “the public could not understand the difference between good and bad fires, so the best policy was not allowing fires at all,” as forest historian James Lewis puts it. The Forest Service did not officially agree that controlled burning was beneficial to longleaf forests until the 1940s.²⁷⁵

Eldredge gave more insight to this approach at the Choctawhatchee in 1914, while talking to fellow foresters about how he was dealing with burning in the forest. He described a strategy that amounted to the foresters joining the woods-burners, since they could not beat them, at least for the time being. “On a day mutually chosen by the [turpentine] operator and the ranger the tract is burnt over under the supervision of the district ranger, the operator furnishing a foreman and a crew of 5 to 10 men, who start at the outside boundaries of each section and burn towards the center...at all times keeping the fire under perfect control,” Eldredge explained. The fire burned the forest litter and most of the blackjack oak, and most importantly, it gave “absolute

²⁷⁴ Pooler report, 7.

²⁷⁵ Lewis, *Forest Service and the Greatest Good*, 73-79; Stephen J. Pyne, *Florida: A Fire Survey* (Tucson: University of Arizona Press, 2016), 10.

protection” from fires that might have started unintentionally around the turpentine trees and turned into large, uncontrolled, and destructive conflagrations.²⁷⁶ Eldredge would remark later, about the people he encountered in Florida and other longleaf states, that “the people right down on the ground, the settlers who lived in the woods, and the turpentine operators and so forth, were completely uninformed [about forestry], and [were] the greatest, ablest and most energetic set of woods-burners that the Lord has ever smiled upon.” Although the Choctawhatchee foresters would shift to a policy of suppressing all fires in the forest by the 1920s, this early fire strategy of Eldredge and his foresters was a way to work with the woods-burners in hopes of establishing a more controlled and informed approach to burning.²⁷⁷

Along with the many ongoing challenges to their management in the Choctawhatchee, the foresters there actually got a break with the Land Exchange Act of 1916, authorizing the federal government to acquire non-agricultural lands that were valuable chiefly for forest products. The aim was to use land exchanges to bring as many contiguous acres as possible under federal ownership in national forests, as a means starting to solve the “checkerboard” problem in forests like the Choctawhatchee. The Forest Service soon set about acquiring private lands through exchanges whenever possible in the Choctawhatchee. For example, the agency swapped properties with W.W. Harrison in 1918, deeding about 3,500 acres north of the Yellow River to Harrison, in exchange for 7,400 acres Harrison owned within the Choctawhatchee.²⁷⁸

²⁷⁶ Inman F. Eldredge, “The Administration of a [Florida] National Forest for Naval Stores,” *Proceedings of the Society of American Foresters* 9, no. 3 (July 1914): 310-326, quoted in Gerald W. Williams, “Private Property to Public Property,” 10. The Forest Service apparently changed its direction on controlled fires at the Choctawhatchee by 1931, as the agency’s management plan from that year stated that foresters had stopped burning around turpentine trees, and cited that fact as a major improvement in practices in the forest, 23.

²⁷⁷ Eldredge oral history.

²⁷⁸ Hill, “Florida National Forest,” 5-6 and 8-24; Florida Land Exchange Reports. Also important for national forests was the Weeks Act of 1911, which authorized the federal government to buy private cut-over lands for national forests. The act also enabled buying lands that states and counties had taken from private owners who defaulted on

The next year, the agency agreed to trade about 2,400 acres, from which most of the valuable mature longleaf had been cut, to get 7,100 acres owned by R.E. Bryan, a prominent turpentine operator. Bryan had turpented all the longleaf on the 7,100 acres intensively, and cut the trees from all but about 760 acres. Under the terms of the swap, Bryan still had one year in which to remove that remaining longleaf. But his intensively used land was attractive to the government because it was inside the forest boundaries, and Bryan wanted the government's acreage because it had potential for turpentine and was situated near his turpentine still. Such land exchanges did not resolve all the challenges in the Choctawhatchee, but for the foresters, they were steps toward greater ability to apply their ideas to transforming the forest.²⁷⁹

In 1925, supervisor W.F. Hill reviewed the Choctawhatchee's management over the preceding sixteen years, highlighting the fact that the volume of turpentine produced from the government's trees actually had doubled since foresters started requiring better turpentering practices, while the rate at which turpentering killed trees had dropped dramatically. At that time, the first longleaf stands exhausted for turpentine were being cut, as the first fifteen-year leases were ending. Revenue from the forest had reached about \$24,000 annually, mainly from turpentine leases, and the agency expected additional revenue of \$40,000 to \$50,000 annually from selling the turpentine trees for timber. The Forest Service had increased its ownership to about 179,300 acres, or 38 percent of the lands within the forest boundaries, compared to its ownership of about one-third when the forest was first established.²⁸⁰

taxes. The first Weeks purchases led to the Pisgah National Forest in North Carolina in 1916, and the national forests eventually grew to some twenty-five million acres in the East, with about half the total in the South. In 1924, the Clarke-McNary Act allowed purchase of lands that were not necessarily in the headwaters of navigable streams; Massoni, *Camp Pinchot*, 9 and 12; Williams, "Private Property to Public Property."

²⁷⁹ Hill, "Florida National Forest," 5-6; Florida Land Exchange Reports.

²⁸⁰ Hill, "Florida National Forest," 8-9.

Hill also mentioned in a casual tone that, in most of the areas covered by older longleaf stands, there usually were no longleaf seedlings growing amongst the older trees. Foresters had made the same observation in the first year of assessing the Choctawhatchee. But Hill and the foresters remained confident they could make way for longleaf seedlings as the older trees were cut after turpentining, and if foresters could keep hogs from digging up longleaf seeds and the roots of seedlings, and fires from killing seedlings – labelling hogs and fires the “the two greatest enemies of the pine tree.” Nevertheless, the managers expected over time to grow longleaf stands that were perhaps twice as dense as the stands that existed in 1908, Hill stated, and they had started some experimental plots for longleaf. The experimentation was a valuable step, but it also meant that, seventeen years into their work in the Choctawhatchee, the foresters were not as far along as they might have been in building longleaf knowledge.²⁸¹

Hill also noted that foresters anticipated greater demand for recreational sites in the Choctawhatchee, as the region’s population increased. There were hundreds of sites along the creeks and bayous of the forest, and the edge of Choctawhatchee Bay, with great potential for camping, fishing, and swimming. Hill proclaimed that, since the forest belonged to “the people,” it should benefit the greatest number of people. “The Forest Service extends an open invitation to all within reach to enjoy the Forest with the greatest possible freedom from restraint or red tape,” he told residents. Hill’s statements reflect the pressure that the Choctawhatchee’s managers felt – as did foresters at other national forests – to keep public opinion in mind. “Away from the water in the interior of the Forest can be found ideal spots for those who enjoy the solitude of the piney woods,” Hill also noted, perhaps reflecting on the solitude that he sometimes found while ranging through the forest. Part of his job was to provide access to the forest where possible, to

²⁸¹ Ibid.

increase the actual benefits that people experienced, and also the overall public support for the agency's work. But it also was true that time and resources spent on matters like recreational access were not spent on studying longleaf or growing trees.²⁸²

Seeing Progress but Acknowledging Failures

In 1931, Forest Service officials acknowledged they were disappointed with their results in fostering an extensive and promising growth of new longleaf in the Choctawhatchee, as the existing longleaf stands were being depleted through turpentine and timbering. "Whatever the cause, it is obvious that we have failed to satisfactorily restock the cut-over areas on the Forest, and to this extent have failed in our responsibility as Forest Managers," the foresters conceded, as they worked to revise the plan for the forest. In this self-critique, the officials in effect were describing some of the negative consequences of the agency's choices since 1908. Put another way, they acknowledged that "the silvicultural system best suited to the longleaf pine type on the Choctawhatchee is yet to be determined." Foresters again mentioned possible factors like grazing by hogs and sheep, droughts, fires, new seeds being eaten by rodents and birds, the high temperature of soils in direct sunlight, sterility of the soil, and brown spot disease. But they seemingly did not have a clear, well-supported explanation. The agency's priorities at the forest had not served it well in building knowledge about longleaf and bringing along new growth.²⁸³

Addressing this situation clearly was the key to the forest's future, and foresters were experimenting by the early 1930s both with selective cutting and clear-cutting of pine stands. But they continued to wonder if the best move was to focus exclusively on clear-cutting and re-planting, rather than waiting any longer to see the results of selective cutting and natural

²⁸² Ibid., 12-15.

²⁸³ Management Plan – 1931 Revision, 19-22.

regeneration. In the meantime, as foresters considered shifting to clear-cutting, they decided to start requiring timber operators to leave at least six mature seed trees per acres in timbered areas, an increase from the previous standard of two to four seed trees per acre.²⁸⁴

Foresters had been slow to leave more seed trees in part because generating revenue from the pine stands was so important. Leaving an extra two to four of the larger longleaf trees per acre was a significant step when one considers that a single area of timbering might cover several hundred acres. For every hundred acres, this change meant leaving in place another two hundred to four hundred mature longleaf. At least on the issue of leaving seed trees, “Revenue is of less importance than the perpetuation of the forest,” foresters stated in 1931 – a short statement, but unique in the records examined so far for this dissertation. It reflected the agency’s sense of urgency to address this shortcoming.²⁸⁵

Foresters in the Choctawhatchee also lacked a reliable understanding of the function of seed trees. Despite twenty years’ of work, the “present definite knowledge of what is a ‘seed tree,’ the number and distribution necessary to secure reproduction, is still lacking,” the agency conceded in 1931. Foresters were making progress and would have results from the current experiments available “before many years” to put into practice. But they recognized that they did not yet understand longleaf well enough. The service had proven very good at managing the Choctawhatchee’s longleaf for revenue, but not as good at securing future generations of this pine, which had natural patterns and needs that remained an unsolved riddle.²⁸⁶

²⁸⁴ Ibid., 20-22.

²⁸⁵ Ibid., 68-69.

²⁸⁶ Ibid.

Another obstacle was that foresters still could not project reliably how many relatively healthy longleaf trees would remain after turpentiners had drained as much resin from the trees as possible. The “deterioration [of trees] during the long period of turpentine is so great that it is impossible to estimate in advance the sawtimber yield [for lumber] at the time of cutting with any degree of accuracy,” foresters noted. Although they had pushed turpentiners to use the less-destructive methods, turpentine still damaged and killed some trees over time, but the foresters were not sure exactly how many trees.²⁸⁷

Even as the Choctawhatchee’s managers came to terms with the failure to develop a more-extensive new growth of longleaf by the early 1930s, the imperative to make the forest productive economically never was far from their minds. The deepening of the Great Depression after 1930 increased this economic pressure, as several turpentiners in the Choctawhatchee began to lose money and shut down their turpentine stills, while the Forest Service remained committed to supporting that industry. In the 1931 plan, the agency reaffirmed its commitment to supporting production of the greatest volume and quality of turpentine, while demonstrating less-destructive practices, as the primary goal in the Choctawhatchee. The other stated aims, secondary to turpentine, were to regenerate the longleaf stands on the cut-over areas, extend the current turpentine as long as possible, and enable the “complete utilization” of the forest’s trees for timber, while still leaving adequate seed trees.²⁸⁸

This commitment meant the agency worked to support the three main turpentine stills operating within the forest, by ensuring the operators had enough access to trees that they had a reasonable chance for profitability. Turpentiners at that time held leases covering about 40,000

²⁸⁷ Ibid., 21.

²⁸⁸ Ibid., 7-30.

acres of the federal lands in the forest. The plan suggests the agency allowed turpentiners to set more turpentine cups in the trees over the course of the lease than foresters would have preferred, although the turpentiners would have chosen to work the trees even more intensively. Although the service considered selling trees for timber as the secondary objective, it did want to continue supporting three sawmills in the area that depended almost entirely on government-owned trees in the Choctawhatchee. Those mills had capacity to produce about 6,000 to 12,000 board feet of lumber per day. The agency thus continued to contract with timber crews to cut trees at the end of the turpentine cycle, and to take out downed trees across the forest as well.²⁸⁹

In the first decade at the Choctawhatchee, foresters had tried to boost the number of new trees coming up, but those efforts in fact yielded “disastrous results,” the agency concluded, in looking back at that work. Crews working roughly between 1910 and 1917 had cleared out areas of scrub oaks, plowed the ground, and either broadcast or planted seeds for longleaf, slash pine, maritime pine, and cork oak. Crews also planted a small number of slash pine and cork oak seedlings, but most of these plantings did not last long, and foresters could find only a few of the maritime pine, slash pine, and cork oaks by the early 1930s. The reality was that foresters could not determine precisely how many of those trees remained, because “most of the records were not maintained, or became lost,” another misstep that impaired the agency’s learning process.²⁹⁰

Choctawhatchee foresters and researchers from the Southern Forest Experiment Station had started more intensive studies during the mid-1920s on the impacts of disease, insects, fire, and climate conditions on how well longleaf, slash pine, and non-native species regenerated

²⁸⁹ Management Plan – 1931 Revision, 7-8 and 29-30. The capacity of those sawmills was common in the region, although much smaller than capacity in the Louisiana longleaf forests, such as the mills of the Louisiana Central Lumber Co. making more than 125,000 board feet per day at their peak, as discussed in Chapter Two.

²⁹⁰ Management Plan – 1931 Revision, 24-26.

naturally and through planting. They planned in 1930 to protect some 760 acres of virgin pine from turpentine and timbering, to see how those trees developed when left alone, and hoped to do that with more areas in the future. But they conceded it still would take years of study to learn what practices worked best for regenerating longleaf. And it had taken twenty years and some dramatic disappointments just to convince them to put aside a sizable area in those 760 acres. It was a good idea, but a long time in coming.²⁹¹

Foresters had not come up empty in their efforts to learn about longleaf in the Choctawhatchee. They still had many questions about seed trees, but they noted that the most productive seed trees tended to have long, wide crowns and luxuriant needles, and grew best in relatively open stands. Longleaf trees with diameters of eight to fifteen inches at their bases tended to yield the most cones and seeds over time, and had the best chance of surviving to provide multiple seed crops. The foresters also recognized that longleaf tended to grow more slowly in the Choctawhatchee than elsewhere in the longleaf range. Could that be hampering their efforts to regenerate longleaf? Probably, they figured. Was uncertainty about the role of fire affecting their results? What about surface temperature of soils in direct sunlight, or the low moisture content and sterility of the soils? Foresters were asking many of the right questions, which had potentially valuable answers, but they were asking these questions twenty years and later after the Choctawhatchee's start.²⁹²

The agency also decided in 1931 to stop allowing the free-ranging of sheep, goats, and hogs in the Choctawhatchee, hoping this change would help longleaf regeneration. The managers were not as concerned about cattle grazing in the forest, since many area residents had gotten rid

²⁹¹ Ibid., 22 and 25-26.

²⁹² Ibid., 19-22, 25-26 and 69.

of their cattle during the federal government's campaign since 1906 to eradicate cattle ticks that carried Texas cattle fever. Previously, many of the residents had grazed herds of twenty cattle or so in the Choctawhatchee. The agency noted the populations of deer, turkeys, quail, squirrels, raccoons, opossums, foxes, skunks, and other wildlife were on the rise, good news to foresters in part because they anticipated growing demand for hunting in the Choctawhatchee.²⁹³

As the first of the turpentine leases began to expire in 1925 and later, the foresters were allowing more timbering on the federal lands, as they made the areas of longleaf that had been exhausted for turpentine available for cutting. Going forward, any trees that were still valuable as timber would be sold "as soon as possible" once the turpentiners were done, planners reiterated in 1931, partly in hopes that more longleaf seedlings might take root in the cut-over areas. As the 1930s progressed, Choctawhatchee timber went to sawmills, but also to pulp and paper mills in Gulf Coast towns like Port St. Joe, Fla., and Moss Point, Mississippi.²⁹⁴

The Forest Service had not expected to develop its envisioned productive and sustainable forest right away at the Choctawhatchee. In the initial years, foresters were confident they could establish a cycle of one hundred years for the forest. They would ramp up turpentine production, bring along the new growth of longleaf and other trees, while allowing some cutting of trees once the turpentiners were done with an area. In fifty years, the forest would have enough pine trees to allow a greater scale of timbering, even in areas that had not been turpented. However, it appeared in 1931 that the service would need to extend the long-term cycle to 150 years. And

²⁹³ Ibid., 8-10. On the federal cattle-tick program goals, controversies, and consequences, see Claire Strom, *Making Catfish Bait out of Government Boys: The Fight Against Cattle Ticks and the Transformation of the Yeoman South* (Athens, GA: University of Georgia Press, 2009).

²⁹⁴ Management Plan – 1931 Revision, 32-33 and 45; Massoni, *Camp Pinchot*, 36.

even with that change, foresters saw in the near future that they would have to stop giving turpentine leases for a number of years, to allow the new growth of longleaf to catch up.²⁹⁵

Still, the Forest Service continued seeking other avenues for progress in the Choctawhatchee, such as the decision in 1930 to buy about 40,000 acres within the forest boundaries. The deal was appealing for the agency because it could extend its forestry-based management to these 40,000 acres, even though the owners had worked the land intensively for turpentine and timber in the past. The Forest Service paid \$2.25 an acre for the land to the Union Land and Timber Co., which had an office in Mobile, Ala., and a board of directors in New York City. The federal government thus paid about \$90,000 for land that it once owned but gave away in the previous century. Most of this land had been granted to a railroad company, likely the Georgia and Pensacola Railroad in the 1850s, which then sold the land to Union Land and Timber. Union sold the land to a Jacksonville, Fla., company in 1925, but that company defaulted on its payments and Union reclaimed the land.²⁹⁶

Longleaf had grown on about 38,600 acres of the Union property, but the owner had turpented the longleaf, cut all the merchantable longleaf from about 30,200 acres, and “lightly culled” another 8,400 acres – or cut the most valuable trees. About 305,000 longleaf trees survived on the Union land, mainly on the 8,400 acres, and perhaps some forlorn, scraggly trees on the 30,200 cut-over acres. But out of all the land, foresters estimated that seedlings were growing on just twenty-four acres. Nevertheless, the foresters saw hope for restoring the forest

²⁹⁵ Management Plan – 1931 Revision, 26-27.

²⁹⁶ Documents on the Union Land and Timber deal, including the Forest Service’s “Report on Land of Union Land and Timber Company #1,” in land acquisition files, NFF. The documents show that the service still was negotiating with the owner in May 1930, but the 1931 management plan for the Choctawhatchee indicates the deal indeed was finalized by 1931, 64-65; also see A.C. Shaw, Forest Supervisor, to District Forester, Washington, D.C., April 15, 1930, Box 20, Eglin Air Force Base Archives.

on the Union land, and calculated that owning the land would lower per-acre management costs for the Choctawhatchee as a whole.²⁹⁷

From the Forest Service's perspective, another hopeful sign was that the number of small farms within the Choctawhatchee's boundaries was declining by the early 1930s, and the agency expected most of the small-scale farming to cease within a generation. This trend would mean that demands for using more Choctawhatchee lands for small farming were no longer a significant challenge to managing the lands for forestry. However, the service was aware of several land-development companies that hoped to set up agricultural colonies on lands they owned in the central part of the forest – a prospect with some parallels to the agricultural-boom idea that landowners promoted in the Choctawhatchee in the 1910s. "These companies seem well financed and are clearing and fencing in section units, and planting such crops as Tung nut trees, Satsuma oranges, and grapes," foresters reported in 1931. "The future of such developments is unknown, but despite the optimistic reports of the promoters, it is believed that they will eventually be abandoned." The agency was right that the envisioned colonies did not amount to much, but it was another example of a competing interest, and part of the context in which the service was compelled regularly to justify its ability to extract value from the forest.²⁹⁸

As they continued to grapple with increasing the amount of new longleaf growing in the Choctawhatchee, district ranger Howard A. Snyder and foresters crafted a set of "Instructions for Timber Improvement" in 1935 that they hoped would provide a boost. The report estimated that longleaf seedlings were in fact growing on about 100,000 acres in the Choctawhatchee by that

²⁹⁷ Documents on Union Land and Timber, NFF.

²⁹⁸ Management Plan – 1931 Revision, 10.

time, taken root from natural seed falls. However, they judged, “Obviously, this number is below a safe minimum.”²⁹⁹

Under the timber improvement plans, the foresters made their approach more systematic, putting foremen in charge of the efforts to boost longleaf growth, and upgrading the standards for training, oversight, and record-keeping. The Civilian Conservation Corps had a camp at the forest during the 1930s, and a regular practice was for foremen and twenty-six CCC workers to line up across a small area of forest and move forward together, cutting out shrub-like oaks that could shade out longleaf seedlings, as “compass men” directed the advances of each line of workers, and “tally men” counted seedlings. CCC planted longleaf seedlings as well.³⁰⁰

Supervisors kept a closer eye on time spent traveling to work sites, fixing vehicles and flat tires, sharpening tools, crossing swamps and streams, dealing with sudden storms and accidents, and even the habit of the “CCC boys” to stop and hunt squirrels, deer, and other wildlife – one rule specifically forbade the workers from trying to “smoke out” squirrels and birds from trees. These steps were part of the agency’s bid to get more serious about growing longleaf in the Choctawhatchee. However, they would not prove enough to secure the Choctawhatchee’s future as a national forest, and the federal government concluded that a different vision for those lands was more critical to the country’s interests.³⁰¹

As the global war escalated in the late 1930s and the United States scrambled to upgrade its military capacity, the War Department had an increasing interest in taking over the Choctawhatchee lands. In that context, the Forest Service’s report in 1939 on the benefits

²⁹⁹ H. A. Snyder and R. H. McCray, “Instructions for Timber Improvement Work – Choctawhatchee National Forest,” (May 18, 1935), 1-6, report in white notebook, NFF.

³⁰⁰ Ibid.

³⁰¹ Ibid., 3-5.

provided by the Choctawhatchee took on extra significance. This was another moment when the service was compelled to justify the forest and quantify its value. Meanwhile, military officials were building their case for why the Army Air Corps needed the Choctawhatchee land. Foresters came up with a total of about \$293,000 for the benefits that the forest provided in 1938-39 through several avenues. For example, the forest products made from Choctawhatchee pine included about \$46,000 worth of timber in the past year, and about \$4,500 in turpentine. The Choctawhatchee pines supported three local sawmills, one lumber company, one turpentine operation, and a number of woodcutters that year. These businesses paid workers an average of \$482 per year – not exactly a lofty average, but the service claimed that such benefits would increase by two or three times over the next thirty years if the service continued to oversee the forest. Overall, some 206 white workers, sixty-two “colored” workers, and 816 dependent family members relied on the Choctawhatchee for their livelihoods, while another 200 men worked there in the CCC.³⁰²

However, when the War Department made its claim for the Choctawhatchee lands, the Forest Service could not point to a thriving young growth of longleaf across the forest as part of an effective argument for keeping control of the forest. Federal forester Joseph Kircher had described the Choctawhatchee in 1940 as “fully developed – the capital investments completed, fires under excellent control, timber being cut under a good management plan, recreation and wildlife developed and the forest doing a \$53,548 business.” He was correct that the foresters had made a lot of progress. But not as much as they had hoped, and not enough to hold off the

³⁰² Massoni, *Camp Pinchot*, 41-44; A.K. Thurmond and E.R. DeSilva, “Report of Social Benefits on the Choctawhatchee National Forest,” U.S. Forest Service, July 7, 1939, report in NFF. By 1939, the national forest lands in Florida had reached about 1.6 million acres, including the Choctawhatchee and Ocala units established in 1908, plus the Osceola National Forest (1931), and the Apalachicola National Forest (1936); See *Florida National Forests*, 2-5 and 19.

challenge of the military base. Perhaps no amount of progress at the Choctawhatchee could have prompted the War Department to look elsewhere for a base. The lands were appealing in part for their location on the Gulf of Mexico coast, and the fact that they already were owned by the federal government. The desires of the War Department carried a great deal of force by 1940, and resisting the department's claims would have been difficult.

From Forest to Military Base

After formally taking over the Choctawhatchee lands in October 1940, the Army Air Corps converted portions of the former national forest into ranges for pilots to practice bombing and gunnery, building on the small presence the Air Corps had established several years earlier just south of the forest boundaries. When the forest was transferred to the military, the Forest Service had increased the federal lands to about 341,000 acres, and the service and War Department worked together to acquire another 123,000 acres, so that Eglin Air Force Base comprised about 464,000 acres by 1943. In broad strokes, activities over the next three decades that affected the forest cover included clearing about 66,000 acres for ranges, roads, and other infrastructure. Eglin managers used many of the cleared longleaf and sand pines to produce lumber with a sawmill they operated on the base for about three decades, or sold the pines to pulp and paper companies, generating money that Eglin applied in part to its costs in managing the forested lands. However, managers also began reforestation in 1950, first focusing on planting slash and sand pines, but shifting after several years to planting mainly longleaf. Using the lands within Eglin for military purposes remained the priority, and generating revenue from the pines was an important use as well. But early in Eglin's history, its managers also began to pursue conservation-minded goals for the 400,000 acres or so that were not cleared for military needs.³⁰³

³⁰³ I am using Eglin Air Force Base as the name, even though the base did not have that name until the U.S. Air Force became a separate military branch in 1947; Anthony D. Atwood discusses Eglin as part of the history of the

These conservation goals clearly gained importance after Congress passed the Endangered Species Act of 1973, as that law gave federal protection to red-cockaded woodpeckers, a species that relied on longleaf forests with older trees for its survival. By that time, the Eglin lands were among the largest areas of longleaf managed by a single entity – and that remains true today. Eglin managers had reforested about 73,000 acres by the mid-1990s. For certain reasons, red-cockaded woodpeckers need longleaf trees approaching at least 80 years old or older for their nesting cavities, so these replantings of longleaf at Eglin still need to grow for decades before they can serve that purpose. However, the Eglin forests also include some 9,000 acres of old-growth longleaf, or more than 70 percent of all the old-growth longleaf that remains today. Eglin officials have been committed to managing the older longleaf to support red-cockaded woodpeckers, while using practices like controlled burning to benefit younger longleaf stands, and supporting research at Eglin by other agencies, universities, and conservation groups. Longleaf advocates today often cite Eglin as an encouraging model for greater conservation of longleaf. Of course, Eglin officials and their Department of Defense bosses have been able to win conservation kudos in part because so much of the context has changed – political, scientific, economic, and so on – from the time of the Choctawhatchee National Forest. The Forest Service helped make this possible as well. While foresters did not progress as far as hoped in making the Choctawhatchee a model for longleaf conservation, they did begin to build knowledge about

military buildup in Florida during the Second World War in “A State of War: Florida from 1939 to 1945” (Doctoral dissertation, Florida International University, 2012), 37 and 82, accessed May 21, 2016, <http://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=1886&context=etd>. In the late 1930s, a number of local people objected strongly to the plan to transfer the Choctawhatchee to the War Department, including some who would lose their homes and property in the forest. Others were eager for the air base and the economic benefits it would bring, and they were critical of the opponents. For example, a local editor called the objections selfish or ignorant. James E. Plew had come from Chicago in the 1920s to develop an inn, country club, and subdivision in Valparaiso, just south of the national forest, and military officers visiting the Valparaiso resort raised the idea as early as 1930 that the area was well-suited for an airfield and bombing/gunnery range. Plew leased land to the Army for an airfield and range in 1935 and ‘37, a precursor to the Eglin base; see Wendy Victoria, “Some still mourn loss of homes to Eglin,” *Tallahassee Democrat*, Sept. 17, 2001; and Massoni, *Camp Pinchot*, 41-44.

longleaf, and they passed that along to Eglin managers, as well as a forest that likely was in better shape than if the Forest Service had never been there.³⁰⁴

At the same time, while longleaf advocates justifiably see progress in the Eglin example, it also presents the kind of “win-win” narrative – an unequivocal win for both the military, and the natural environment – that requires a closer look. Environmental scholars continue to interrogate just how comfortably militarism and environmentalism can exist together in the settings of active and former Department of Defense installations, as well as Department of Energy sites related to production of nuclear weapons. They raise questions such as how important were public opinion and laws such as the Endangered Species Act in forcing military managers to do more for conservation, and exactly what actions managers are taking and not taking in the present day – such as cleaning up serious contamination – on military lands in the interest of environmental protection and conservation.

The presence of contamination and unexploded munitions often is a major challenge with no easy and inexpensive solutions, and the Eglin base is not an exception. By the mid-1970s, Eglin officials identified two areas on the base that were “contaminated,” possibly totaling 180,000 acres, and another 20,000 acres “under water,” presumably in the Gulf of Mexico south of the base.³⁰⁵ An insightful study by geographer David G. Havlick recognizes that military control of lands indeed has enabled successes for conservation and ecological restoration, but he

³⁰⁴ These broad strokes on Eglin’s history, especially in terms of longleaf, rely on Stephen J. Pyne, *Florida: A Fire Survey*, 76; U.S. Air Force, “Natural Resources Management Plan, Eglin Air Force Base, 1993-1997,” 24-31, Eglin file drawer AFB/Camp Pinchot NFF; Brett W. Williams et al., “Protecting Red-Cockaded Woodpecker Cavity Trees Predisposed to Fire-Induced Mortality,” *Journal of Wildlife Management* 70, no. 3 (June 2006): 702.

³⁰⁵ An undated document, almost certainly from the mid-1970s, titled “Situation Statement: Eglin Air Force Base, Florida,” states that 170,000 acres to 180,000 acres at the base were “contaminated,” but does not give details, document in file drawer Eglin AFB/Camp Pinchot, NFF. However, the serious concerns at Eglin include potential contamination involving groundwater, “Agent Orange,” radioactive waste, and depleted uranium munitions; for example, see Agency for Toxic Substances and Disease Registry, “Petitioned Public Health Assessment – Eglin Air Force Base,” April 11, 2003, accessed Mar. 12, 2017, <https://www.atsdr.cdc.gov/HAC/pha/PHA.asp?docid=173&pg=0>.

points out that military and conservation goals are not automatically symbiotic. In researching a World War Two-era munitions proving ground in Indiana, renamed as a national wildlife refuge in 1989, Havlick demonstrates convincingly that accepting military/environment success stories too quickly or uncritically is a mistake. For Eglin, we need to scrutinize notions such as that the Air Force, ironically, has done a better job of conserving longleaf at Eglin than did the Forest Service, or the public relations aims in choosing “Vanguard for the Environment” as the title for a 1971 management plan for Eglin. After all, the land that the Forest Service handed over for Eglin in 1940 still included several thousand acres of old-growth longleaf, more longleaf seedlings finally were taking hold, and the foresters, of course, never dropped bombs or strafed the lands. Taking a closer look at Eglin’s nearly eight decades of history in terms of conservation and other environmental issues would be valuable work.³⁰⁶

Conclusion

One way to interpret the Choctawhatchee’s history between its creation in 1908 and transfer to the military in 1940 is that the forest’s managers had little choice but to make encouraging turpentine production the top priority. The Forest Service was committed to generating revenue from national forests, while also developing and demonstrating better long-term forestry practices. Gifford Pinchot had promised that the new agency would sustain itself through timber sales and other revenues from the forests. This stance reflected the fact that much of the political support for the Forest Service, national forests, and conservation at that time

³⁰⁶ The Department of Defense owns about 11.4 million acres in the U.S., and owns or leases another 15 million acres outside of the U.S.; I thank Mark Barrow for suggesting excellent starting points on questions about U.S. military installations and conservation, including David G. Havlick, “Disarming Nature: Converting Military Lands to Wildlife Refuges,” *Geographical Review* 101, no. 2 (April 2011): 183-200; Edwin A. Martini, ed., *Proving Grounds: Militarized Landscapes, Weapons Testing, and the Environmental Impact of U.S. Bases* (Seattle: University of Washington Press, 2015); and David Wolman, “Accidental wilderness: Hanford, White Sands and other ‘wastelands’ are good for bombs. And biodiversity,” *High Country News*, May 17, 2010, accessed Mar. 11, 2017, <http://www.hcn.org/issues/42.9/accidental-wilderness>; the “Vanguard for the Environment” plan is mentioned in undated “Situation Statement: Eglin Air Force Base, Florida” document from Eglin AFB/Camp Pinchot file, NFF.

depended on the continuing flow of wood and revenue from the forests. In this interpretation, the Forest Service was genuinely eager for any advances in knowledge about longleaf that would be beneficial across the longleaf region, and what the foresters most wanted to do was grow trees and perform the other silvicultural work of “improving” the forest. But revenue pressures made that interest secondary to supporting the turpentine industry and promoting best practices in turpentine. The real benefits to longleaf would have to come in the very long term, through less destructive methods of turpentine as pioneered at the Choctawhatchee.

Another interpretation is that foresters in the Choctawhatchee were fairly supportive of the emphasis on turpentine for much of the forest’s existence. The opportunity to generate revenue from the pines and support businesses in profiting from the forest was a sincere motivation for them. W.F. Hill, the third supervisor in Florida, argued in 1925 that a top accomplishment in the Choctawhatchee was generating more than enough money, in particular from turpentine leases, to cover the costs of administering the forest, such as salaries and maintenance. The forest’s managers were proud of this self-sustenance, and they also were invested personally and practically in the revenue model, since it sustained their jobs.³⁰⁷

More broadly, the interpretive concepts of “seeing like a state,” and the related “learning like a state,” also help illuminate the Choctawhatchee’s history. A starting point is James C. Scott’s argument for the negative consequences of state efforts to establish control and order, using examples from economics-based forestry in modern Europe to Soviet collectivization. By “seeing like a state,” Scott means the state working to simplify social systems and nature – or to make them more “legible” – to enable state-planned schemes that leaders contend will improve human lives. Drawing partly on Scott, some scholars have dwelled specifically on the

³⁰⁷ Hill, “Florida National Forest,” 6.

“environmental-management state,” or public agencies claiming the authority and know-how to best manage public lands and other aspects of the environment, since the late nineteenth century in the U.S. and many other countries. Scholars have examined not only how states “see,” but how they “learn,” as environmental historian Paul Sutter explains. “When environmental historians focus on ‘learning like a state’ in the realm of environmental management,” Sutter observes, “they find not a single moment of simplified envisioning but rather a series of interventions over time that are shaped by competing political interests, counternarratives internal and external to the state, and environmental counterforce.”³⁰⁸

In this framework, the Forest Service was a newly empowered branch of the environmental-management state when Teddy Roosevelt put the Choctawhatchee lands in the service’s hands in 1908. The agency’s vision for “improving” national forests and establishing healthy, productive, and sustainable “crops” of trees reflected its location within the U.S. Department of Agriculture, a larger constituent of the state. The chief forester answered to the Secretary of Agriculture. They shared the charge of encouraging the growing of products from the land to meet Americans’ needs. In the Choctawhatchee, federal foresters arrived with high confidence, at least outwardly, in their ability to understand the basic natural functioning of the forest, and grow trees there better than nature had, creating ever-productive yet ever-renewing forests. While foresters knew that human activities had already changed the Choctawhatchee

³⁰⁸ See Paul Sutter, “The World with Us: The State of American Environmental History,” *Journal of American History* 100, no. 1 (June 2013): 100-104. Sutter discusses James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998). He credits the notion of the “environmental-management state” to Adam Rome, “What Really Matters in History: Environmental Perspectives on Modern America,” *Environmental History*, 7 (April 2002): 303–18, and the similar “resource management state” to Bruce J. Schulman, “Governing Nature, Nurturing Government: Resource Management and the Development of the American State, 1900–1912,” *Journal of Policy History*, 17 (Oct. 2005): 375–403, both of whom argue that agencies and strategies for managing natural resources played an early and critical role in state-building in the U.S., even more so than matters of national security and social welfare; Sutter highlights Marsha L. Weisiger, *Dreaming of Sheep in Navajo Country* (Seattle: University of Washington Press, 2009), and Robert M. Wilson, *Seeking Refuge: Birds and Landscapes of the Pacific Flyway* (Seattle: University of Washington Press, 2010), as valuable studies of “learning” by the environmental-management state.

forest in some obvious ways, they did not understand well how these activities influenced the natural processes of the forest, nor how their own interventions would play out.

The people filling the jobs of supervisor, rangers, and others in the Choctawhatchee by necessity changed over time, a challenge to consistency in sharing knowledge and understanding the state of things in the forest. On the matter of controlled burning in the Choctawhatchee, Eldredge recognized how it could be beneficial if handled properly, but the Forest Service's commitment to suppressing all fires created conflict with what some foresters like Eldredge were learning about burning and longleaf. There were competing claims for how to use the Choctawhatchee longleaf and the lands, a changing bureaucratic structure that meant the Choctawhatchee at first was a single national forest, then a division of the Florida National Forest, then a distinct forest again. And the mandates of the environmental-management state meant constantly quantifying the forest, from the number of seedlings, to the amounts of turpentine and timber, to the revenue generated. While Sutter mentions the notion of "environmental counterforce," it was not so much a counterforce in the Choctawhatchee, but that longleaf did not respond to the foresters' interventions as they expected. The foresters were counting on longleaf seedlings to take root naturally across the forest as areas were timbered.

As it "learned like a state," the Forest Service did advance its understanding of less-destructive turpentining practices, the benefits of public relations efforts with local people, and the potential benefits for longleaf of low-level fires, even though official policy hindered that learning. The foresters had a difficult task, to be sure. They were charged with developing practices that could be examples for private landowners, and they were working for the long-term renewal of the forest, a much more complex task than clear-cutting and moving on, as

lumber companies did. But I am suggesting the Forest Service moved too slowly to learn, in part because of the commitment to supporting the turpentine business.

In summary, the Forest Service had faced major challenges in the Choctawhatchee, a forest deep with the longleaf South. When a retired Eldredge reflected on his career, he painted a vivid picture of the dismissive and distrustful view of forestry that many southerners and others held in the early 1900s, as well as the backlash when federal foresters began promoting alternatives to the most destructive approaches to using forests. People in the timber and lumber businesses “didn’t have any concept of forestry or any regard for forestry or any belief in forestry,” Eldredge remembered. “People who were in lumbering thought forestry was just next door to bird-watching.” Convincing a significant number of people that forestry was a valuable set of ideas and practices, rather than a frivolous pursuit, was a daunting challenge.³⁰⁹

Eldredge tempered his critique by asserting that he understood anti-forestry views. Lumbermen were intensely practical, set in their ways, and committed to making money out of the forests. “[At] that time and for many, many years afterwards, the trees were already grown,” Eldredge offered. “The good Lord grew them, and without the aid of forestry! There wasn’t any concept there’d ever be a time when there’d be a shortage or lack of timber.” In other words, people cutting longleaf and other trees in the early 1900s and later simply could not see that the forests were finite, and thus never felt compelled to worry about future growths of trees.³¹⁰

³⁰⁹ Eldredge oral history. Eldredge had a highly regarded career in forestry. He left Florida in 1917 to serve as a captain in the 10th Engineers, one of two “Forest Regiments,” doing timber-related work in France during World War One. He returned to the Forest Service, then worked for a private timber and naval stores company in Georgia, and after six years returned again to the Forest Service to direct the southern forest survey. See Forest History Society, “Inventory of the Early Forestry Education in North Carolina Oral History Interviews,” accessed May 21, 2016, http://www.foresthistory.org/ead/Early_Forestry_Education_in_NC.pdf.

³¹⁰ Eldredge oral history.

But many Americans could and did recognize that the pace and scale of timbering were reducing forests significantly in the U.S. before and after the turn of the century, in the East, the Great Lakes region, and the South. As discussed in this chapter, some observers expressed concerns publicly about the future of forests in the U.S. beginning in the 1870s, and the national discourse grew. In the longleaf South, awareness of the impacts on longleaf forests varied from person to person, and place to place, and factors like geographic isolation and low literacy left some southerners more disconnected from discussions about forest resources than others.

But the claim that virtually no one cutting trees in the woods, running smaller sawmills, or operating industrial lumber plants in the South could foresee the larger impacts on longleaf and other forests is not convincing. By the time that Eldredge was working in the South, many people had some sense of concerns raised about forest resources, and could imagine that forests would not last forever. They were not completely blind to the impacts of intensive timbering.

At the same time, such expressions of concern were not actually prompting many people to use forests in the ways that foresters advocated. For example, Eldredge continued to encounter the rejection of forestry principles for many years in the South. In the 1910s, he asserted, forestry still was “as unknown and as unvalued in that part of the South as it could possibly have been – as though it hadn’t existed.” Officials in rural counties usually were “very common people” who saw no value in forestry, and did not have the ability to “think big” and envision tax policies that would encourage the management of forests for longer-term benefits, Eldredge concluded.

A lumberman from a northern city like Chicago, cutting forests in the South, did not really care about how using the forests would affect local conditions such as a county’s tax base. “His stockholders in the North [demanded] a quick return on their money. What can forestry do for him? I can’t think of a bloody thing it can do for him,” Eldredge continued. “All the rest of

the people didn't know, and didn't give a damn." This last statement from Eldredge is closer to touching the truth. For a person not to "give a damn" about a problem, the person must have at least some awareness of the problem. And not giving a damn implies a choice to reject the solutions that have been proposed, such as sustainable forestry. Timber crews and landowners around the Choctawhatchee, or elsewhere in the longleaf South where Eldredge worked in subsequent years, dismissed forestry solutions, in part because they believed the solutions were a threat to their livelihoods. They envisioned real sacrifices that they would be required to make in the short-term, regardless of whether cutting longleaf forests was sustainable in the long term.

CHAPTER FOUR: SEEKING A BALANCE OF LONGLEAF, LUMBER, AND LIFE

On a cool evening in 1941, Herbert Stoddard stepped off his porch and assembled the gear he needed to set a swath of his pine woods afire. After night fell, he touched a narrow stream of flame from a metal can to the grass growing within a stand of longleaf pine on his property in south Georgia, and he walked the flame along the entire line of grass from which this burn would advance. Stoddard prepared for keeping this fire under control by mapping out the roads, farm fields, streams, and plowed fire lines that would stop the flames before they became damaging rather than useful. He also chose a night with factors in mind like the air temperature, relative humidity, and steadiness of the wind, to allow the fire just enough intensity to do its work. Stoddard watched the fire over several hours that night, and checked the acreage once the flames died out to be sure the burn was finished.

A photo from the controlled burn shows Stoddard standing near the low-burning flames on his property in Grady County, Ga., that included extensive stands of longleaf and other pine species, as well as cultivated fields, and edge habitats between the trees and fields. Stoddard leaned on a long stick in the image, and watched pensively as the flames crept along, consuming the grass, pine debris, and perhaps seedlings of other tree species that had managed to claim a spot among the longleaf. Stoddard was both meditative and active in this moment, sensing the trees, forest floor, and flames while also closely monitoring the burn.³¹¹

The photo tells a personal story about Stoddard, who worked several decades as a professional manager of pinelands in the Red Hills region of south Georgia and north Florida.

³¹¹ Photo published in Way, *Conserving Southern Longleaf*, Figure 9, 115.

The image captures Stoddard's drive to connect with the natural world around him to feel most engaged in life, primarily through working and managing the land, or "putting the forest in good shape," as he liked to say. The photo also reflects a broader history that is central in this chapter. For example, Stoddard chose to burn the forest floor in a portion of his longleaf stands that evening because he was confident the controlled burn would be good for the longleaf and the wildlife that depended on the forest – a fire-friendly stance that many professional foresters resisted fiercely at that time. He had come to see controlled burning as an "artful process, a system with predictable outcomes based on close observation of environmental conditions and experience," as environmental historian Albert Way contends. To develop this view of burning the longleaf forests as both artful and systematic, Stoddard relied on the insights of other naturalists and managers about how fire interacted with longleaf, and even more on his many years of working intensively in the Red Hills. In this work, he also helped to further address other persistent questions about longleaf.³¹²

In depicting Stoddard's work in the woods, the photo evokes two of the key themes in this chapter, beginning with the ongoing challenge of advancing understandings about the status of longleaf forests across the South, and how the forests and the other life within them interacted and changed over time. Secondly, the scene of Stoddard overseeing the controlled burn points to a growing recognition among naturalists, foresters, botanists, and others that, once people had dramatically altered a coherent part of the environment – an ecosystem in today's terms – they had altered a certain balance within that part of the landscape and would have to play a major role in restoring it, perhaps a permanent role. For example, the foresters in the Choctawhatchee National Forest were determined from the start to play a hands-on role in "improving" that

³¹² Herbert L. Stoddard, *Memoirs of a Naturalist* (Norman, OK: University of Oklahoma Press, 1969), 276; Way, *Conserving Southern Longleaf*, 115.

forest, but they realized they would have to intervene even further, once they saw that longleaf, in many cases, did not simply grow back on its own in the wake of timbering. And in this chapter, the model for managing longleaf lands that Stoddard developed beginning in the 1920s was based on intensive, hands-on management as well, whether it was setting controlled burns, encouraging the best food and habitat conditions for quail and other wildlife, or selecting individual longleaf trees for timbering. It was a way forward that meant significant responsibility for property owners and other stewards of the land.

This chapter interprets the views and actions of Stoddard, botanists Charles Mohr and Roland Harper, and forester William W. Ashe, in relation to longleaf during and after the most intensive timbering of the longleaf forests. In contrast to the prominent narrative that the longleaf forests were virtually inexhaustible, these men came to recognize at different times that longleaf, in spite of its past presence across tens of millions of acres, was a finite resource that human activities could eliminate. For example, Mohr pointed directly at the “agency of man” in 1897 as the key threat to a long-term future for longleaf. To varying degrees, they expressed conservationist views, including the notion that the U.S. needed more sustainable, long-term approaches to using longleaf, with Stoddard going the furthest down that path.³¹³

Mohr, Harper, Ashe, and Stoddard each were drawn to exploring and seeking greater understanding of the natural environments in which they lived and worked, including longleaf forests but other environments with diverse plants and animals as well. Their work in observing longleaf – and working frequently in the forests, especially in the cases of Ashe and Stoddard – put them in position to comment on the status of longleaf. They had varying degrees of expert status, and opportunities such as publishing bulletins and books, and working for government

³¹³ Charles T. Mohr, *Timber Pines of the Southern United States* (Washington, D.C.: U.S. Department of Agriculture, Bulletin No. 13 Revised Edition, 1897), 61.

agencies such as state geological surveys or the U.S. Forest Service. In building knowledge and expressing their views, these men did at times question the dominant views that took little issue with intensive clearcutting of longleaf, and they pointed out that such unrestrained clearcutting and the great lack of concern about fostering a second growth of longleaf were having negative consequences.

Several other contemporary figures pursued work and expressed views similar to those of Mohr, Harper, Ashe, and Stoddard in relation to longleaf and conservation, such as Herman Haupt Chapman, an early graduate of the Yale Forestry School and long-time professor there, who did much of his research starting in the 1910s in the longleaf South. In Louisiana, Chapman worked regularly with lumberman and landowner Henry Hardtner, a lonely voice in early 1900s Louisiana for using longleaf more wisely and reforestation. Austin Cary, who joined the Forest Service in Florida in 1917, also made his name in arguing for less-destructive use of longleaf, and for reforestation in the southern pine region. While all these men certainly had differences in backgrounds, priorities, and points of view, I treat Mohr, Harper, Ashe, and Stoddard in this chapter as appropriately representative of their ideas and actions related to longleaf.³¹⁴

Crediting these four figures for working to prevent longleaf's extinction is important, but so is assessing the limitations in what they accomplished, since this dissertation seeks greater understanding of how people eventually cleared longleaf from more than 95 percent of its

³¹⁴ In Herman H. Chapman, *Forestry: An Elementary Treatise* (Chicago: American Lumberman, 1912), Chapman wrote that "the foundation of forestry is the growing of trees as a crop to be cut and used. [But] too often the lumberman cares nothing about the growth of his timber... Destructive timbering and forestry are at opposite poles" (7); see also Finding Aid, Herman H. Chapman Papers, Manuscripts and Archives, Yale University Library; Anna C. Burns, "Henry E. Hardtner, Louisiana's First Conservationist," *Journal of Forest History* 22, no. 2 (April 1978): 78-85; Roy R. White, "Austin Cary – The Father of Southern Forestry," *Forest History Newsletter* 5, no. 1 (Spring 1961): 2-5; Roy R. White, "Austin Cary and Forestry in the South" (doctoral dissertation, University of Florida, 1960); another good source on Cary is James Lewis, "7/31/1865: Austin Cary, the Father of Southern Forestry, Born," *Peeling Back the Bark*, Forest History Society, accessed Mar. 21, 2017, <https://fhsarchives.wordpress.com/2015/07/31/7311865-austin-cary-the-father-of-southern-forestry-born/>.

historical range. The four men had forums for expressing their views, but in general they had little power to strongly influence policies. They never effectively articulated a call for action in terms of conserving longleaf that many people in their generations found compelling, although Stoddard did steadily gain respect for his approach to managing longleaf. However, his influence was strongest after the most intensive timbering of longleaf ended in the 1920s. Despite these figures' warnings and work, the longleaf forests were depleted to such an extent that most southerners today, indeed most Americans, have never seen a longleaf forest.

“Enemies” of Longleaf

As the U.S. Division of Forestry – precursor of the Forest Service – sought to establish its relevance and influence in the 1890s, division chief Bernhard Fernow focused in part on the longleaf forests of the South, where lumber industrialists were investing and intensifying the cut of longleaf. Fernow gave Alabama-based botanist Charles Mohr the task of taking stock of the longleaf forests. This impulse to measure the remaining longleaf as a resource came in part from the desire to sustain an important economic activity, but also from a spark of concern about exhausting a valuable part of the natural environment. Mohr lived and worked in a longleaf South that was between two extremes – longleaf forests still seemed a vast resource, as did other pines and hardwoods that were valuable as timber, but longleaf also had been turpented and timbered extensively – and his observations would reflect these extremes.

An example from Mohr's correspondence relates to a hardwood forest, most likely dominated by oaks, but his words also symbolize both the abundance and ongoing destruction of longleaf forests. In May of 1899, Mohr wrote to Dr. Eugene A. Smith, state geologist of Alabama and Mohr's longtime colleague and confidante. Mohr was seventy-four, and poor health kept him from the travel and botanical field work on which he thrived for much of his life. He wrote about his abiding desire to visit a forest of old-growth hardwoods in central Alabama,

between Tuscaloosa and Montgomery. He and Smith talked over the years about visiting the forest together, but they had never found time for the trip as the years ticked by. Mohr still hoped he and Smith might get there.

“I feel much depressed by my inability to go about,” he confided to Smith. “I feel the disappointment keenly to see myself thwarted in my pleas to visit this virgin hardwood forest [that] I wish so much to see.” Mohr’s words reflect his love for immersing himself in features of the nonhuman environment like forests, a drive that remained strong as Mohr neared the end of his life. The letter pointed out that such old-growth forests did still stand in the South in 1899, even with all the cutting, saw-milling, and clearing of southern forests that up to that point. At the same time, the virgin forest that Mohr craved to visit was rare enough that he was keen to make a special trip to experience it. This forest thus can symbolize both the rich, plentiful natural resources such as old-growth forests that existed in the South, including longleaf forests, as well as the extent to which human activities had reduced these resources.³¹⁵

By the 1890s, Mohr had earned regard as an expert on the trees and other plant life in his adopted state of Alabama, and to a lesser degree, plant life across the South. He was born in 1824 in the Wurttemberg region of Germany, and graduated from a polytechnic institute with a degree in chemistry and natural sciences. During the Revolutions of 1848, Mohr moved to London to live with his brother, and the brothers immigrated to the U.S. and settled in Cincinnati. But like many others, Mohr was struck with gold fever in 1849, and he joined a group on a trek to the Sacramento Valley in California.

After Mohr got sick and returned to Cincinnati, his life took a couple more turns before he put down roots in the South. The stops included an Indiana farm in 1850, where Mohr was

³¹⁵ Charles Mohr to Dr. Eugene A. Smith, May 17, 1899, folder 9, box 192, Charles Mohr Letters, Hoole Special Collections (HSC), University of Alabama Libraries, Tuscaloosa, AL.

married to Sophie Roemer, another German-American with whom he would have five children. The family moved to Kentucky, Louisiana, and then Mexico. But political turmoil in Mexico pushed the Mohrs back to the U.S., settling in 1857 in Mobile, Ala., where the family lived for the next forty-three years.³¹⁶

Mohr lived seventy-six years, so he was based in the longleaf South for the majority of his life. First in south Alabama and then further afield, he began building his knowledge of southern trees and other plant life, and his reputation as a botanist grew. When he came eventually to studying and writing about longleaf, Mohr identified the decline of longleaf as a problem, and his argument for how to address that problem was bold in some important regards, but not forceful enough to prompt any real changes in the intensive cutting of longleaf forests.

Mohr was most content and engaged when in the field, moving through natural landscapes on foot, or by mule or train, and observing plant life. He did not express emotions regularly in letters to friends, but when he did allow his closely held emotions to come through, the most common were great excitement after returning from the field, and sadness when poor health kept him confined to home. He once reported to Smith, the Alabama state geologist, that his most recent attempt at field work was a flop. “I found my strength not equal to climb the hills and returned rather crestfallen,” he wrote. “It is hard to reconcile myself to the fact that the days of my strength have passed,” Mohr told Smith, as he approached his seventy-sixth year.³¹⁷

Closely intertwined with this passion was Mohr’s determination to complete *Plant Life of Alabama*, his detailed botanical description of the plant life in his adopted state. From at least the

³¹⁶ Biographical details drawn from L.J. Davenport, “Charles Mohr, Botanist,” *Alabama Heritage* 10 (1988): 32-45; University of North Carolina Herbarium, “Charles Theodore Mohr,” accessed Feb. 1, 2013, <http://www.herbarium.unc.edu/Collectors/Mohr.htm>; sketch by Eugene A. Smith in Charles Mohr, *Plant Life of Alabama* (Montgomery, AL: Brown Printing Co., 1901, as the “Alabama edition”), v-xii.

³¹⁷ Mohr to Smith, May 9, 1899 and Oct. 7, 1900, Charles Mohr Letters, HSC.

1880s until his death in 1901, Mohr was keenly aware of the passing of time, and finishing *Plant Life* was a central goal that he usually was either working on or worrying about while seeing to other duties. He viewed *Plant Life* as part of his legacy as a botanist, but his determination to complete the work also was a drive to “preserve” plant life, at least in the sense of creating a lasting record. People were reducing the longleaf forests and transforming other environments in the South and the country as well. Effectively resisting these changes perhaps seemed nearly impossible, or even unwise, to Mohr. But he worked diligently up to his death in 1901 to complete and publish *Plant Life*, a task more within his control than conserving longleaf.³¹⁸

When Mohr focused specifically on the longleaf forests, the key outlet for his perspective was an earlier publication called *The Timber Pines of the Southern United States*. He was the main author of *Timber Pines*, published in 1897 by the Division of Forestry, while division chief Fernow wrote a substantial introduction that set the context for Mohr’s discussion of longleaf. Fernow and Mohr hoped that some landowners and timber/lumber operators in the southern pinelands would open their minds to the forestry principles in *Timber Pines*, and start to move toward “producing, managing, and harvesting wood crops” rather than clearcutting and leaving devalued lands in their wake. Fernow pointed out that the forests of longleaf and other southern pines were becoming the most important source of trees for the American lumber industry. Considering that most pinelands owners and/or lumber companies typically cut all the useable trees on a parcel and moved on with no interest in encouraging new growth – the “cut out and get

³¹⁸ See Charles Mohr, *Plant Life of Alabama: An Account of the Distribution, Modes of Association, and Adaptations of the Flora of Alabama, Together with a Systematic Catalogue of the Plants Growing in the State* (Montgomery, AL: Brown Printing Co., 1901, “Alabama edition”).

out” approach – Fernow and Mohr warned that longleaf and other pine species in the South in fact could be exhausted in forty to fifty years.³¹⁹

Fernow also reminded landowners and companies that the longleaf they were cutting in the 1890s for high-quality lumber had been growing for 150 to 200 years or longer. To secure the supply of longleaf for the long-term, it was urgent to change traditional timbering practices, and leave pinelands in better condition for forest re-growth, even if owners were not likely to put money into re-planting. “We are just beginning to realize that our timber supplies are not unlimited; that our magnificent forest resources have been despoiled and need at least more consideration; that sooner or later forestry will become, nay, is now, a necessity,” he wrote.³²⁰

While Fernow called for urgency, he also advocated a goal whose payoff could not come until well into the twentieth century. He was asking landowners and timbermen to care about future generations of people for whom longleaf could be a valuable resource, and he set the tone for *Timber Pines* as a challenge to do things differently. Mohr emphasized the point as well that people using longleaf intensively as an economic resource needed to change their approach, or longleaf could well be finished off in the foreseeable future. As Mohr discussed longleaf and other valuable southern pines in detail – namely the Cuban, loblolly, and shortleaf pines – in effect he told a story about longleaf and its recent past, present status, and future prospects.

In his telling, Mohr expressed clear concern about the longleaf forests, while he also showed a degree of ambivalence about just how stridently he should voice his concerns, criticize the “enemies” of the longleaf, as he called them, and push for changes in practices. For example, even as he warned that longleaf could be timbered out completely, Mohr also paused in *Timber*

³¹⁹ Mohr, *Timber Pines*, 11.

³²⁰ Ibid.

Pines to issue a written invitation to timbermen to invest in cutting more of the old-growth longleaf remaining in Alabama, a striking bit of boosterism for his home region. Mohr strived regularly to find a balance between supporting the long-term survival of longleaf forests, and encouraging economic development, without ever seriously challenging the economic exploitation of the forests. He relied on the idea that it was possible to have both – a thriving lumber industry in the South, as well as rational, well-planned forestry practices that would ensure the next crops of trees were always coming along.

As Mohr ventured periodically into the field to study the verdant, diverse plant life, he also was a family man trying to earn a good living and enhance his professional standing. Mohr established a pharmacy/chemist shop in Mobile, and published articles in pharmacology journals. During the Civil War, he made medicines for the Confederate government. He began publishing botanical papers on Alabama plants in the 1870s, and was assigned to travel extensively to assess forests in the South for the Tenth Census in 1880. A company that owned pinelands in Alabama tried to hire Mohr in 1887 to assess the lands, especially their timber value. The University of Alabama awarded Mohr an honorary doctorate in 1893, and he often used “Chas. Mohr, PhD” on his letterhead for the remaining eight years of his life. By the mid-1890s, he was an agent for the Division of Forestry under Fernow, and he started work on *Timber Pines*.³²¹

Mohr crafted his narrative about the longleaf forests partly out of his own field observations and knowledge, and he also mined forestry and economic data and reports. His account moved back and forth between the present state of the forests, the fairly recent history of impacts by timbering and turpentine production, and the possible futures of longleaf that he envisioned. Mohr figured the story of longleaf might unfold in one of at least two different

³²¹ Mohr to Smith, March 1887, Charles Mohr Letters, HSC; Davenport, “Charles Mohr, Botanist,” 32-45.

directions – eventual elimination from the landscape, or a perpetual cycle of managed growth and harvesting.

Though timbering within close reach of waterways and extensive naval-stores production took place before and after the Civil War, a high percentage of the virgin longleaf acreage remained intact as Mohr traveled the longleaf region. Even late into the nineteenth century, Mohr wrote, the longleaf forests remained “untouched” in many regions, “covering, with scarcely any interruption, areas to be measured by tens of thousands of square miles” and amounting to a “stupendous timber wealth,” in his view.³²²

But while Mohr referenced the remaining longleaf abundance, he also highlighted the extensive impact that turpentiners and timber crews were having. He cited several non-human factors as “enemies” of longleaf, such as storms with heavy winds, fungi, and insects. However, Mohr contended, “the greatest danger threatening the existence of the forests of longleaf pine must be ascribed to the agency of man.” The villains in Mohr’s account were the people who used longleaf in what he considered a “reckless” manner. He attributed their reckless use in part to the fact that southern pinelands had been acquired for such low prices in the recent past that the owners cared very little for the future condition of the land. Cutting all the valuable longleaf and moving on was the obvious best approach in their view, seeking the “quickest return of monetary profits,” in Mohr’s words, with no real interest even in leaving the land in condition to allow new trees to take root naturally.³²³

The prevailing timbering methods left copious tree debris that became fuel for fires, Mohr observed, but turpentiners were particularly villainous in his eyes. He accepted a certain

³²² Mohr, *Timber Pines*, 29 and 66.

³²³ *Ibid.*, 61.

level of “judicious tapping” of longleaf for turpentine as an economic necessity. However, many turpentine crews were prone to hack trees that were too young, making them vulnerable to strong winds, Mohr argued, and crews often allowed fires that they set to burn debris around trees to get out of control. Even several years after turpentiners had left a particular stand of longleaf, the scene often remained a “picture of ruin and desolation painful to behold,” Mohr wrote, an impression of turpentining’s aftermath that many shared. Fires had swept through and destroyed seedlings and younger trees in many cases, and “all hope of the restoration of these magnificent forests is excluded,” he complained. Mohr also indicted livestock-grazing for damaging longleaf forests, in that cattle, sheep, goats, and hogs trampled and/or ate the tasty buds on seedlings, and fires were set by grazers to promote the growth of new grass for the livestock. Mohr touched on questions about fire that would be contentious for several decades, and he probably had witnessed truly destructive forest fires, but also the low-intensity that in fact benefitted longleaf forests in several ways.³²⁴

Mohr connected the longleaf story to the broader trends shaping the U.S., noting that the growing population in parts of the West with relatively sparse forests was boosting demand for longleaf lumber, while the nation’s expanding railroads relied on huge amounts of longleaf wood, both for building railroad cars and making crossties. Crews laying railroads in the lower South at that time typically needed about 3,000 crossties for one mile of road, and many crossties were made from longleaf, along with other southern trees like red and black cypress. Timber crews were getting an average of ten crossties per acre of longleaf, Mohr figured – which translates to cutting the larger longleaf trees from about 300 acres for each mile of road. Thus, railroads made a significant dent in the longleaf forests in meeting their own construction needs,

³²⁴ Ibid., 72.

while also facilitating expansion of the lumber industry in the longleaf South by transporting logs and finished lumber. Growing demand, combined with destructive timbering and natural obstacles to the re-generation of longleaf once cut, all made the “final extinction” of longleaf inevitable if timbering practices did not change, in Mohr’s view.³²⁵

Studying longleaf intensively from several angles was the best path to ensuring a steady supply of longleaf in the future, Mohr argued. Landowners, foresters, botanists, and others still needed to learn much more about the life cycle of longleaf, the conditions in which longleaf grew well, and the best ways to encourage natural regrowth along with planting seedlings. Mohr saw a pressing need for greater knowledge and human intervention, if significant areas of longleaf forests were to thrive on a long-term basis. He recognized that the interplay of natural forces that created and sustained the extensive pre-colonial longleaf forests was complex, and saving and renewing a constituent of the nonhuman environment such as longleaf was quite difficult, once human activity had disrupted that interplay.

Looking for a note of optimism, Mohr suggested that a new era was emerging, as larger landowners were securing the remaining longleaf stands, and prices for these lands were rising to a point much closer to their real value. Could this rise in land values be an incentive for the owners to adopt sustainable-forestry practices? Mohr claimed it was possible, even if the odds were not great. He pointed out that some foresters at that time were coming to see selective cutting as a better approach for securing the long-term survival of significant longleaf forests. The emerging idea was to keep a diversity of ages among the trees, so that while the older trees were being cut, younger trees were always growing toward the ideal age and size for timbering. In trying to sell this approach to owners and timber operators, Mohr suggested they could start to

³²⁵ Ibid., 47; see also Donald E. Davis et al., *Southern United States: An Environmental History* (Santa Barbara, CA: ABC-CLIO, 2006), 160.

generate revenue by carefully turpentineing some of the new growth of longleaf that had reached about twenty years. Still, he was asking for decades of patience and active management, when the inclination of most in the business of cutting longleaf and making lumber was to strip the trees from a parcel as quickly as possible.

Mohr forcefully criticized the turpentineing and timbering practices of his day in *Timber Pines*, when he perhaps could have stuck to discussing objective data such as estimates of how much longleaf remained, and describing the natural traits of longleaf as a botanist. At the same time, while he mentioned “magnificent forests” on occasion, he made no case for legally requiring some of the management practices he advocated, nor did he highlight any natural beauty or the remarkable diversity of life within the longleaf forests in *Timber Pines*. Longleaf seemed to reach “fullness of growth, with the best qualities of its timber,” at 180 to 200 years, Mohr observed. After that age, many of the trees became “wind shaken and otherwise defective,” their crowns deteriorated, the trees became susceptible to fungi, and the soils were less able to sustain them, so that it was quite rare to find longleaf reaching the “maximum” age of 275 to 300 years. The implication was clear: Cutting the oldest trees was a smart practice, since they typically declined and died sometime after the two-century mark anyway. The real problem, for Mohr and many forestry-minded people, was when no trees of a diversity of younger ages were left to continue growing toward that perfect age for harvesting.³²⁶

Mohr described longleaf primarily as vital economic resource that should be used more wisely, and he occasionally adopted the voice in *Timber Pines* of a booster for lumber manufacturing in Alabama and the eastern Gulf region, essentially encouraging companies to build sawmills and get busy harvesting the plentiful longleaf. “This eastern Gulf region is

³²⁶ Mohr, *Timber Pines*, 57.

unsurpassed in the advantages it offers for the development of the industries based on the products of the pine forests,” Mohr claimed, pausing in the midst of his discussion of threats to the longleaf forests’ long-term viability. The climate allowed year-round “exploitation of [the region’s] abundant resources of resinous products and of timber of the best quality,” while harbors, rivers, and railroads in the Gulf region offered inexpensive transportation. In sum, the region offered “inducements scarcely found elsewhere” for investing capital and labor in developing the forest resources, Mohr touted.³²⁷

In dipping his toe in southern boosterism, Mohr described plentiful natural resources such as longleaf that were there for the taking in the Gulf South, and highlighted factors such as comparatively low transportation costs. He also singled out a part of western Florida in *Timber Pines*, where the “largest tracts of finely timbered virgin forests of Longleaf Pine are found in the undulating uplands from the Perdido and Escambia rivers along the Alabama State line to the banks of the Choctawhatchee River.” For any lumber capitalists looking southward who had not been aware of those longleaf forests, Mohr in effect had drawn a map for them. This made for a mixed message from Mohr about how to use longleaf while also ensuring its future.³²⁸

Mohr’s attitudes toward longleaf are meaningful historically in part because he was recognized as an expert on plant life in Alabama and the region, and he was in a position to be heard to a certain degree. Perhaps very few of the capitalists, land owners, timber mill owners, and laborers were interested in forestry advice from someone like Mohr, a professional, scientifically minded city-dweller. Nevertheless, Mohr mentioned a mill operator in his writings who, in fact, was quite eager to talk with him and absorb his knowledge of longleaf.

³²⁷ Ibid., 37-38.

³²⁸ Ibid.

Mohr ventured in 1896 to Clay County, Ala., a region of hills and valleys east of Birmingham and south of Anniston. He had heard reports of lumbermen cutting old-growth longleaf in that region, which he found remarkable since the soils there did not seem conducive to longleaf. But the foothills at about 1,500 feet indeed were “covered with a truly magnificent forest of *Pinus palustris*, yielding to the acre as much merchantable timber as the best class of pine lands in the coast pine belt from Alabama to Texas,” Mohr observed. His host was a man affiliated with the sawmill company in the village of Hollins, along the Georgia Pacific Railroad, where the longleaf was being milled into lumber. “I never found a man engaged in the manufacture of Long Leaf Pine lumber more eager for information about the forests of *Pinus palustris*,” Mohr related. “He kept me talking about [them] until near midnight.” The lumberman recognized the value Mohr’s knowledge, even if we cannot be sure whether he was genuinely interested in the botanical aspects of the forests, or he was deftly tapping Mohr for ideas on where to take his company’s operations once the longleaf was gone in Clay County.³²⁹

Mohr presented the status of longleaf as a complex problem that people had caused and should try to solve, in part by learning a great deal more about factors that enabled longleaf forests to flourish. Given the timbering ethos of the day and even Mohr’s own view of longleaf first as an economic resource, the challenge of actually convincing people to change their practices and think long-term was daunting. In this context, Mohr did not go as far as he might have in critiquing the timber interests, or calling assertively for steps such as laws to require longer-term forestry practices, or establishing federal forest reserves in the South to complement the forest reserves in the West. The appeals that Mohr and others, including Fernow, made to

³²⁹ Ibid., 73; Mohr also described this trip in an 1896 letter, folder 8, box 192, Charles Mohr Letters, HSC.

timbermen to change their ways were more in the realm of wishful thinking, than a serious challenge to the status quo of intensive timbering.

Mixed Messages from the Longleaf South

When botanist Roland Harper wrote publicly and privately about longleaf in Alabama and the South in the early 1900s, he shifted regularly between differing perspectives on longleaf's status. At times, he recognized clearly that timber and lumber companies were mowing down the longleaf forests at an increasing rate. But on other occasions, Harper dismissed the concerns that Charles Mohr, and conservationists in later years, raised about the potential demise of longleaf, as if Harper were choosing to ignore the decline. He did not consistently acknowledge the decline until most old-growth longleaf had been sent through screeching sawmills and shipped as lumber around the world.

Harper was born in 1878 in Farmington, Maine, where his father was a Methodist minister and later a school teacher and administrator. The family moved to Georgia in 1887, and Harper started classes at the University of Georgia at age sixteen. Although he finished a degree in engineering three years later, Harper had found that his true passion was exploring the woods to study and collect plants since moving to Georgia. He secured a scholarship to Columbia University to study botany, and earned his doctorate in studying plant species in the southern coastal plain. He graduated in 1905 and moved to Tuscaloosa, Ala., for a one-year job with the state's Geological Survey. For much of his subsequent career, Harper worked in temporary positions for the survey in Alabama, as well as the geological surveys of Georgia and Florida, often focusing on assessing the trees and other flora of these states. Harper's choices and

personality, such as a certain cantankerous quality, hampered his career advancement, as did the chronically skimpy budgets of the Alabama, Georgia, and Florida geological surveys.³³⁰

In his survey work, Harper rode the railroads through the countryside and between the towns and cities of the South, sometimes getting off the train to walk, jot notes in hand-sized notepads, and take photographs. He bragged once to a friend that he had walked fifty miles in two days to see the forests and other plant life in central Alabama, wearing out half of his shoe soles and blistering his feet so badly he could barely walk for several days. Harper regularly conducted a kind of “rapid reconnaissance work,” making notes of the vegetation he noticed while passing through an area, and using the notes to calculate how much of a certain plant life, whether pine trees or other vegetation, was present in an area. Harper argued his approach allowed a quicker assessment than others were providing, although he also acknowledged the approach often was not highly accurate.³³¹

As he assessed the longleaf forests and other features of the natural landscapes in Alabama, Harper referred in 1913 to the “rapid exhaustion of the forests” that his generation was witnessing. Along with his own observations in the countryside, he could see the changes illustrated by data that he used in writing *Economic Botany of Alabama*, published that year by the Geological Survey. The survey hired Harper to write this work essentially as a follow-up to Charles Mohr’s *Plant Life of Alabama*, with a focus in part on the economic potential of the

³³⁰ Elizabeth Findley Shores, *On Harper’s Trail: Roland McMillan Harper, Pioneering Botanist of the Southern Coastal Plain* (Athens: University of Georgia Press, 2008), 10-22, 30-33, 54 and 73. Harper’s brother, Francis, developed a passion for studying and protecting the Okefenokee Swamp in Georgia; Francis and his wife, Jean Sherwood Harper became leading advocates for preserving the swamp, which became a national wildlife refuge in 1937 (Shores, 111-12); see also L. J. Davenport and G. Ward Hubbs, “Roland Harper, Alabama Botanist and Social Critic: A Biographical Sketch and Bibliography,” *Bulletin of the Alabama Museum of Natural History* 17 (May 1995): 25-45.

³³¹ Roland Harper to Mr. Gunter, June 18, 1923, folder 1187, box 1897, Roland Harper Papers, HSC; notepads in Roland Harper Papers, HSC; Harper in “Sixth Annual Report,” Florida State Geological Survey (1914), 177-78, accessed July 25, 2013, <http://www.biodiversitylibrary.org/item/24969#page/4/mode/2up>.

state's forests and other flora. Harper knew that he was following directly in Mohr's footsteps. He referred readers to Mohr's work if they wanted a more scientific treatment of Alabama flora than Harper's *Economic Botany*. Based particularly on topography, geology, and soils, Harper broke the state into fifteen regions from the Tennessee Valley in northern Alabama to the Gulf Coast, with the coastal plain regions comprising about 60 percent of the state.³³²

Harper met frequently with the sights and sounds of active timbering in the longleaf forests in Alabama, and he cited estimates on the number of active sawmill operations in each of the fifteen regions in the early 1910s. For example, the operators of sixty-one sawmills were busy turning longleaf logs into lumber across 8,000 square miles in southwestern Alabama, out of a total of about eighty sawmills within that area. Many of these sawmills produced some 10,000 to 50,000 board feet per day – relatively small outputs compared to those of mills like the Louisiana Central Lumber Co.'s plants discussed in Chapter Two, which could turn out 275,000 board feet daily at their peak. But the operations in Alabama's pine regions did also include the Jackson Lumber Co.'s large mill in the company village of Lockhart, near the Florida border, which had capacity of about 275,000 board feet per day, the state's largest sawmill in the early 1910s and a leading mill in the U.S.³³³

While Harper observed the extensive timbering and lumber-manufacturing underway in the state, he also argued that growing population and expanding agriculture were impacting the forests dramatically in Alabama and other longleaf states. In fact, he contended that “our friend the farmer has done more damage to the forests than all other agencies combined,” in clearing forests to make farm fields. Much of this forest destruction was unavoidable, Harper added, but

³³² Roland M. Harper, *Economic Botany of Alabama, Part 1* (University, AL: Geological Survey of Alabama, 1913), 25, 29-30, and 35. Harper did much of the research for *Economic Botany* between roughly 1908 and 1912.

³³³ Harper, *Economic Botany*, 102, 113-32.

“if the farmers could be taught to cultivate more intensively and use less wasteful methods, a much larger area could be kept forested.” When it came to removing longleaf and other trees in Alabama and the South, Harper also pointed to lumber operators, and significant ignorance and greed on their part, as significant factors. But his claim that farmers clearing land had the greatest impact on forests was problematic. Thinking in general terms about both pines and hardwoods across the South, Harper was right that people had cleared millions of acres of trees for agriculture in the past, and continued to do so in Harper’s time. However, his point does not work very well in relation to the longleaf forests. While chemical fertilizers enabled farmers increasingly to grow crops on cutover longleaf lands starting in the early twentieth century, the business of cutting longleaf for lumber was the strongest force in reducing the longleaf forests.³³⁴

At times, Harper seemed determined to counter any serious concerns about longleaf’s future. For example, he expressed great confidence in *Economic Botany* that “immense” areas of virgin pine timber remained in south Alabama and across the state line in western Florida. To support the view that “the exhaustion of our forests is not as imminent as some have predicted,” Harper cited a paper published in 1913 in *Manufacturers’ Record*, a bastion of boosterism for developing the South’s natural resources. Timbering had made inroads in the longleaf forests, but “the pine forests are not all gone yet,” he added, downplaying the decline.³³⁵

Harper also argued some of the “gloomy predictions” about the region’s forests had not been realized, specifically mentioning Mohr’s report on Alabama’s forests for the Tenth Census in 1880, in which Mohr cited both turpentine and timbering as activities reducing longleaf forests. “A quarter of a century ago a pine forest, unequaled in the magnificence of its tree

³³⁴ Ibid., 29-31.

³³⁵ Ibid., 30 and 113-23.

growth, and supposed [to] contain an inexhaustible supply of timber, covered Baldwin County through its whole extent,” Mohr had written. “Today this forest, from the line of the Mobile and Montgomery Railroad, along the eastern shore of Mobile Bay, and along all the water-courses as far as Bon Secours Bay, upon the Gulf, is entirely destroyed...” Mohr’s account of what happened in one county roughly between 1855 and 1880 surely might have suggested to Harper what would happen elsewhere. Harper did accept that such accounts of destruction of longleaf were truthful and fairly common. But he also countered, “And yet the pine forests are not all gone yet. Over 25 years after [Mohr’s account], sawmills of the largest type were in operation along the railroads in Washington, Mobile and Baldwin Counties, and some of them are still running,” and one of the largest turpentine stills in the state was operating in Baldwin. Finally, Harper suggested, longleaf could regenerate more easily than many people believed, implying that the intensive timbering of longleaf was not so problematic.³³⁶

Harper insisted in a letter in 1916 that the southern forests were “holding their own,” and he dismissed the people who said otherwise as “calamity howlers.” Harper also wrote to Gifford Pinchot that year and criticized conservationists who were “crying that our forests are fast disappearing.” Pinchot, of course, was the former Forest Service chief and one of the first prominent champions of American forest conservation, so one wonders what he made of Harper’s commentary on conservationists as alarmist.³³⁷

A number of factors shaped Harper’s perspective, such as spending much of his career working for the geological surveys of Alabama, Georgia, and Florida, entities established largely to promote economic development through using minerals, forests, water supplies, and other

³³⁶ Ibid., 113-23.

³³⁷ Letters in Roland Harper Papers, HSC.

resources – surveying resources was a step toward not only knowing the resources, but mining, cutting, or otherwise extracting value from them. State officials worried, and perhaps Harper did as well, that consistently dire statements about the state of the longleaf forests might threaten the chances of attracting more investment in lumber manufacturing in the southern pinelands, which had become so central to the New South economy by the early twentieth century.³³⁸

On the other hand, if the significant reduction in longleaf was not very clear to Harper, his knowledge of the longleaf forests perhaps did not go as deep as his well-regarded knowledge of other flora and natural resources, even though he came across as confident in his understanding. He wrote in *Economic Botany* that Alabama had been “thoroughly” explored by botanists and other science-oriented observers, and thus, there was not much new to say about the state’s forests, a flippant and inaccurate assessment.³³⁹ This statement essentially was counter to Mohr’s call for a greater commitment to studying the longleaf forests and addressing the many gaps in knowledge. Harper himself had been excited earlier in the 1900s about finding unnamed plants in the South, some of which were then named for him.³⁴⁰

He also had expressed some strong conservationist sentiments in the early 1900s, contending that “the reckless abuse of [natural] resources has gone on too long, and that it is high time to check our extravagance.” Lumber and mining industrialists in America were turning natural resources into profit as quickly as possible, farmers were exhausting soils and moving on to new lands, and hunters were killing birds and other animals with no restraint, Harper decried. “All this tends to impoverish those that come after, and it cannot be continued indefinitely,” he

³³⁸ Shores, *On Harper’s Trail*, 34; “Sixth Annual Report,” Florida State Geological Survey (1914), accessed July 25, 2013, <http://www.biodiversitylibrary.org/item/24969#page/4/mode/2up>.

³³⁹ Harper, *Economic Botany*, 9.

³⁴⁰ Shores, *On Harper’s Trail*, 27-29.

added. Harper also objected to draining wetlands, pointing out that they provided habitat for wildlife, helped form headwaters for many rivers, merited a great deal of scientific study, and finally, wetlands offered natural beauty. Thus, he often demonstrated a multi-faceted appreciation for natural environments, even if he claimed at other times that conservationists were overreacting.³⁴¹

Harper's personality included a strong contrarian streak that showed up regularly in his correspondence on many topics, from the impacts of fire on longleaf forests, to Christian fundamentalism. He often seemed most engaged when challenging others' perspectives, which in the case of longleaf partly meant casting people as alarmist if they predicted the demise of longleaf. As a result, Harper offered conflicting messages about longleaf, rather than a well-articulated, compelling critique of the contemporary timbering practices. And unlike Mohr, he apparently made no strong argument for the importance of regenerating longleaf forests. Harper did occasionally show an appreciation for longleaf that did not derive from economic benefits, as he sometimes referred to the "splendid forests of long-leaf pine" in regions of Alabama and the South, or the "finest pine forest ever." And just one year after *Economic Botany* was published, he conceded that "most of the once magnificent forests of [longleaf] are now scenes of desolation." He wrote several years later, in a rare expression of emotion, that it made him "sad" to go into the woods, and he described the "melancholy sight" of girdled pines like "gaunt sentinels" in the South.³⁴²

³⁴¹ Roland M. Harper, "Some Neglected Aspects of the Campaign Against Swamps," *Southern Woodlands* 2, no. 3 (August 1908): 46-47, 62, and 67.

³⁴² Harper, *Economic Botany*, 59, 112, and 142; Roland M. Harper, "The Coniferous Forests of Eastern North America," *Popular Science Monthly* (Oct. 1914): 355; letter from 1928 in Roland Harper Papers, HSC.

In the annual report for Florida's geological survey in 1927, Harper poked fun at boosterism, writing sarcastically that, "in conformity with the established policy of this department (and practically all other state geological surveys) we have tried to present the important truths impartially, not overlooking the fact that some of the soils are below the average in fertility, some of the water is hard, the weather is not always perfect, some of the trees are crooked or otherwise of little use, mosquitoes are occasionally seen, etc." He sharply criticized land developers in Florida for destroying vegetation, and sometimes eliminating plant species completely. Harper also lamented the destruction of longleaf in Florida through timbering and turpentine, commenting on a photo of a clearcut in DeSoto County that "thousands of square miles in Florida have been devastated like this in the last decade or two." Okeechobee County was home to "one of the few remaining virgin stands of long-leaf pine, and it may not remain long," since the stand was easily accessible to lumbermen, he observed.³⁴³

Back in Alabama, Harper regularly noted the condition of pine lands that he passed through on foot or by rail, such as the presence of active sawmills near rail stations, and evidence of turpentine or timbering, and other landscape changes. For example, he traveled through south Alabama in 1931 and noted that the pines – primarily longleaf – had been timbered extensively since he last passed through about a dozen years earlier. Approaching the community of Elba, he observed "mostly pine woods, lumbered and timbered a good deal since 1919...Went on to Elba on wide smooth road. Country undulating and mostly cultivated, apparently no more pine woods," he wrote, finding longleaf forests in that area degraded or removed altogether.³⁴⁴

³⁴³ Shores, *On Harper's Trail*, 89-90.

³⁴⁴ Harper's notepad entry for April 14, 1931, box 6067 for Jan. 21-April 20, 1931, Roland Harper Papers, HSC.

But assessing Harper from a broader viewpoint, one sees him mainly turning away from the daunting challenge of changing the course of the destruction of longleaf. He was slow to fully accept the developing reality as he rambled the South, while the influence of timber and lumber interests was increasingly apparent. He spent much of his contrarian energy on criticizing farmers and, especially, foresters, whom he sometimes compared to religious fundamentalists because foresters often willfully ignored facts, in his view.

Biographer Elizabeth Shores has noted that Harper struggled early in his career to find a job that was a good fit. He was dismissive of the newly emerging plant ecology and contemptuous of the early ecologists and their work. He was sensitive to perceived slights, and quick to point out errors by others, Shores observes. He was sometimes “lost in a thicket of half-formed theories and research methods.” She also finds clues in the historical record that Harper possibly suffered from depression or bi-polar disorder at times, and possibly fit on the modern obsessive-compulsive spectrum. More generally, Shores argues, his “distaste for teaching and his inability to submit to supervision” kept him from a full-time academic job.³⁴⁵

Harper did engage eagerly in the debate over whether fire played an important role in maintaining healthy longleaf forests, or should be prevented as completely as possible. He was largely correct in arguing that regular, low-level fires had been essential in enabling longleaf to grow so extensively across the Atlantic and Gulf South, but while he was tilting at that windmill, the longleaf forests around him were falling to the relentless timbering crews. He deserves credit for sticking to his position on fire, as it was important that the Forest Service was not able to completely extinguish the voices that insisted fire could be essential for healthy longleaf stands over the long term. He stated that fire was “a part of Nature’s program in this part of the world,

³⁴⁵ Shores, *On Harper’s Trail*, 99, 146-63.

and the woods were undoubtedly set on fire by lightning and perhaps other natural causes long before man appeared on the earth.” Shores points out that prominent forester Herbert H. Chapman, mentioned earlier in this chapter, supported the use controlled fires in longleaf forests, at least by people properly trained in controlled burning. Chapman wrote to Harper in 1942 and praised him as one of the first naturalists to argue that fire indeed was important in the ecology and silviculture of southern pines.³⁴⁶

A puzzle for Shores and others who have studied Harper’s life is why he began in the 1920s to delve increasingly into sociological issues, from eugenics to prohibition. This is a complicated puzzle, but at least in relation to longleaf, two letters from the late 1920s offer some insight into Harper’s thinking. He conceded to a professor at the Yale Forestry School that, while he had been quite optimistic a dozen years or so earlier that “some of our forests would be preserved for a long time,” he now believed that the outlook for forests was “very dark.” As transportation infrastructure continued to expand in the southern forests, Harper wrote, “No tree is safe now, and any tree or forest that one may admire this year may be cut next year.” And lest he spare foresters the blame, he added in another letter that “our forests are rapidly disappearing in spite of all the foresters can do, and they like to put the blame on fire, to divert criticism from themselves.” By the 1920s and the end of the intensive longleaf cut in the South, ideas for effectively conserving longleaf, and other features of the natural environment, had largely eluded Harper, and he turned to dwelling on other questions.³⁴⁷

³⁴⁶ Harper, *Economic Botany*, 25-27; Shores, *On Harper’s Trail*, 128-29, 134; see also Roland Harper, “Fire and Forests,” *American Botanist* 46 (Jan. 1940): 5-7; on the point that Herbert Chapman wanted trained people carrying out controlled burns, and not cattle-grazers, turpentiners, and other local residents, see Way, *Conserving Southern Longleaf*, 110.

³⁴⁷ Dec. 24, 1928, June 16, 1928, and Dec. 28, 1929 letters in folder 1472 box 1904, Roland Harper Papers, HSC.

A Native Southerner's Perspective

While Mohr and Harper were natives of Germany and Maine, respectively, William Willard Ashe was a native North Carolinian who grew up just west of his state's longleaf region. Ashe was acquainted with both Mohr and Harper and exchanged some letters with them, although the men wrote about botanical matters, and seemingly did not discuss substantive questions about longleaf. Born in Raleigh in 1872, Ashe went on to become the first state forester for North Carolina, and he often showed a proprietary feeling toward forests and other natural resources in his native state, such as his contention in the early twentieth century that North Carolina should retain control of its forests, not the federal government or other parties. He was acutely aware of the state's economic needs, and focused on the forests of longleaf and other pines in North Carolina as vital for meeting those needs. A prominent influence was his father, Samuel A'Court Ashe, a Confederate officer, and attorney, editor and author, and state leader of the Conservative/Democratic party after the Civil War. Like many white southerners in his father's generation and his own, William W. Ashe tended to see the South as a distinct region that was mistreated at times by interests from outside the region.³⁴⁸

Ashe gave a glimpse of this perspective in a 1925 letter to William Cicero Hammer, an attorney and Democratic politician from Asheboro, N.C., who also owned the *Asheboro Courier*. Ashe urged Hammer to editorialize in favor of greater use of forests in North Carolina, first and foremost, for the economic benefit of the state. "These [forests] belong to the people of the State and should be developed and owned by them and should not be controlled by the Federal Government or any outside interest," Ashe insisted to Hammer, a congressman from 1920 to

³⁴⁸ Biographical details on Samuel A'Court Ashe in William S. Powell, ed., *Dictionary of North Carolina Biography*, Vol. 1 (Chapel Hill: UNC Press, 1979), 54-55; for insights on Ashe's strong interest in botany, and two letters from Mohr and Harper, see folders 1-12, box 1, Correspondence, William W. Ashe Papers, Southern Historical Collection (SHC), UNC Libraries, UNC Chapel Hill.

1930. “That is, the profits from these lands should remain at home and as far as possible in the local community.” His appeal to Hammer was especially noteworthy given that, when he wrote the letter, Ashe was working full-time for the federal Forest Service, appraising lands for possible purchase by the agency. Ashe was seeking to balance his support for the national forests overseen by the Forest Service, with a strong desire to see his home state keep as much of the economic benefits from North Carolina forests as possible.³⁴⁹

After entering the University of North Carolina in 1888 as a sixteen-year-old with sophomore standing, Ashe earned a bachelor’s degree three years later, and went on to Cornell University for a year to complete an M.S. in botany and geology. While Ashe remained an avid botanist, he made his career in forestry. During the summer of 1891, Ashe did initial work for the new North Carolina Geological Survey in assessing the state’s forests, and when he finished his degree at Cornell, the state survey hired Ashe in 1892 as the state’s first official forester.³⁵⁰

Ashe was not far into his career when he concluded there was a real possibility that the longleaf forests could be wiped out completely in North Carolina. He contended in 1894 that “it can be said a great likelihood that this valuable tree, the long leaf pine, will become extinct in North Carolina unless some steps are taken to secure its more general propagation.” Ashe also related the decline of longleaf in North Carolina to the national context, in which the growing U.S. population demanded more and more wood products, while timbering practices were unnecessarily destructive. In general, he observed, “it has scarcely become known to us that our

³⁴⁹ Ashe to Hon. W.C. Hammer, May 8, 1925, folder 11a, box 1, Correspondence, William W. Ashe Papers, SHC; William S. Powell, ed., *Dictionary of North Carolina Biography*, Vol. 3 (Chapel Hill: UNC Press, 1979), 19-20.

³⁵⁰ Biographical details on William W. Ashe in Frank B. Vinson, “Ashe, William Willard,” in Powell, ed., *Dictionary of North Carolina Biography*, Vol. 1, 57-58; William A. Dayton, *William Willard Ashe (1872-1932)*, (unnamed publisher, 1936); W.C. Coker et al., “William Willard Ashe,” *Journal of the Elisha Mitchell Society*, 48, 1 (October 1932): 40-47; UNC Herbarium, “William Willard Ashe,” accessed Jan. 5, 2013, <http://www.herbarium.unc.edu/Collectors/ashe.htm>.

forests are exhaustible, much less that there are large waste areas, now entirely unproductive of commercial timbers and that these areas less than fifty years ago were wooded, in some instances heavily wooded, with valuable trees.” Ashe was twenty-two and early in his career, but he was prepared to critique the treatment of forests in North Carolina and the country.³⁵¹

When he focused on North Carolina in his 1894 assessment, Ashe emphasized the “pine barrens” on the sandy soils of the coastal plain south of the Neuse, which included some 400,000 acres of “waste lands,” whose acreage was increasing as more longleaf was cut. After crews had clear-cut the longleaf, these lands remained devoid of trees, or small blackjack oaks took root there. Due to the “grossest neglect, large portions of these forests have either been destroyed entirely or reduced to such a condition that there is neither mill nor turpentine on them, and no growth of the long leaf pine has been allowed to take the place of the older trees as the latter were being gradually exterminated,” Ashe reported, continuing his rebuke of the destruction of longleaf forests. However, Ashe did not name the key agents of this change directly. He attributed the conditions to gross neglect rather than the direct actions of timbermen removing all the longleaf. For Ashe, the central problem was more that timber crews and landowners gave no consideration to enabling a new growth of longleaf, than the clearing of old-growth longleaf.³⁵²

In trying to explain why longleaf was not growing back on cutover lands, Ashe’s observations were astute in terms of longleaf’s natural history, although he acknowledged significant gaps in his expertise. He explained the lack of new growth partly in terms of the features of longleaf, specifically the seed structure and how longleaf seedlings grew in their first few years – some of the qualities that made longleaf a distinct species. Ashe knew no other

³⁵¹ William W. Ashe, “The Long Leaf Pine and its Struggle for Existence,” *Journal of the Elisha Mitchell Scientific Society* 11 First Part (January-July, 1894): 1-3 and 7-8.

³⁵² Ashe, “The Long Leaf Pine and its Struggle for Existence,” 3 and 6.

forests in the eastern U.S. that were “so peculiarly limited as to the variety of valuable tree growth as the long leaf pine forest, particularly when it grows on the sand barrens, and there are no other forests which demand such care to obtain a regrowth.” He recognized that longleaf had unique characteristics and thus required specific knowledge and management, if North Carolina hoped to retain any existing longleaf and encourage a new growth. By contrast, after being timbered or destroyed by fires, many other tree species in the eastern U.S. eventually grew back if conditions allowed, such as white cedar in eastern North Carolina and spruce in the state’s western mountains.³⁵³

To learn about longleaf, Ashe relied both on his own observations in eastern North Carolina in the 1890s, and the knowledge of residents in the longleaf regions as well. Some of these residents pointed out to Ashe that the years of abundant and effective longleaf-seed falls had become less frequent since so much longleaf had been either turpentineed or cut. While Ashe still had much to learn, and he was willing to tap into knowledge from local residents in places like eastern North Carolina, Ashe believed more generally that professional, long-term management of forest lands was the best path forward. State governments in North Carolina and elsewhere, and the federal government in federal forests, should follow the model of European nations that had placed publicly owned forests under systematic management, he argued. The European model also included establishing schools of forestry to train foresters, and educate the owners of private forest lands. The state and federal governments in the United States should take similar steps, Ashe contended – as soon as many of the vast forests in the country “which have required the uninterrupted efforts of centuries to accumulate, are destroyed or thinned out.” Thus, while Ashe understood the long time period during which the once-extensive forests of

³⁵³ Ibid., 7.

longleaf and other American species had grown, he was less worried about trying to conserve virgin timber than working on regeneration. He was not challenging the timbering of the remaining old-growth longleaf in North Carolina.³⁵⁴

As he continued assessing North Carolina's forests, Ashe published a bulletin for the state Geological Survey in 1895 called *Forest Fires: Their Destructive Work, Causes, and Prevention*. Ashe shared the mindset of Joseph A. Holmes, head of the survey and Ashe's former professor, who called forest fires a "great evil" in his introduction to the bulletin. Ashe wasted little time in decrying the destructive impact of fire on longleaf and other forests. In fact, since the colonial era, such fires had "destroyed more timber in the State than the lumberman has cut," Ashe claimed. He was expanding on Holmes's prediction that longleaf would cease to be a tree of "economic importance" for the state within two decades, at the present rate of destruction. Holmes acknowledged that timbering had made major inroads into North Carolina longleaf and other forests. Nevertheless, fires had destroyed more mature longleaf than lumbering, and also destroyed many seedlings so that, in many counties, "scarcely a specimen can now be found to indicate where once grew valuable forests of this tree," Holmes contended.³⁵⁵

In stating that fires had a greater destructive impact on longleaf and other forests across North Carolina, Ashe and Holmes made a claim they could not easily support. Indeed, Ashe did not include data to support this claim in the 1895 bulletin. But he was convinced fires were damaging forests significantly and he wanted to emphasize this problem in striking terms, at a time when most timber operators and landowners did not seem to care. For example, the lumber

³⁵⁴ Ibid., 1-3 and 7-16.

³⁵⁵ William W. Ashe, *Forest Fires: Their Destructive Work, Causes, and Prevention* (Raleigh, NC: North Carolina Geological Survey, Bulletin No. 7, 1895), 6-8 and 56.

manufacturers he observed showed “absolute indifference” regarding potential fires and did not support any reforms to prevent fires, since they were not worried about longer-term impacts.

Ashe might also have made a strategic choice in attributing more forest destruction over the previous century to fire than to timbering. He and Holmes wanted people in the timber/lumber business to heed the 1895 bulletin’s message about forest fires, so perhaps it made sense to them to shade their criticism of timbering rather than putting off their target audience. In addition, the agency for which they worked was created to assess natural resources for the benefit of the state’s economy – the state legislature renamed the agency the N.C. Geological and Economic Survey in 1905 – so Ashe and Holmes might not have been in a strong position to criticize the timber industry as sharply as they wanted.³⁵⁶

But Ashe also genuinely saw fires as a critical problem, and he took a forceful position in hopes of bringing attention to it. He estimated that at least two-thirds of the fires in the state each year were started intentionally, and out of those intentional fires, at least two-thirds were set by men who wanted to encourage grasses on the forest floor for the cattle they grazed in the pine savannas and woods. He observed that turpentiners burning forest litter around their tapped trees, hunters driving deer and other game, and people burning debris around their homes also set fires each year. But Ashe aimed most of the condemnation at the grazers and turpentine workers, remarking that many fires, especially in eastern North Carolina, were started by “indigent persons who are amenable to no law, who regard all property as open to destruction and forests as communal property; persons [who] themselves are scarcely yet affected by the civilization which defines property and allows to the individual its possession.” He cited anecdotal evidence that counties with laws against free-ranging cattle in the woods had fewer forest fires, and added

³⁵⁶ William C. Coker et al., “William Willard Ashe,” *Journal of the Elisha Mitchell Society* 48, no. 1 (October 1932): 43.

that the value of timber destroyed by fires in a particular county usually was much higher than the value of all the cattle.³⁵⁷

These statements placed Ashe and the Geological Survey in the camp that favored keeping cattle out of the pine woods, a key aspect of closing the open range that persisted in much of the South after the Civil War. Nor was Ashe pleased to see turpentiners in the longleaf forests. The forests were for managing and timbering under forestry principles as a critical part of the state's economy, in Ashe's view, and not for supporting less-valuable cattle or turpentine, a declining industry in North Carolina that did much damage to the pine forests. At this point in the mid-1890s, he was an early forester in the South, eager to impose rationality and order on the free-for-all of timbering, grazing, burning, and turpentine, retaining at least some hope of turning the tide toward ensuring a future for longleaf and other forests.

When he focused on turpentine, Ashe critiqued the practice of turpentine crews burning off debris around their boxed trees, which he contended also killed young longleaf in many cases. In this critique, he was more focused on damage to new longleaf growth than to mature longleaf by turpentiners. "However deleterious to the mature trees may be the system of collecting resin [for turpentine], its destructive results are insignificant as compared with those produced by using fire to keep down the 'troublesome growth' of young pines," he contended. But overall, his harshest criticism was for the group with the least power – the cattlemen burning the woods to promote grasses – rather than the timber and lumber companies that in fact were having the greater impact on the longleaf forests.³⁵⁸

³⁵⁷ Ashe, *Forest Fires*, 56.

³⁵⁸ *Ibid.*, 20-21.

Ashe cautioned that taking no action to prevent the hundreds of smaller fires across North Carolina each year would lead to “the gradual killing of the forest or the reduction of it to a few species, which are physically capable of withstanding scorching heat, which seed or reproduce themselves abundantly and at an early age, and whose young seedlings are exceedingly hardy.” Ashe’s point was valid when applied to the entire state and all its pine and hardwood forests. But specifically in terms of longleaf, Ashe was describing some of the factors that in fact had created and maintained the longleaf forests across their full historical range. Longleaf was better adapted to fire, a key reason that it thrived and dominated on the coastal plains. In North Carolina, Ashe’s broader view of the state’s diverse forests did not leave much room for fire as a beneficial force for longleaf. He was not far along in strengthening his understanding of how fire and longleaf related, and to be fair, nor were many other foresters and others interested in longleaf at that time. For example, he wrote in *Forest Fires*, “In pine woods where the undergrowth is thick, and more rarely in mixed woods, the brush frequently burns and occasions incalculable damage to the standing timber...” Ashe was correct that fires in pine forests with thick undergrowth often grew intense and destructive. But at least in this instance, he did not dwell on the question of how that undergrowth, such as shrubs and small oaks, had become so thick. In reality, the undergrowth would not have been so dense if regular low-level fires had burned through, sparked by lightning, or even by cattle-grazers.³⁵⁹

Working in the field in North Carolina, Ashe witnessed landscapes changed dramatically by a number of forces, and certainly he was correct that fire was important among these forces. But by the 1890s, many of the fires he described were burning in longleaf stands in eastern North Carolina that were interspersed with clear-cut areas with large amounts of timbering debris, and

³⁵⁹ Ibid., *Forest Fires*, 10-11.

also turpentine orchards where the longleaf trees had resin-covered faces that made fires more intense. Ashe made many astute observations, and he understood that “conditions imposed by man on forest growth” played an important role in relation to fires. But he did not yet understand clearly how the impacts of human activities and forces such as fire worked together in creating the landscapes that he saw.³⁶⁰

Ashe made a partial shift in his perspective as he explored the longleaf regions of North Carolina for *Forest Fires*, such as the area north of the Neuse River where the formerly plentiful longleaf forests were nearly gone. “Fortunately there has been a tree ready to take [longleaf’s] place, the value of which, for lumber, is but little less than that of the long-leaf pine,” Ashe noted, referring to loblolly pine. Loblolly pine indeed was gaining importance as a timber tree in the 1890s – in large part because people had turpented and timbered so much of the state’s longleaf. But Ashe’s claim that loblolly was nearly as valuable as longleaf was a bid for an optimistic note, in the face of the great reduction in the state’s longleaf forests. We also can interpret Ashe’s statement about loblolly as an early step by him, away from putting as much thought and effort into securing a future for longleaf in the state. Ashe was not giving up on longleaf entirely, but he was looking elsewhere for more hopeful prospects, both as a forester and an advocate for North Carolina’s economic progress. He started studying loblolly forests in North Carolina more closely in 1898, and put significant time and energy into writing a well-regarded report in which he contended that loblolly had become “the most important timber tree” in eastern North Carolina, southeastern Virginia, and a good portion of coastal South Carolina.

³⁶⁰ Ibid., 15.

Loblolly was gaining importance as a timber tree in Georgia and the Gulf states as well – in parallel with the intensifying removal of longleaf forests in the Deep South.³⁶¹

But before Ashe began to study loblolly more closely, he had another opportunity to express his perspective on longleaf in an 1897 report on North Carolina forests that he wrote with Gifford Pinchot. Timber and lumber industry people from outside the South had asked the North Carolina Geological Survey for information on the forests in the state, and the report by Ashe and Pinchot presented longleaf and other North Carolina trees a bit like commodities in a catalog, with photos of superior specimens of the trees and maps of their distributions, aimed in part at inviting investment in lumber manufacturing in the state. Pinchot labeled longleaf as a tree of the “first commercial value,” and claimed that longleaf remained in “pure forest” south of the Neuse River. And north of the Neuse, the longleaf forests were greatly reduced, but loblolly stands were filling in nicely in many areas there, Pinchot added.³⁶²

In 1897, Pinchot was just a year from taking over the federal Division of Forestry, and as the junior forester and North Carolina native, Ashe surely did most of the research and writing for the bulletin with Pinchot. Ashe explicitly cited the impact on the state’s forests by North Carolinians, particularly in the longleaf forests since the eighteenth century. “The influence of man in changing and modifying the distribution of these trees in the two hundred years that have followed has been enormous.” In this instance, Ashe proved willing to place responsibility generally on people and their uses of the forests, and he cited timbering as a force in changing

³⁶¹ Ibid., 13; William W. Ashe, *Loblolly or North Carolina Pine* (Raleigh, NC: North Carolina Geological and Economic Survey Bulletin No. 24, 1915), 17. Ashe researched his loblolly publication while working for the N.C. Geological Survey and cooperated with the U.S. Department of Agriculture on the research. He did much of the work and writing before he left the survey in 1909 to work full-time for the Forest Service, although *Loblolly* was not published until 1915, possibly due to the survey’s limited funding, and Ashe likely added to and revised the bulletin; see Coker et al., “William Willard Ashe,” 41-44.

³⁶² Gifford Pinchot and William W. Ashe, *Timber Trees and Forests of North Carolina*, Bulletin No. 6 (Winston, NC: North Carolina Geological Survey, 1897), 131-33.

the longleaf forests and other forests in the state. At the same time, as in *Forest Fires*, Ashe put more emphasis on destructive fires and their role in preventing an extensive new growth of longleaf. And again, cattle-owners were the primary villains with their penchant for burning the woods annually, while Ashe also blamed turpentine for weakening longleaf trees so they were vulnerable to winds, and mentioned the countless longleaf seeds and buds from young trees that hogs and other animals ate.³⁶³

By the early 1900s, as he focused his attention more on loblolly pine in North Carolina, Ashe noted this pine species actually had expanded in eastern North Carolina and elsewhere in the state, in part because loblolly was adept at seeding and growing on many of the cutover longleaf lands. “While 100 years ago the longleaf pine was the characteristic forest tree in the Coastal Plain Region of North Carolina, at present the loblolly pine is the prevailing tree, and its relative abundance and importance are steadily increasing,” Ashe wrote in his loblolly study for the Geological Survey. There were not many other trees in the eastern U.S. that offered “better and quicker returns under management and protection than the loblolly pine,” and it grew well in many soil types and often formed even-aged stands, which reduced the costs of managing and logging loblolly, Ashe emphasized.³⁶⁴

This represents a shift in Ashe’s views, in that he portrayed loblolly as the pine tree of the future for North Carolina, and gave the sense that longleaf’s time largely had passed. If the loblolly forests in eastern North Carolina and elsewhere in the state were managed properly and renewed, it was possible they could sustain a healthy level of timbering every year for the foreseeable future, he suggested. Ashe argued for forestry practices such as regular “thinning” of

³⁶³ Pinchot and Ashe, *Timber Trees and Forests*, 150.

³⁶⁴ Ashe, *Loblolly or North Carolina Pine*, 12.

loblolly stands by cutting out the weakest trees, and he pushed for measures to mitigate the damage that many timber companies were doing to healthy, young loblolly trees and other valuable species in the process of logging larger trees. “This loss of young timber is an immense drain on the future yield of the forest, [as] it destroys so many trees which would be the largest trees at the time of the next cutting,” he lamented. The promise of loblolly pine as a timber tree was good news for the economy of the state – as it would be for other states in the longleaf South. Intertwined with this economic promise was Ashe’s drive to build his knowledge and his career as a forester, and to apply his skills where he felt they could be most effective in North Carolina, which pointed him toward loblolly in the early 1900s.³⁶⁵

By the time his loblolly study was published, Ashe had moved on to a full-time position with the Forest Service, and his concerns as a federal forester expanded to include regions in addition to the southern pinelands. He advanced through several positions to a prominent job as a senior forest inspector in the 1920s, in which he assessed lands in the Forest Service’s eastern and southern regions that the agency was considering buying. He held that job when he died in 1932 after an operation, just before his sixtieth birthday. Colleagues and others who considered Ashe’s career valued his commitment to promoting sustainable forestry – as opposed to destructive clearcutting – and his expertise in assessing the economic value of forests and saving the Forest Service money in its purchases, while also enhancing the national forests. They shared the kind of appreciation for Ashe’s work that William E. Dodd, a native of North Carolina and historian at the University of Chicago, had expressed in a letter several years before Ashe’s death. “I have seen some of your [Forest Service] forest reservations and have seen much of the destruction of forests in the United States, and have come to think that there is hardly any public

³⁶⁵ Ibid., 18-19, 144-45, and 159.

service more important than that in which you are engaged,” he wrote to Ashe in 1925. Historian Frank B. Vinson once contended that Ashe was among a handful of people who made North Carolina the “pioneer state in southern conservation.”³⁶⁶

As for conservation in the South, one could argue that North Carolina had little if any competition for Vinson’s label, but Ashe certainly was among the first to argue for applying forestry principles to how North Carolinians used their forests. When he had the chance to assess and write about the state’s forests starting in the 1890s, he criticized destructive and wasteful timbering practices, and, more consistently, he argued that the state and landowners needed to do more to encourage new pine forest growth. He made that argument for encouraging the renewal of longleaf on cutover lands, but he did not see the argument gaining much traction, in terms of how people managed the remaining longleaf and the cutover lands that might have supported longleaf seedlings. While the longleaf problem seemed intractable, Ashe recognized the economic potential for the state’s loblolly pine, and saw a better opportunity to advance the cause of proper forestry in relation to loblolly. And while he perhaps began to influence how some North Carolinians managed and timbered loblolly, Ashe made his most tangible contribution to forest conservation after joining the Forest Service. He helped the agency acquire tens of thousands of acres, including many lands that had been heavily timbered but would be reforested by the agency.

Developing a New Model for Longleaf

Like Mohr, Harper, and Ashe, Herbert Stoddard had a deep affinity for plunging into the woods and fields in search of better understandings of the non-human environment. Stoddard

³⁶⁶ Coker et al., “William Willard Ashe,” 41-44; Dayton, *William Willard Ashe*, 1-6; William E. Dodd to Ashe, April 17, 1925, folder 11a, box 1, Correspondence, William W. Ashe Papers, SHC; Vinson, “Ashe, William Willard,” in Powell, ed., *Dictionary of North Carolina Biography*, Vol. 1, 57-58.

probably had the strongest drive of the four men to be highly active in the outdoors, to sweat and get his hands dirty. “I suspect that a little good old country life is what you need,” Stoddard once advised a friend in a chatty letter. “I get out evenings after supper with an axe, work up a wringing sweat, and sleep like a babe. But if I depart from my schedule of hard outdoor work much, my feeling of well-being departs in a hurry.” In Stoddard’s early years in Illinois and Florida, and his work beginning in the 1920s in south Georgia, his sense of personal health and happiness was tied to activity within nature. This was interrelated with his belief that people in general needed to take an active role in caring for the land and the life that it supported.³⁶⁷

Stoddard, born in 1889 in Illinois, grew first to be most passionate about the wildlife within a natural habitat, rather than the trees and other plant life that helped constitute that habitat. If he was roaming a patch of woods, for example, he was likely to think first about the birds and other animals that lived there, rather than the grasses, trees, and other plant life on which the wildlife relied. However, he was hired in 1924 to study southern bobwhite quail in the Red Hills region of south Georgia and north Florida. This assignment, in which he quickly developed a true affinity for bobwhite quail, meant that Stoddard really had no choice but to begin learning about longleaf forests and the other plant life in the longleaf ecosystem that helped provide food and cover for quail and other wildlife. Through his interest in quail, Stoddard was connected to the larger longleaf ecosystem, and he came to develop a more holistic or ecological mindset.

Stoddard’s immersion in the Red Hills landscapes brought him knowledge about how best to support populations of quail and, subsequently, how to manage and sustain longleaf and

³⁶⁷ Herbert Stoddard to Leon Walters, June 11, 1944, folder W (“misc. general correspondence”), box 8 (12 storage), drawer B (2), Stoddard Misc. Correspondence, Herbert L. Stoddard Collection, Tall Timbers Research Station (TTRS), Tallahassee, FL.

other pine forests for wildlife habitat, while the forests also provided valuable timber, and aesthetic beauty as well. The knowledge he built included an enhanced understanding of how controlled fire benefitted longleaf, which would be crucial in efforts to conserve the small amount of remaining longleaf and restore more longleaf after the Second World War. Stoddard was in a unique position in the Red Hills, where wealthy landowners had established a number of large properties that they used partly as quail-hunting retreats. The retreats were far from untouched wildernesses, as they included active and dormant farm fields and other features. But they also included a relative plenty of old-growth longleaf, since they had not been turpented as intensively, nor stripped of all the valuable longleaf like most other areas of the longleaf South. But the lessons that Stoddard learned came after the most intensive period of timbering in the longleaf forests, roughly between 1880 and the early 1920s, so he started working in the longleaf South and earned regard too late to make a difference in the intensive timbering. The value of his work was in contributing to the overall survival of longleaf as a species, as he managed areas of longleaf in a sustainable way, and developed ideas that longleaf advocates built upon in trying to restore longleaf in postwar decades. He showed the possibilities for managing pinelands ecologically when there still were few such models in the South.

While an Illinois native, Stoddard had lived briefly in the longleaf South before the 1920s. He was in a unique position among the four figures in this chapter because he had lived as a child in central Florida for several years in the 1890s, when significant old-growth longleaf forests still grew there. His family moved to the town of Chuluota, Fla., in 1893, on a gamble by his step-father that growing oranges in the Sunshine State would improve the family's fortunes. "In those days of virgin timber everything was pretty much as God made it: a fringe of magnificent and picturesque cypress on the lake margin, and then virgin stands of longleaf pine

as far as one could see, marching on and on to infinity,” Stoddard recalled many years later, reflecting on central Florida – where longleaf indeed was abundant, although never infinite. The pine forests were dense in some areas but often very open, with grasses and palmetto forming the ground cover, “kept that way from time immemorial by frequent grass fires,” he added. A person walking or riding amongst mature longleaf saw tall trees all around but could also spot deer and other wildlife a quarter-mile off, because of the openness of the forest, Stoddard remembered, echoing observations made by earlier naturalists in the South.³⁶⁸

As Stoddard and his family traveled southward by train during the move to Florida, he took lasting mental snapshots of scenes that foreshadowed the story of longleaf in the coming decades in central Florida and westward across the Gulf states. Before the train reached Jacksonville, it steamed and clacked through “vast stretches of freshly cutover pinelands of southeastern Georgia – a shambles of fire-blackened and broken-off stumps as far as the eye could see.” Perhaps it was the contrast between this intensely timbered Georgia landscape and the relatively intact longleaf forests that he would experience in Florida that made this memory indelible for Stoddard. Both scenes had seemed endless to him – one scene of pine stumps, and the other of old-growth longleaf stands.³⁶⁹

Stoddard was born in 1889 in Rockford, some ninety miles west of Chicago, and he was four years old when his family moved to Florida, where Stoddard lived a Huck Finn existence of bare-footed adventures in landscapes of extensive woods and lakes that deeply shaped his attitudes toward nature. Stoddard’s father died just a few weeks after he was born. His mother,

³⁶⁸ Stoddard, *Memoirs of a Naturalist*, 30-37. Chuluota was in Seminole County when Stoddard lived there, and now is part of Orange County.

³⁶⁹ *Ibid.*, 5-7.

Helen, re-married, and her new husband took the family to Florida. But when the orange business proved disastrous, the family defaulted on taxes and lost the orchards and homestead.³⁷⁰

In spite of the hardships, Stoddard insisted he was extremely happy in Florida as a “nature-crazy” kid reveling in the easy access to the great diversity of animals, insects, plants, waterways, and woods. He found “wonders beyond comprehension” as soon as he left the house, from harvester ants building colonies in the yard to alligators patrolling nearby lakes. He was inclined instinctively to love the natural environment, but surely the outdoors also gave him a respite from family turmoil. He had a pet gopher turtle named Garvey, whom he called “an animal of incomparable patience [with] the wisdom of the ages in his clear, knowing eyes.” He had found Garvey in the woods and dug a burrow for him in his back yard. He also was fond of catching baby alligators and keeping them tied to his bedpost for a few nights.³⁷¹

In roaming the central Florida countryside, Stoddard had taken to riding with the neighboring Jacobs family, who grazed their cattle in the longleaf woods around his home and often camped in the pines when herding, and he never forgot these experiences. Stoddard did not want to leave the Jacobs family and the natural setting in Florida when his mother took the family back north in 1900, a move that he described as devastating. He felt like a “small wild creature about to leave a beloved land to take up life in a city teeming with man.” While nostalgia clearly shaped Stoddard’s recollections of these times, the move back to Illinois indeed was painful, and he later found a way to spend much of his life collecting and studying birds and

³⁷⁰ Ibid., 5-7 and 14-16.

³⁷¹ Ibid., 15-18 and 23-35.

other animals, and managing pinelands to meet the needs of people, but also to help sustain the rich habitats for wildlife.³⁷²

Back in Illinois, Stoddard left school at age fifteen to work on his uncle's farm in Wisconsin. He developed a deep appreciation for the beauty and complex biology and behavior of wild creatures. He became a determined collector of birds and animals as specimens for study and exhibiting. During the winter of 1909, Stoddard was thrilled by the large migrations of evening grosbeaks and Bohemian waxwings that he observed. "Can there be more exquisite creatures than these two species? I collected and mounted specimens of both for my rapidly growing collection." Stoddard reported the next year that "many specimens fell to the shotgun" on an expedition in the upper Mississippi River watershed for the Milwaukee Public Museum. He had started to channel his passion for nature into a career when he became an assistant taxidermist at the Milwaukee museum in 1910, and he spent the next ten years there and at the Field Museum in Chicago, collecting birds and other animals and preparing them for exhibits.³⁷³

In Stoddard's view, this collecting work was critical for advancing scientific knowledge, and he drew a sharp line between scientific collecting and abusive actions like those of "lawless fur trappers" who were trapping animals in the Mississippi watershed the same year that his group was collecting birds and small mammals. On a field trip in Wisconsin, Stoddard and other men with him shot a number of red-tailed, red-shouldered, and Cooper's hawks, long-eared owls, and other birds, and also carried out a section of an oak tree where Stoddard had spotted a family of screech owls, which he shot. "In most cases one or both of the parent birds had been collected with their young," he noted. This approach was the norm in the early twentieth century for

³⁷² Ibid., 30-37 and 57-58; on nostalgia, Way, *Conserving Southern Longleaf*, 59.

³⁷³ Stoddard, *Memoirs*, 80; Way, *Conserving Southern Longleaf*, 63-80.

collecting specimens and building museum exhibits, and Stoddard admired other men who were skilled in navigating the outdoors, shooting animals, and preparing displays. Collecting in this sense presented a quandary, as it required killing many animals, sometimes including endangered species, but the practice also was critical for deepening understandings of the country's wildlife, and even played a role in creating the country's first endangered species lists.³⁷⁴

Stoddard developed an ethos of taking from nature for man's use while also valuing and admiring nature, as he did on a solo camping trip along Lake Michigan in 1921. He was documenting bird populations and shooting birds as specimens, when he saw a flock of phalaropes in the distance. Stoddard could not tell if the birds were northern or red phalaropes, and he was determined to find out. He had no boat, so he tied his shotgun to pieces of wood and jumped into the lake to swim closer. He shot one of the birds, retrieved it, and struggled mightily to swim back to shore, putting himself in real danger of drowning. His appreciation for the beauty and behavior of the birds, the desire to add them to his collection and enhance his career, and also to turn the birds into a lasting display, all were involved in that precarious moment.³⁷⁵

Stoddard's work with the museums led him to a position as an agent for the federal Bureau of Biological Survey, and then to the job that brought him back South. He had no university degree, but Stoddard in effect was a professional ornithologist for the Biological Survey, which made him a good candidate to work with a group of wealthy landowners in the South keenly interested in nurturing bobwhite quail. These landowners, many of whom were northern businessmen, kept plantation lands in the Red Hills region as southern retreats where

³⁷⁴ Herbert L. Stoddard, *The Bobwhite Quail: Its Habits, Preservation and Increase* (New York: Charles Scribner's Sons, 1931), 90-96 and 100; Mark V. Barrow Jr., *Nature's Ghosts: Confronting Extinction from the Age of Jefferson to the Age of Ecology* (Chicago: University of Chicago Press, 2009), x, 3 and 13.

³⁷⁵ Stoddard, *Memoirs*, 168-69.

quail hunts were a beloved pursuit for them and their shotgun-wielding guests. The Red Hills retreats were concentrated in Thomas and Grady counties in south Georgia, and the adjacent Leon and Jefferson counties in Florida.

The more plentiful the quail, the better the hunting. But no one in the 1920s had a very complex understanding of what this bird species needed to thrive. What habitats and foods did quail prefer? What were their predators and other threats to their survival? How could the preserve-owners best manage their plantations to favor these birds? Stoddard was hired in 1924 to answer these questions, through a study funded by the Red Hills preserve-owners and directed by the Biological Survey. He moved to quarters on one of the plantations in Grady County, Ga., and promptly set about building an intimate knowledge of the lives of bobwhite quails.³⁷⁶

Along with active and abandoned farm fields, the Red Hills plantations included significant stands of mature longleaf pine, as many of these lands had been purchased between roughly 1880 and 1910, and consisted partly of “widely separated patches” of virgin longleaf, as well as significant stands of second-growth longleaf, loblolly, and other pine species. “On my first trip to [the Red Hills area] I was delighted to see blocks of virgin longleaf pine that had been preserved on some of the plantations, and the impressive stands of second-growth pine that covered well over half the total preserve acreage of the Thomasville-Tallahassee region,” Stoddard recalled. He estimated there were 200,000 acres of pine forests on the retreats, much of it “very fine timber.” While he could see the devastation of longleaf elsewhere in Georgia and the South, Stoddard had a chance in the Red Hills to learn how better to conserve longleaf.³⁷⁷

³⁷⁶ Way, *Conserving Southern Longleaf*, 63-80 and 82-83.

³⁷⁷ Stoddard, *Memoirs*, 175-80; and Herbert L. Stoddard, “Seventh Annual Report, 1937-38” (Thomasville, GA: Cooperative Quail Study Association, 1939), 6-8; in folder “Cooperative Quail Study Association 7th Annual Report,” box “Stoddard Cooperative Quail Study Assoc. and Early Co-op Quail Investigation,” Herbert Stoddard Collection, TTRS.

The property where Stoddard lived and worked during the quail study from 1924 to 1930 was owned by Col. L.S. Thompson and known as Sherwood Plantation, consisting of nearly 1,000 acres of former cotton fields and pine stands of varying species and ages. Thompson was a key advocate for creating the quail study, and he was so struck by Stoddard's work ethic, diligence, and naturalist talents during the study that he gave Sherwood Plantation to Stoddard once the study was finished. Stoddard and his wife had moved to Washington, D.C., but they returned south in 1931 to live on Sherwood, and Stoddard began working on a new phase of the quail study and consulting with other southern land owners who wanted to manage their land for game birds such as quail.³⁷⁸

Stoddard eventually contended that it was possible to manage longleaf forests so that all their benefits for humans, wildlife, and plants were possible simultaneously. A landowner could have healthy, beautiful longleaf forests with trees at a diversity of ages, along with habitats for thriving wildlife populations, and the ability to timber these forests to generate money, if done thoughtfully. But this ethic required a great deal of human interventions such as managing the land, doing controlled burning, marking trees for cutting, encouraging food sources for wildlife, gauging how each action could help or hurt wildlife, and improving the overall forest health. As Stoddard noted, the desire of reserve owners and sportsmen to encourage quail to thrive was central in the approaches he developed, including burning and selective timbering, cultivating some land for crops, while generally keeping the land "natural," in the sense that it was not paved over or used for building houses or other structures.³⁷⁹

³⁷⁸ Stoddard, *Memoirs*, 233-40.

³⁷⁹ *Ibid.*, 58.

Stoddard's quail-centric management also meant that he showed no mercy to certain native hawk species in south Georgia, at least when they threatened the quail populations under his watch. He pardoned red-tailed and red-shouldered hawks, which were not serious predators of quail, but not Cooper's hawks, a species that he described as likely the greatest natural enemy of quail and "too violent and bloodthirsty to be willingly tolerated" on the quail plantations. Likewise, sharp-shinned hawks "should be shot at every opportunity" on the plantations, Stoddard advised. Shooting hawks was another intervention by Stoddard in the Red Hills landscapes, and a value judgement in favor of quail. Of course, Stoddard was paid to care about the quail populations there, but he also was genuinely protective of quail after working for several years to boost their numbers. He likely would have argued that the hawks still ate their share of quail, and that shooting certain hawks when possible was a way to give the quail a fighting chance, while his land management brought back more of the habitat they needed as cover from predators.³⁸⁰

In his study of Stoddard in the Red Hills, historian Albert Way shows Stoddard looking for the "patterns, connections, and associations" in natural landscapes as part of his approach to managing southern pinelands. Stoddard studied stands of longleaf and other pines very closely, even assessing individual trees, and thinking about what kind of opening in the forest canopy would let in more sunlight, or how to factor in the timing of seed-falls when planning a controlled burn. At the same time, he was not trying to recreate an ideal of an untouched landscape of longleaf forests and other features. Stoddard appreciated undisturbed wilderness, but by the 1920s and later, simply leaving the land alone was not really an option if quail and other wildlife were to flourish, Way argues. "Indeed, if left to the untended devices of nature,

³⁸⁰ Stoddard, *Bobwhite Quail*, 207-14.

without fire or other human regimes of disturbance, wildlife diversity would almost certainly decline.” Encouraging wildlife there meant working actively to sustain the existing longleaf, starting to facilitate new growth, and maintaining the ground vegetation within and at the edge of the forests that provided food and protection for quail.³⁸¹

Low-level fires helped to create those conditions, and Stoddard advocated staunchly for the view of fire, used in a careful, well-informed way, as critical in sustaining longleaf forests, in an era when the Forest Service and many state agencies continued to call for suppressing all fire in the woods. “The open pine forests of the Southeast have persisted for ages and are a most pleasant environment for man and many forms of wild life,” he wrote in 1931 to the director of the American Forestry Association. “There is absolutely no doubt in my mind that fire was a major factor in molding this environment.” He had seen glimpses of this fire-shaped environment as a child, and on the plantations when he returned south.³⁸²

The fire debate led to intersections with Roland Harper, as Stoddard praised Harper for recognizing the benefits of planned low-level fires for longleaf forests, noting that Harper had written about fire for several years before Stoddard came to the Red Hills. He called Harper the “most experienced of all southeastern botanists” and even a “pioneer student” of the ecology of the South, primarily because of Harper’s interest in the relationship between fire and longleaf. Stoddard overreached a bit with this praise, as Harper was dedicated mainly to observing and recording the varieties of plant life in the South, rather than working systematically to answer ecological questions. Harper had developed strong opinions on the effects of fire through reading

³⁸¹ Way, *Conserving Southern Longleaf*, 84-85, 164 and 168-69.

³⁸² Stoddard to Ovid Butler, director of the American Forest Association and editor of *American Forests*, 1931, quoted in Way, *Conserving Southern Longleaf*, 111.

and his field observations, rather than experimenting with controlled fire. But Stoddard was grateful for Harper as any ally, with his stubborn stance on fire.³⁸³

Stoddard's own commitment to advocating for using controlled fires mattered because he was a respected figure whose voice could not be dismissed out-of-hand. Stoddard and others helped to keep alive an alternative argument about fire and longleaf that eventually became accepted. He combined his engagement in this debate with on-the-ground work, and he was so persistent and effective in developing an approach to controlled burning in the Red Hills that this work eventually led to a "global reconsideration of fire and its role in shaping wildlands," Way observes. Because this perspective on fire and longleaf was not extinguished, we know today that the longleaf ecosystem needs regular fires of a certain kind to thrive.³⁸⁴

At the same time, Stoddard developed his ideas in a context of expectations that the land would yield products of value to the owners, whether attractive landscapes, flourishing quail populations, or timber. The kinds and quantities of the products varied over time, but owners always were intent on extracting value from their property. Stoddard earned his keep by working to meet those expectations, and he also became a landowner in the Red Hills, with a direct interest in reaping value from his own land. He was connected integrally with the economic system, as he had tied his family's fortunes to it. Stoddard was not managing wildlife, fields, and forests purely for their own sake, so that they could simply exist within healthy ecosystems. Over

³⁸³ Stoddard, *Memoirs*, 241-51; Shores, *On Harper's Trail*, 135-36. This shift from botany to plant ecology is a shift from asking, "What flora are here, and where do things seem to grow in relation to soils, topography, and climate?" to asking, "Now that we've got a sense of what is here, can we figure out how it all works together?" As Way explains, Stoddard was "following an important trend in the biological sciences away from descriptive taxonomy toward explanatory ecology," *Conserving Southern Longleaf*, 80).

³⁸⁴ Way, *Conserving Southern Longleaf*, 216. Stoddard presented a paper on fire's role in the pine woods at the American Forestry Association's meeting in 1929. See Herbert Stoddard to S.W. Greene, Jan. 22, 1932, "Fire" folder, S.W. Greene, 1932-35, box 77/11 (Storage 18), Drawer A, Herbert Stoddard Collection, TTRS. Greene was head of the McNeil Experiment Station, McNeil MS.

the decades, he oversaw the cutting of extensive longleaf and other pine stands that yielded millions of board feet of timber. But unlike the lumbermen who had clear-cut much of the longleaf South, Stoddard approached timbering with the overall health of the forest in mind.

Before the Depression, most of the Red Hills owners cared primarily about improving the quail populations and the overall natural or scenic beauty of the retreats, rather than generating significant revenue. In fact, they generally “dreaded” the idea of cutting any trees before 1930 or so, Stoddard noted, although he had urged them to consider “culling” old and less-healthy trees. He viewed this culling as good for the pine woods, making them more attractive, and more productive of habitat and food for quail and other wildlife. Selling timbering debris for pulpwood also helped to “clean up” the woods, in his view.³⁸⁵

During World War Two, a number of the Red Hills owners put Stoddard in charge of selecting pine trees on their land to sell to war industries. Stoddard later estimated he handled the sale of more than thirty million board feet of pine timber from the retreats and other lands during the war. Stoddard and a partner charged a fee of ten percent on the value of the timber that was cut, a nice business that allowed him to “make about as good a living at this as at anything I have ever done.” He hoped the timbering work would grow into an enterprise that his son could continue. “When the Boy gets back [from the war], we will be in this work together, as he is a natural born woodsman and I had him very well trained in this work,” Stoddard wrote to a friend in 1943. Stoddard cut pine trees regularly on his plantation and bought and sold pine timber on other lands for many years, and argued that most of this timbering helped the overall health of the forests. For example, he notes that pine beetles had damaged some forests in the region, but

³⁸⁵ Herbert Stoddard, “Seventh Annual Report, 1937-38” (Thomasville, Ga.: Cooperative Quail Study Association, 1939), 6-8; in folder “Cooperative Quail Study Association 7th Annual Report,” box Stoddard Cooperative Quail Study Assoc. and Early Co-op Quail Investigation, Herbert Stoddard Collection, TTRS.

not in the areas where owners had culled the “over aged, weak and bad timber.” And Stoddard pointed out that, when he supervised a timbering operation, he carefully avoided nesting areas for wild turkey and quail.³⁸⁶

Stoddard was fifty-two when the U.S. entered the war in December 1941, and he felt that his best means of contributing to the war effort was helping to provide wood for military needs. As the demand for lumber jumped dramatically during the war, it soon became clear that “all owners of old and large pine timber would have to cut extensively,” according to Stoddard. “It was better for them to cut willingly and for patriotic reasons than to be forced to do so by condemnation proceedings, as would be sure to occur if the war was a long and hard one.” As the country ramped up to build barracks, hangers, boats, and many other structures and products for war, national consumption of lumber more than doubled from 1941 to 1942. In the Red Hills, the owners wanted the timbering done carefully, to avoid “the possibility that their beautiful forests might be reduced to shambles,” so they hired Stoddard to keep logging crews from blitzing through pine stands and laying waste to them.³⁸⁷

War needs were not the only factor driving the increased timbering of longleaf and other pines in the Red Hills retreats. Pine-timber prices had been rising since the 1920s, and by the early 1940s, “it was becoming evident that the day of the ‘luxury preserve’ was practically over, and that in the future most of the large game preserves would have to pay their way largely [with] timber and agricultural products,” Stoddard reported. Most of the owners had a greater interest in extracting value through timbering and farming, although they still wanted to ensure

³⁸⁶ Herbert Stoddard to George Stoddard and family, Mar. 12, 1944, folder “Stoddard H.L. General and Family,” box 8 (12 Storage), drawer B (2), Stoddard Misc. Correspondence; Stoddard to Owen Gromme, March 29, 1943, folder “Gromme, Owen J. – Misc. Correspondence,” Harper, Drs. Francis and Roland General Correspondence, no. 8 (12 storage), drawer B (1), Stoddard Misc. Correspondence A-P; Stoddard to Frank Heyward Jr., March 17, 1950, all in Herbert Stoddard Collection, TTRS.

³⁸⁷ Lewis, *Forest Service and the Greatest Good*, 104.

that quail thrived. Stoddard cited inheritance and income taxes as factors in this shifting mindset, and damage to great fortunes during the Depression likely played a role as well. On his own property, Stoddard noted that a hurricane in 1941 broke off or toppled many longleaf and other pines, equaling about 500,000 board feet of valuable timber. Stoddard sold the toppled trees, and also decided to cut a large number of “diseased, overage, forked, crooked, and otherwise inferior pine mixed with the good,” in his words. The next year, he sold about 1.7 million board feet of timber from his land and “put the forest in good shape.” Stoddard cast his timbering purely as a benefit for the forest, without mentioning his financial gain. In this instance, he also used the vocabulary of timbering when he described trees as “crooked” and “otherwise inferior pine,” rather than ecological terms. Still, his approach to timbering continued to be much more sustainable than destructive clear-cutting, and he remained committed to protecting the overall ecological health and aesthetic beauty of pinelands for the long term.³⁸⁸

Conclusion

Though Stoddard developed this more ecologically informed approach to timbering longleaf and other pines, it was a long shot to expect that most other owners of timberlands in the South and the country would be so conscientious. Indeed, while a number of landowners in the longleaf South respected Stoddard’s ideas and emulated his approach, and Leon Neel and others working in the Red Hills continued to refine and promote his approach, Stoddard saw by the postwar years that a relatively balanced ethos toward the natural environment certainly did not prevail in the longleaf region, or elsewhere in the U.S. In 1950, he told a friend he was discouraged by the harmful effects that timbering, agriculture, and other economic activities were having on wildlife, the land, and natural environments more broadly in the country. In his

³⁸⁸ Stoddard, *Memoirs*, 271-84; Way, *Conserving Southern Longleaf*, 173.

view, there was “too much emphasis on the genus HOMO and too little consideration given to the other inhabitants of the Earth.” He was hardly more encouraged by the late 1960s, when he feared that mankind’s “stay on earth will be only temporary if he does not mend his ways,” in relation to the environment. Stoddard was reacting partly to what he still observed at home in the longleaf South, but he also was thinking beyond the region and country by this point, surely influenced to some degree by the American environmental movement that was gaining coherence and momentum in the 1960s.³⁸⁹

While he was worried, Stoddard was not resigned to a true catastrophe for humans and the planet’s natural systems, as he ruminated on these questions in his memoirs a couple of years before his death in 1970. He was glad that people had not changed or destroyed all of “nature’s virgin wonders,” and hopeful that using natural resources in sustainable, ecologically informed ways still was possible. Stoddard expressed his hope in the most personal terms. “I have learned that without Nature man has nothing, and my greatest desire would be satisfied if I could know that my grandchildren, and their children [will] develop a love, an understanding, and an appreciation of the natural world,” he wrote. “They can find no greater satisfaction in life.”³⁹⁰

Ecologists, and environmental historians, might point out today that Stoddard, in his moving words, could have stated more accurately that people have nothing “without *the rest of Nature*,” rather than depicting people as separate from nature. But they also would endorse his core wish for future generations of his family to understand and care for the rest of nature, in the form of animals, forests, rivers, and many other features. As it turned out, the political context in

³⁸⁹ Stoddard to Richard Parks, April 10, 1950, quoted in Way, *Conserving Southern Longleaf*, 197-98; Stoddard, *Memoirs*, 5-7; Louis S. Warren, ed., *American Environmental History* (Malden, MA: Blackwell Publishing, 2003), 2-3; Barrow, *Nature’s Ghosts*, 2 and 306; Ted Steinberg, *Down to Earth: Nature’s Role in American History* (New York: Oxford University Press, 2009), 247-51.

³⁹⁰ Stoddard, *Memoirs*, 209-12.

relation to the environment, for the current and future generations of Stoddards and other Americans was changing dramatically right around Stoddard's passing in 1970. He died just a few months after the first Earth Day in the U.S., and Congress passed the National Environmental Protection Act the same year. The Endangered Species Act of 1973 in particular would influence longleaf conservation over the following decades, when another bird that relied on longleaf forests – the red-cockaded woodpecker – was listed as endangered. This species was endangered largely because the longleaf forests were so drastically reduced, but neither longleaf nor the red-cockaded woodpeckers are gone altogether in part because longleaf advocates have drawn on Stoddard's ideas and practices.³⁹¹

³⁹¹ Lewis, *Forest Service and the Greatest Good*, 202-03, and Barrow, *Nature's Ghosts*, 1-2.

CHAPTER FIVE: CONCLUSION: PASTS AND FUTURES FOR LONGLEAF

When Bertram W. Wells began studying the diverse plant life of North Carolina during the 1920s and rebuked the current and earlier generations for destroying most of the state's longleaf forests, he thought about longleaf primarily in the past tense. Wells, a plant ecologist at N.C. State College, was not engaged in any sustained way with creating potential futures for longleaf, unlike Herbert Stoddard, who was consumed with the interplay of quail, pine forests, and fields in the Red Hills. Wells' critique of North Carolinians for cutting most of their longleaf helped to frame Chapter One, as a comment on the intensive timbering prior to the 1920s. He also provided a useful signpost for this chapter by relegating longleaf in North Carolina to the past. His views prompt questions such as what exactly was lost in the destruction of longleaf. On the other hand, longleaf was not truly a lost cause, given that this pine currently grows on 3.4 million acres in fragments across the South. Questions about the place that longleaf forests might have in the future remain compelling, and they prompt the question of how historical understandings are influencing this future.

Advocates today face these questions as they try to convince more landowners in the South to grow longleaf pine, using forestry practices over many decades that replicate features of the old-growth forests. Conservationists, private landowners, forest researchers, and other advocates are the most aware of longleaf forest history, and the most active in telling some of that history as they pursue the work of longleaf restoration. They make claims about the value of the old-growth forests, and thus what was lost, and also about the value of the 3.4 million acres

of longleaf that exist today. The values they emphasize are not only economic, but also ecological, historical, and cultural.

The work that longleaf advocates pursue as “restoration” consists of two broad categories – on-the-ground work, and educational or awareness work. The on-the-ground work includes encouraging private landowners and public agencies to plant more longleaf, and manage the new stands over multiple decades, guided by ecological thinking such as embracing the role of controlled fires. The leading advocates have staked out a goal of expanding longleaf to eight million acres by 2024, from a starting point of around 3.4 million acres in 2009. Efforts to “conserve” existing longleaf, which really means trying to use the existing 3.4 million acres as sagely as possible, fit in this first category of restoration work. Private landowners hold about 55 percent of this current total, and those owners generally can cut longleaf as they wish, although matters get complicated if their trees are home to red-cockaded woodpeckers. Advocates do not want landowners to cut down the existing stands at a faster rate than new acreage is planted, pushing the goal of eight million acres ever further from reach. As one advocate laments, “We continue to lose some of the best tracts [of longleaf] to the saw, to development, or to neglect.” Finally, on-the-ground work includes “improving” existing stands with controlled burning, planting native understory plants, and sometimes selectively cutting to create more biodiverse, multi-aged longleaf forests. The skills and knowledge of foresters, land managers, conservation biologists, and other scientists come to the fore in this category.³⁹²

The intertwined histories of human perceptions and uses of the longleaf forests are central in the second category of educational or awareness efforts. This work has strong elements

³⁹² Regional Working Group, America’s Longleaf, “Range-Wide Conservation Plan for Longleaf Pine,” Mar. 19, 2009, accessed Mar. 5, 2016, <http://www.americaslongleaf.org/resources/conservation-plan/> (Appendix C summary of acreage); quote by Rhett Johnson in Finch et al., *Longleaf, Far as the Eye Can See*, 161.

of promotion and public relations, although longleaf advocates see the work mainly as describing a more historical, complex, and holistic view of longleaf forests in trying to build support for restoration. In this sense, while advocates pursue the work to persuade more people to plant and manage longleaf stands, the work is more sincerely educational than what might be dismissed as mere promotion or public relations. The educational work involves telling and re-telling a compact version of longleaf history that this chapter calls the “framing narrative,” as well as longer versions of the history. The framing narrative is the story in broad strokes of the near-destruction of the longleaf forests.

Recounting the history in part is a bid to “restore” a measure of the historical memory of longleaf as a major feature of the southern landscape, given that no one alive today experienced the pre-1900 longleaf forests, while there are people who did experience the longleaf remaining after the 1920s, or the second growth that managed to take hold in some areas. The truth is that an understanding of the history of longleaf must inform the vision for how a restored longleaf forest should look and function. This understanding must include not only the human agency in the changes over time, but also changes in the ecological states of longleaf forests, or the historical ecology. The educational category also includes efforts to attribute a range of values to longleaf forests, not just the potential for generating money.³⁹³

Advocates are pursuing restoration in a region where pine trees typically grow quite well, a reality that, paradoxically, makes the work more difficult. Millions of trees are growing in southern pine plantations, mainly loblolly and slash pine, and their presence can give the impression of a “green South.” A casual observer can ask rightly whether the South really needs *more* pine trees. Advocates thus must explain convincingly how restored longleaf forests are

³⁹³ The drastic reduction of the once-extensive longleaf forests also is a prominent aspect of the argument made by this dissertation and other works for why studying longleaf/human history is important.

different from the vast pine plantations, and why people should value those differences. Restoration also is challenging because it requires money to plant and manage a significant acreage of longleaf, with the aim of fostering a forest ecosystem. Federal and state grant programs have helped significantly, but that money, of course, does not go nearly as far as advocates would like. In addition, more models are needed for how landowners can generate at least some revenue from their longleaf in the first couple of decades, since advocates are asking owners to invest in longleaf for the long term, with much of the future benefit to go to their children or grandchildren. And if advocates are to make progress across the vast potential geographical range of longleaf, the need for people with professional training and experience in managing longleaf in an ecological manner is acute.³⁹⁴

This chapter unpacks the perspective of B.W. Wells as an early practitioner of plant ecology in the South, an Ohio native who had a newcomer or “outsider” outlook on the longleaf region, and a scientist unusually active in engaging with public audiences through hundreds of public lectures, field trips, and his well-known *Natural Gardens of North Carolina*. Wells’ perspective represented a way of thinking about destruction of the longleaf forests that was perceptive and valuable, but also limited. Several milestones in longleaf history since the 1920s provide a bridge in this chapter to the contemporary project of longleaf restoration. In concluding, I argue that, while the history of longleaf is distinctly southern in certain ways, the history has much in common with deforestation across the U.S. and elsewhere in the world.³⁹⁵

Born in central Ohio in 1884, Wells came to North Carolina at the end of the most intensive timbering of longleaf forests, and tried to make sense of that recent history. After

³⁹⁴ Thomas D. Clark, *The Greening of the South: The Recovery of Land and Forest* (Lexington, KY: University Press of Kentucky, 1984).

³⁹⁵ Troyer, *Nature’s Champion*, 68-71.

joining the N.C. State faculty in 1919, he established himself as a member of the first generation of plant ecologists who wanted not just to roam the countryside and catalogue plant species, but also study how plants related to soils, climate, the presence of other plants, and other factors. After learning the longleaf story, Wells charged that the “complete destruction” of longleaf in his adopted state was one of the “major social crimes of American history.” While Wells was a field scientist who built knowledge through observations of plant life, much of his historical understanding of longleaf by necessity came from the written record, starting with accounts from early European naturalists. In his work and travels, he might have also talked from time to time with North Carolinians born during the 1850s and 60s. In the field, he could see only cutover longleaf lands where, in some cases, longleaf seedlings had taken hold and perhaps a few forlorn, tall longleaf trees still stood. Most often, loblolly pines or other vegetation were claiming the space, or uncontrolled fires had swept through the cutover – the kind of landscape that William W. Ashe was describing by the early 1900s.³⁹⁶

Wells might have come across a rare pocket of mature longleaf that saw-millers had missed in eastern North Carolina, but such exceptional stands marked the contrast between the scarcity of the longleaf forests at that time, and their former vastness. He acknowledged that some observers before him had found the longleaf forests extremely monotonous and unappealing. For them, travelling through the forests had been drudgery rather than joyful. However, Wells countered, “For any true nature lover of that day, it must have been a thrilling experience to have traversed the seemingly endless mazes of the virgin long leaf pine forest amid

³⁹⁶ Wells earned his doctorate from the University of Chicago in 1917, and taught in Texas and Arkansas before coming to North Carolina in 1919. See Troyer, *Nature's Champion*, 5-14 and 162-70; and B.W. Wells and I.V. Shunk, “The Vegetation and Habitat Factors of the Coarser Sands of the North Carolina Coastal Plain: An Ecological Study,” *Ecological Monographs* 1, no. 4 (Oct. 1931): 487. It is not certain that Wells was referring to longleaf destruction *only* in North Carolina as a “major social crime.” But he made the statement while writing about North Carolina, and my guess is that Wells did not have all longleaf forests across the South in mind.

the sixty to one hundred feet high boles, under the shady tasseled tops whispering or roaring eternally in the winds.” In another instance, he claimed that, in their “pristine condition,” with millions of tall trees, the [virgin longleaf stands] were “one of the most wonderful forests in the world.” Thus, Wells imagined the old-growth forests partly in romantic terms, as a natural setting that thrilled the senses of those able to appreciate them. The forests as Wells pictured them were not just a striking part of the southern landscape or a great American resource, but a natural wonder that ranked with other wonders around the world.³⁹⁷

Wells was most captivated by a plant community that was part of the longleaf ecosystem that had relatively few trees – the savannah lands on the coastal plain, which were flat areas dominated by grasses and herbaceous wildflowers, and wet for much of the year due to their slowly draining subsoils, such as the 1,500-acre “Big Savannah” in Pender County. When he did ponder the story of longleaf, Wells noted that it was more closely intertwined with human history in North Carolina than the stories of other plant communities, largely because turpentine and timbering had such significant impacts. “Like a fine old aristocracy destroyed by war, the original long leaf pine forest of our sandhills has been completely cut and burned until the entire scene has so changed that no person of the rising generation may now gain any real idea of the majesty and glory of the original forest,” Wells wrote in 1932. Angered that experiencing extensive old-growth longleaf in North Carolina was now impossible, he named white North Carolinians as the culprits, who timbered longleaf, gashed trees for turpentine, ranged hogs, and

³⁹⁷ Wells, *Natural Gardens*, 114-15; and Wells and Shunk, “Vegetation and Habitat Factors,” 485-87.

allowed high-intensity fires to burn in the forests. They also had been derelict in the work of conservation that the forests had desperately required.³⁹⁸

In his grievances over the destruction of the “noble original forest” of longleaf in North Carolina, Wells drew a contrast between an earlier, pristine forest that he imagined, and the degraded environment that he encountered. Many Americans of his generation were pointing out that contrast, partly in reaction to changes wrought by the ongoing intensification of industrialization and market capitalism, including destructive impacts on natural resources. Wells also cast the old-growth longleaf forests as “one of nature’s most unique products of the ages in North America,” a prosaic way of describing the forests’ development through adaptation and evolution. At the same time, Wells attributed little value to the few areas of older longleaf that did remain, nor did he put energy into advocating publicly for encouraging new longleaf. He suggested at least once that cutover lands in eastern North Carolina should be seeded with longleaf, but he never fully developed this idea or worked meaningfully to realize it. Wells pointed out that no one had bothered to establish a “Save the Pines League” on behalf of longleaf. But he himself made no move to create a “Preserve the Last Longleaf League,” or a “Restore Longleaf” campaign. Other parts of North Carolina still included “vast natural resources in a wild condition” in the early 1930s, Wells wrote, but longleaf was so far removed from that “wild” condition that it seemed like a lost cause to him. For Wells, it was best to study and teach about other plant communities that were not so hopelessly spoiled, and to lobby publicly for protection of other natural areas in the state.³⁹⁹

³⁹⁸ Bertram W. Wells, “The Patchwork of North Carolina’s Great Green Quilt,” *North Carolina Agriculture and Industry* Vol. 2, nos. 4, 6, 9, 11, 15, 18 (Oct.-Dec. 1924 and Jan.-Feb. 1925); Wells, *Natural Gardens*, 79-80, 114-18; Troyer, *Nature’s Champion*, 5-8; Wells and Shunk, “Vegetation and Habitat Factors,” 485-87.

³⁹⁹ Wells, *Natural Gardens*, 116-17 and 121-24.

Many others in the 1920s looking back on the history of longleaf were inclined to argue that the destruction of longleaf across the South was quite necessary and beneficial for the region. For example, the editor of a naval-stores journal in 1921 highlighted the economic progress that exploiting the southern pine forests had enabled, specifically in Georgia, Florida, and Alabama. This was the same argument that others across the longleaf South made for turpentine and timbering the pines as a required and positive step – and Americans have made a similar case for intensive use of many natural resources outside the South both before and after the early twentieth century.

Among some southerners, there was a “feeling, more sentimental than practical, that this section gave away its heritage in the sacrifice of its forest and the sale of its timber and lumber and naval stores at low values,” noted the editor, Thomas Gamble of the *Weekly Naval Stores Review* in Savannah, Ga. In mentioning that “sentimental” viewpoint, Gamble acknowledged that at least some people in the region questioned the past exploitation of the pine forests and wondered whether the benefits truly had been worth it. At the very least, the people whom Gamble had in mind complained that southerners had been cheated somehow and should have demanded higher prices for the products of the pine forests. This point evokes the broader notion that persisted among many southerners well into the twentieth century that northern capitalists and others were treating the South like a colonial source of natural resources, while southerners ended up with little economic gain. However, in terms of the longleaf forests, Gamble dismissed this view as indulging in sentimentality. Southern states could not foolishly remain “a wilderness in pines,” he insisted, and extracting the value of the pines was the best way forward.⁴⁰⁰

⁴⁰⁰ Thomas Gamble, ed., *Naval Stores: History, Production, Distribution and Consumption* (Savannah, Ga.: Review Publishing and Printing Co., 1921), 61.

Southerners should remember all the lumber that the pines had yielded for meeting the demands of an “advancing wave of humanity,” and the “tens of thousands” of jobs created for turpentine, timber, and sawmill workers, Gamble contended. He praised those who accumulated wealth from pine for putting some of their money into building railroads, expanding agriculture and industry, and enabling more population growth in the longleaf states. In the big picture, the “passing of the pine” was the necessary cost of progress. Southerners in the preceding decades simply could not afford to be overly attached to pine forests as majestic and wondrous.⁴⁰¹

Gamble’s perspective represents the argument that using longleaf was obligatory, perhaps even inevitable, for providing livelihoods, manufacturing forest products, and building wealth for owners who could re-invest in further developing the longleaf South. An undercurrent in that view was an awareness that, in spite of some economic progress in the “New South,” the region’s economy and standard of living still lagged behind other regions in the nation into the twentieth century. The South, the argument went, did not have the luxury of leaving any longleaf untapped or uncut. By contrast, B.W. Wells’ ideas exemplify the view that removing nearly all the old-growth longleaf was a regrettable abuse of a natural wonder. An undercurrent in that view was a sense that Americans were degrading many aspects of the country’s non-human environment, not just longleaf forests.

These competing views of the history of people and longleaf persisted after the 1920s, and the inherent conflict between them helps to explain how people related to longleaf in the subsequent decades. The dominance of the view exemplified by Gamble is seen in the fact that people timbered nearly all the old-growth longleaf that did remain after the 1920s, and used other forests and natural resources in the South intensively as well. But the persistence of the view that

⁴⁰¹ Gamble, *Naval Stores*, 61.

Wells represents contributed to the progress in scientific knowledge about longleaf and in conservation that also occurred. While timbering eventually reduced the longleaf forests by more than 95 percent, some mature stands remained after the 1920s, and most timber, lumber, and turpentine companies continued to use those stands to the maximum extent, reflecting the dominance of the intensive-use view. At the same time, others worked diligently to ensure some sort of future for longleaf. For example, the Forest Service enhanced its research efforts on longleaf, and took steps like creating the Kisatchie National Forest in 1930 and DeSoto National Forest in 1936, in the longleaf regions of Louisiana and Mississippi, respectively. The lands in those forests were heavily cut-over – which explains why the federal government was able to buy them – but the forests presented an opportunity for establishing a new growth of longleaf.⁴⁰²

Among individual figures, Herman H. Chapman, forester and faculty member in the Yale School of Forestry, began to make his name in the 1910s by studying central questions such as how fires figured in sustaining healthy longleaf forests. One of the private pineland-owners with whom Chapman connected in the South was Henry Hardtner, a Louisiana lumberman who established an early model for other private owners for conserving longleaf with a long-term view, including actively planting longleaf seedlings, rather than abandoning cutover lands. While Hardtner hardly provoked a groundswell among private owners for reforesting their pine lands, and Hardtner himself had timbered a lot of old-growth longleaf by the early 1900s, he demonstrated some of the possibilities for using longleaf differently in a capitalist system. In the Red Hills of south Georgia and north Florida, Leon Neel began in the 1940s to build on Herbert

⁴⁰² Chapter Three of this dissertation emphasizes choices that the U.S. Forest Service made on the Choctawhatchee National Forest that limited the progress made on longleaf research. However, I recognize the value of that research, and include it in all the work that has contributed to the survival of longleaf as a species.

Stoddard's work, and he refined the "Stoddard-Neel" model for managing longleaf in an ecologically minded way, including using controlled fires and cutting trees selectively.⁴⁰³

Researchers enhanced the scientific understanding of longleaf in the postwar period, and authors published works that assumed longleaf was not a lost cause. Forest Service researcher William G. Wahlenberg published *Longleaf Pine: Its Use, Ecology, Regeneration, Protection, Growth, and Management* in 1946, remarkable in part for his inclusion of ecological ideas in a forestry text. Another federal forester, Thomas C. Croker, argued in 1979 in "The Longleaf Pine Story" for securing a future for longleaf, grounded in economic potential but also appreciation for longleaf in historical, cultural, and romantic terms. Croker also touted longleaf in a 1987 Forest Service report, *Longleaf Pine: A History of Man and Forest*. "Unfounded prejudices against longleaf have gradually faded away and there is a renewed interest in growing the species," he wrote, referencing the notion that longleaf grew too slowly to be worth planting. Croker hoped that recounting a version of longleaf history could boost interest in conserving and restoring the species. Forest researcher Cecil C. Frost advanced the growing understanding of the longleaf forests as an ecosystem in an often-cited 1993 research paper, "Four Decades of Changing Landscape Patterns in the Longleaf Pine Ecosystem." In a deeply personal work, Janice Ray in 1999 recalled her hardscrabble family life growing up in south Georgia and the

⁴⁰³ I abbreviate the discussion of developments after the 1920s, but there is much more to say. For example, Bill Finch mentions the work in more recent decades of Bill Boyer, Tom Croker, Howard E. Grelen, Robert M. Farrar, Bob Godfrey, George Folkerts, Bruce Means, Bill Platt, part of a "great generation of longleaf researchers and explorers, without whom longleaf would have been lost," in *Longleaf, Far as the Eye Can See*, ix; see Herman H. Chapman and Ralph C. Bryant, *Prolonging the Cut of Southern Pine*, Yale Forest School Bulletin No. 2 (New Haven: Yale University Press, April 1913); Herman Haupt Chapman Papers, Manuscripts and Archives, Yale University Library; Anna C. Burns, "Henry E. Hardtner, Louisiana's First Conservationist," *Journal of Forest History* 22, no. 2 (April 1978): 78-85; Ed Kerr, *History of Forestry in Louisiana* (Baton Rouge: Office of the State Forester, 1958), 2-11; Leon Neel, Paul S. Sutter, and Albert G. Way, *The Art of Managing Longleaf: A Personal History of the Stoddard-Neel Approach* (Athens, GA: University of Georgia Press, 2010), 5-22.

past landscapes of that region in *Ecology of a Cracker Childhood*, partly a reflection on destruction of the longleaf ecosystem.⁴⁰⁴

While Ray called for restoring the ecosystem more extensively, her take on restoration was very different from how people like Herbert Stoddard managed pinelands, and how leading advocates today have pursued restoration. “We want more than 1 percent natural stands of longleaf,” Ray asserted. “When we say the South will rise again we can mean that we will allow the cutover forests to return to their former grandeur and pine plantations to grow wild.” Ray described restoration mainly as the act of getting out of the way and allowing longleaf to take hold in cutover areas, and allowing plantations of longleaf and other pines to “grow wild.” While advocates are not taking a hands-off approach, voices such as Ray’s that have valued longleaf beyond its economic potential, and all the forestry research and related evolutions in land management in the twentieth century, form the foundation for the ongoing work of restoration.⁴⁰⁵

To begin pulling together these disparate efforts, advocates established the Longleaf Alliance in 1995 as a central source of information about public and private entities working on longleaf, and the historical, scientific, and practical aspects of managing this pine. Alliance leaders contend that, while longleaf likely will never regain a primary place across the southern coastal plains, any additions and ecologically minded improvements to the remaining longleaf stands are to the good. A planted area of longleaf is preferable to an old farm field, in the group’s view. A longleaf stand with restored, native understory plants like wiregrass is even better, and a

⁴⁰⁴ See Wahlenberg, *Longleaf Pine*; Thomas C. Croker, “The Longleaf Pine Story,” *Journal of Forest History* 23, no. 1 (January 1979): 32-43, and Croker, *Longleaf Pine: A History of Man and a Forest* (Atlanta, GA: U.S. Forest Service, Forestry Report R8-FR 7, October 1987); Cecil C. Frost, “Four Decades of Changing Landscape Patterns in the Longleaf Pine Ecosystem,” in *Proceedings of the 18th Tall Timbers Ecology Conference*, No. 18 (1993), Tall Timbers Research Station, Tallahassee, FL; Janisse Ray, *Ecology of a Cracker Childhood* (Minneapolis: Milkweed Editions, 1999); John H. Goff, “The Great Pine Barrens,” *Emory University Quarterly* 5 (1949): 390-97.

⁴⁰⁵ Ray, *Ecology of a Cracker Childhood*, 271-72.

longleaf stand with native vegetation and a diversity of native animal species is closer yet to the ideal of a thriving, biodiverse longleaf forest.⁴⁰⁶

The great majority of lands across the South with potential for longleaf restoration are privately owned, and most of these owners are individuals and families, rather than forest-product companies or other large owners. The Alliance therefore has prioritized working with smaller landowners on tasks from seeking grant money for planting trees, to the actual work of managing longleaf stands. At the same time, the Alliance recognizes the importance of building ties with larger landowners, along with federal agencies that want to restore more longleaf, such as the Forest Service and the Fish and Wildlife Service.

After a decade of working on restoration, Alliance leaders saw a need for a comprehensive partnership among the many parties and an ambitious plan for boosting longleaf. Convened by the Alliance in 2005, key agencies and non-profit groups agreed to establish the “America’s Longleaf Initiative – A Restoration Initiative for the Southern Longleaf Pine Forest.” America’s Longleaf is a “big tent” in the sense that it considers the entire historical range of longleaf in its planning, and welcomes any entities able to contribute to longleaf conservation and restoration. While just about any restoration is a positive step away from the risk of extinction, the initiative focuses on “significant landscapes” where it can get the most benefit from investment, in places like the North Carolina Sandhills or the Big Thicket National Preserve in Texas, where restoration could fill gaps between fragmented areas of longleaf and create forests of 100,000 acres or more.⁴⁰⁷

⁴⁰⁶ Longleaf Alliance, “What is the Longleaf Alliance and what do we do?” accessed Oct. 22, 2016, <http://www.longleafalliance.org/>.

⁴⁰⁷ Regional Working Group, America’s Longleaf, “Range-Wide Conservation Plan for Longleaf Pine,” Mar. 19, 2009, accessed Mar. 5, 2016, <http://www.americaslongleaf.org/resources/conservation-plan/>.

Establishing eight million acres of longleaf forests by 2024 is the initial goal, spelled out in the initiative’s fifteen-year plan – an increase of about 135 percent from the longleaf growing in 2009. The goal of eight million acres calls not just for planting an additional 4.6 million acres in longleaf, but also “improving” existing stands that are lacking in some way, such as needing more native understory plants or requiring regular burning. About 1.5 million acres of the existing longleaf are near the ideal condition, but the other 1.9 million acres need significant management to reach that status.⁴⁰⁸

In pursuing the goal of eight million acres, advocates also aspire to create and maintain “functional, viable, longleaf pine ecosystems with the full spectrum of ecological, economic, and social values.”. Along with groups like the Nature Conservancy and the Southern Environmental Law Center, research centers and federal agencies such as the Department of Defense are leading partners. The 15-year plan aims to build support nationally for longleaf restoration, while also raising awareness within the longleaf region, teaching more of the technical skills for managing longleaf, and pushing for more money in grant programs. Advocates also recognize a need to learn more about the long-term goals of the timber investment management organizations (TIMOs) and real-estate investment trusts (REITs) that have acquired a significant amount of southern pinelands. They are exploring how longleaf might relate to dealing with climate change, since forests in general store carbon, and longleaf in particular tolerates higher temperatures.⁴⁰⁹

The initiative reported in 2015 that restoration work had been done on about 1.93 million acres over the previous year, mostly in improving longleaf stands through burning and other tasks. In terms of increasing the total acreage, landowners had established about 151,000 acres of

⁴⁰⁸ Ibid.

⁴⁰⁹ Ibid.

new longleaf in the past year, roughly the same annual total as the preceding few years. About 85 percent of that new acreage was on private lands, and the rest mainly on national forests and military bases. However, the rate of new longleaf still was about half the average rate necessary to reach eight million acres by 2024. Along with the new longleaf planted, the great majority of progress on the 1.93 million acres was in burning, removing invasive species, restoring native plants, and in some cases, removing hardwoods or smaller longleaf trees. Burning affects nearby residents very differently than simply planting trees, as it generates smoke and also can prompt worries that the fire might spread. Advocates thus are obliged to continue making the case for periodic burning, and they do so in part by re-telling the story of how fires shaped the longleaf forests in the past.⁴¹⁰

Advocating for longleaf as a distinct species means detailing the characteristics that distinguish longleaf, such as longer needles, larger cones, the particular hue and texture of its bark, and its tolerance of low-level fires. However, this way of thinking separates longleaf trees conceptually from the ecosystem, which is problematic because advocates want more people to embrace longleaf forests as comprising a valuable and holistic ecosystem. Indeed, as this dissertation argues in Chapter Two, enterprises like the Louisiana Central Lumber Co. were so effective because they relentlessly turned an ecosystem into individual trees, and then into train-

⁴¹⁰ Public funds paid about 71 percent of the cost of restoration on the 1.92 million acres, although for the work just on private lands, public funds covered about 47 percent of the cost. For example, to establish new longleaf on private lands, just over half the cost was paid by grants from the U.S. Department of Agriculture and the Fish and Wildlife Service. Within the USDA, the Natural Resources Conservation Service granted about \$52 million between 2010 and 2015; “2015 Range-Wide Accomplishment Report,” America’s Longleaf Restoration Initiative, accessed Aug. 28, 2016, http://www.americaslongleaf.org/media/20172/LLP_AccomplishmentReport_051116_LOW-1.pdf; Robert Abernethy, president, The Longleaf Alliance, email to author, Aug. 30, 2016. On prescribed fires, see Eric Toman, Bruce Shindler, Sarah McCaffrey, and James Bennett, “Public Acceptance of Wildland Fire and Fuel Management: Panel Responses in Seven Locations,” *Environmental Management* 54 (2014): 557-570; on restoring longleaf and objections to fire in Wake County, NC, see Gary B. Blank, Douglas Parker, and Scott M. Bode, “Multiple Benefits of Large, Undeveloped Tracts in Urbanized Landscapes: A North Carolina Example,” *Journal of Forestry* 100, no. 3 (April/May 2002): 27-32; Scott M. Bode, “Land Use and Environmental History of the Shearon Harris Tract” (M.S. thesis, North Carolina State University, 1997); and Douglas S. Parker, “Using Botanical Analysis to Shape a Longleaf Restoration Project” (M.S. thesis, N. C. State University, 1998).

loads of logs and board feet, in taking apart vast portions of that ecosystem. Thus, even while describing longleaf as a distinct kind of tree, advocates simultaneously work to place longleaf back within the ecosystem when writing and talking about it.

Advocates also rely on the story of the transformation of longleaf from great abundance to scarcity as a framing narrative, with which they seek, in effect, to use the former abundance of longleaf to their advantage. The framing narrative appears in longer form in works like Ray's *Ecology of a Cracker Childhood*, and Larry Earley's *Looking for Longleaf*, but shorter versions are even more prevalent. A representative example states, "Longleaf pine forests once covered an incredibly vast range. From the Atlantic Coastal Plain of southeastern Virginia to [east] Texas, these systems encompassed more than 90 million acres of the North American landscape. These forests represented an extraordinary diversity of cultural, ecological and socio-economic values, making them some of the great coniferous forests of the world. Today, longleaf pine forests are a mere remnant of their former majesty – less than three percent of the original acreage remains." This example from America's Longleaf echoes notions about the former vastness and majesty of longleaf that people like Wells expressed in the 1930s and earlier. But the narrative also reflects the work of researching and telling longleaf's history since that time, in aspects such as giving equal weight to ecological and cultural values, as to economic values.⁴¹¹

The Nature Conservancy has employed a similar narrative about the drastic decline of longleaf in advancing its restoration efforts. "Two centuries ago, a forest beyond compare rolled like a dark green tide from Virginia into the Carolinas before fanning out across Georgia and Florida, through Alabama, Mississippi and deep into Texas," the organization states. "America's longleaf pine forests covered more than 92 million acres [but] as America grew, so too did the

⁴¹¹ "Range-wide Conservation Plan for Longleaf Pine," Regional Working Group for America's Longleaf, March 19, 2009, p. iii, accessed March 5, 2016, <http://www.americaslongleaf.org/resources/conservation-plan/>.

pressure on longleaf pine. By the turn of the 20th century, most mature longleaf was gone.” And in a forestry-journal article, the authors begin, “Before European settlement, longleaf pine dominated forests in the southeastern United States, occupying about 36 million [hectares]. Only about 1.2 million [hectares] of longleaf pine stands currently exist.” The Nature Conservancy uses the narrative in promoting longleaf restoration and conservation, while the forestry article, co-authored by a forestry professor who directs the Center for Longleaf Pine Ecosystems at Auburn University, recites the story in suggesting a model for assessing longleaf stands, which could be useful both for cutting longleaf as timber, and for conserving longleaf. In both examples, recounting the historical abundance and geographic extent is part of the argument for recognizing the value of longleaf, in the larger context of restoration.⁴¹²

Advocates employ this framing narrative regularly because it has the potential to evoke emotions, ranging from regret to anger over the remarkable destruction of a once-plentiful forest type – some of the emotions felt, no doubt, by many of those re-telling the story, who hope for a similar response from their audience. The narrative also claims a place for longleaf’s history among other stories of American nature that humans impacted greatly in the past, from the American bison to free-flowing rivers, or species eliminated altogether, such as the passenger pigeon and Carolina parakeet. Emphasizing the narrative of longleaf destruction is a way to compete for attention with these better-known American sagas of environmental change through

⁴¹² “Longleaf Pine – Restoring an American Treasure,” Nature Conservancy, accessed March 5, 2016, <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/longleaf-pine-forests-landing-page.xml>; Carlos A. Gonzalez-Benecke, et al., “Individual Tree Diameter, Height, and Volume Functions for Longleaf Pine,” *Forest Science*, Vol. 60 No. 1 (Feb. 2014), 43-56; a version from the Longleaf Alliance: “Longleaf pine’s domain was vast. By all accounts, the longleaf pine forest dominated the southern landscape. Starting in southeast Virginia, the longleaf pine forest stretched southward through nine states eventually stopping in east Texas (over 140,000 square miles). Unlike today, other southern pine species such as loblolly and slash pine were mostly relegated to areas where fire did not burn frequently,” “The Big Picture,” Longleaf Alliance, accessed Aug. 3, 2016, <http://www.longleafalliance.org/longleaf-pine/the-big-picture>.

human actions. The epic scale of the longleaf narrative has a certain appeal as well, as it evokes scenes of expansive forests and tall trees turned into “seas” of stumps.

The persistent recounting of this narrative however can provoke skeptical responses, such as the reaction of the dean of a leading forestry school in the Southeast, when the topic of longleaf came up in a conversation. In the advocacy for restoration, he saw an element of myth-making about the historical extent of longleaf, in that some advocates telling the story implied the pre-colonial longleaf forests were virtually unbroken across the coastal plains from Virginia to Texas. The dean did not single out any person or group for exaggerating the abundance of pre-colonial longleaf, but clearly he objected to some depictions of historical longleaf.⁴¹³

The dean’s criticism did not account for the fact that a number of scholars, conservationists, and others have carefully described the variations and complexity in the historical longleaf forests. The forests did not form a nearly unbroken “green carpet,” as savannas with widely spaced longleaf, and denser stands of pines, were interspersed with hardwood swamps and river bottoms, prairies, and other features across the coastal plains. For example, within its historical range, Albert Way writes that longleaf grew within a “diverse mosaic of hardwood bottomland forests, upland woodlands, and transitional areas, or ecotones, all overlapping and intermingling, gradually giving way from one to the other.” The longleaf region was one of “elegant intricacies” among longleaf and other flora and landforms, rather than a land of monolithic longleaf stands.⁴¹⁴

Still, the forestry dean had reason to be skeptical, as some versions of the framing narrative do blur the important details. For example, the Nature Conservancy’s phrase that the

⁴¹³ Conversation with the author, Oct. 3, 2015.

⁴¹⁴ Way, *Conserving Southern Longleaf*, 11-12.

forests once “covered” more than 90 million acres is vague and misleading, as it does not make clear that longleaf was not growing on every one of those millions of acres. The dean probably reacted as well to the fact that the abundance-to-scarcity narrative is invoked so consistently by people involved with longleaf. In other words, hardly anyone gets very far into telling the story of longleaf without including the big-picture narrative. The repetition surely contributes to the dean’s view that some advocates stray into myth.

The dean objected in part as a forestry expert and teacher frowning on inaccurate depictions of forests, but perhaps he had long-term implications of longleaf restoration in mind as well. Since restoration requires planting more land in longleaf and managing it over many decades, the land would not be available for planting in loblolly or slash pines, which are central in the southern pulp, paper, and strand board industries. These industries rely on growing and cutting pines on a relatively short cycle, with owners often doing a first thinning of a loblolly stand after fifteen years or so of growth, and then cutting the remaining stand after another ten to fifteen years. Training foresters to grow southern pines for the forest-product industries is one component of the mission of forestry schools. Although foresters also support longer-term conservation models, the prospect of millions of acres in the South being newly planted in longleaf could be worrisome for people and corporations relying heavily on loblolly pine. Therefore, longleaf restoration requires looking continuously for the right balance between creating new longleaf forests for the long term, and enabling landowners eventually to harvest at least a portion of their longleaf, since many of those owners will have chosen to plant longleaf instead of loblolly or slash.⁴¹⁵

⁴¹⁵ See, for example, William Boyd, *The Slain Wood: Papermaking and its Environmental Consequences in the American South* (Baltimore: Johns Hopkins University Press, 2016); and Chris Demers, Michael Andreu, Babe McGowan, Alan Long, and Jarek Nowak, “Thinning Southern Pines – A Key to Greater Returns,” University of

The fact that millions of acres of loblolly plantations already exist also presents a significant challenge, as people can observe correctly that there are lots of pines growing in the South, and raise the question of why planting more pines is such a pressing issue. As William Boyd, in examining the southern paper industry, recalls about the South Carolina coastal plain in the 1970s and 80s, “The pine trees seemed to go on forever, sweeping by in endless rows as we drove along the two-lane road to the beach.” Imprinted clearly on his memory were the “neat, even-aged stands of loblolly pine stretching in all directions,” delineated occasionally by other landforms and structures. And many people who have lived in or passed through the piedmont and coastal South in recent decades know exactly what Boyd is describing. By 2002, loblolly pine, intermingled in some areas with shortleaf pine, grew on about fifty-four million acres. Historian Jack Temple Kirby pulled no punches in his depiction of loblolly plantations as “nature grotesquely simplified, a monochromatic grid bearing little similarity to original landscapes – unless the original were (somehow) a corn or cotton field.” The southern pines, especially loblolly, remind southerners of their extensive presence every spring by dusting roofs, porches, cars, roads – and possibly slow-moving pets – with a yellow coating of pollen. From a superficial perspective, the region does not seem to be lacking in pine trees, and critiquing this perspective is a challenge that advocates have to meet.⁴¹⁶

The loblolly plantations and other pine stands in the South do not blind observers completely to the absence of longleaf, and many southerners at times have recognized, in general

Florida School of Forest Resources and Conservation, UF/IFAS Extension, accessed July 25, 2016, <http://edis.ifas.ufl.edu/pdf/files/FR/FR15900.pdf>.

⁴¹⁶ Boyd, *The Slain Wood*, viii; Kirby, *Mockingbird Song*, 318. Boyd also discusses the problematic aspects of loblolly plantations; estimate of acreage of the “loblolly-shortleaf forest type” from W. Brad Smith et. al., “Forest Resources of the United States,” Forest Service, accessed Sept. 23, 2016, http://www.ncrs.fs.fed.us/pubs/gtr/gtr_nc241.pdf. The Forest Service defines the loblolly-shortleaf forest type as forests “in which loblolly pine, shortleaf pine, or southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. Common associates include oak, hickory, and gum.”

terms, that previous generations cut down virtually all the old-growth longleaf forests. But in response to that reality, many have offered a narrative of subsequent progress, in which inhabitants of the longleaf region learned important lessons from the relentless timbering and began treating the land differently in the mid-twentieth century, allowing the pines to make a comeback. The implication is that the destruction of longleaf caused no lasting harm. For example, when two residents of Wilcox County in southwest Georgia published a county history in the 1980s, they called the book *The Passing of the Pines*, a title they borrowed from a local newspaper editorial published nearly ninety years earlier. “The pine forests of South Georgia will soon be a thing of the past,” wrote the editor in 1898, about ten years after the first railroad was constructed in Wilcox County. “The ravages of the lumbermen, and turpentine men have left but a vestige of the magnificent pines that abounded so profusely in this section, a few years ago.” The editor was forthright in citing the destructive work of lumber and turpentine operators, but he quickly shifted to seeking an upside to offer readers hope for the future. The editor predicted that new residents would continue moving to the region to build up a “happy and prosperous” population of hard-working farmers, who would make a living from the cutover pine lands.⁴¹⁷

Likewise, the Wilcox historians recounted the destruction of pine forests in the late nineteenth century, while also finding a positive change in the aftermath. They noted that the local editor was correct back in 1898 on two counts – that most of the old-growth pine forests in south Georgia would be removed, and that farming communities would develop in the decades that followed. And there was the unexpected bonus that new pine forests – mainly loblolly – grew up and became a plentiful and valuable part of the landscape again. “By 1930, as the pines

⁴¹⁷ “The Passing of the Pines,” *Abbeville (GA) Chronicle*, Jan. 27, 1898, quoted in Mary Lou L. McDonald and Samuel J. Lawson III, *The Passing of the Pines: A History of Wilcox County, Georgia* (Roswell, GA: WH Wolfe Associates, 1984), 1-2.

naturally regained a hold on the land, a new group of foresters appeared,” the editors observed. “These men had learned from the mistakes of the naval stores and lumber industries in the late 1800s [and] they knew, understood, and practiced conservation.” At that point, landowners established pine plantations in Wilcox County, “and before long, a big new industry, the pulp and paper business, settled in the region,” restoring pines to economic importance. Nature, newly enlightened foresters, and new industry collaborated to make things right again.⁴¹⁸

The Wilcox historians got the broadest outlines of the story right, but their account also has flaws with implications for the current work of longleaf restoration. For one, they made no real distinction between pine forests “naturally” regenerating – in many cases, loblolly seeding into cutover longleaf lands – and the growth of pines on tree farms. They also overstated the extent to which people managing pinelands by the early 1930s “knew, understood, and practiced” conservation-minded forestry. But most importantly, their account suggests that nothing really was lost in the earlier destruction of longleaf, because pine forests had come back in places like southwestern Georgia. The editors conflated all pine trees, overlooking the differences in species and implying that loblolly plantations offered the same values. They were not telling the story with pernicious intent, but with a desire to find a positive turn, combined with weak scientific understanding of how old-growth longleaf forests differed from loblolly plantations. This persistent view that the new “normal” landscape, in terms of pine trees, is not significantly different from the old landscape is a challenge that longleaf advocates are compelled to address.

⁴¹⁸ McDonald and Lawson, *Passing of the Pines*, 2; McDonald and Lawson drew partly on John Goff’s account of southern pines in Francis Lee Utley and Marion R. Hemperly, *Placenames of Georgia: Essays of John H. Goff* (Athens, GA: University of Georgia Press, 1975), 81-90; Thomas D. Clark makes a similar argument, in much greater detail, in his 1984 study of southern forests, contending that “much of the southern forest land has been set upon the road to become once again the green eden of the primeval past,” see Clarke, *Greening of the South*, xiv.

The Wilcox historians' telling of the story in the 1980s reflected the fact that neither they nor hardly anyone else had been around to experience the pre-1900 longleaf forests in their region. Perhaps there was a small cohort of residents approaching 100 years of age, who possessed some memory as individuals of abundant longleaf. But otherwise there were few people to create and sustain any collective memory. That was true for many communities in the longleaf region, and people only got further away from living memory as the decades passed. Certainly, people experienced the longleaf that remained after the 1920s, from workers in the ongoing turpentine and timber industries to kids playing in the woods. But many of those people are elderly or gone now, and the size of that group is limited by the fact that longleaf was drastically reduced before the 1930s. The generations who experienced about the truly extensive longleaf forests have long passed away. The result is a form of forgetting that means that most people living now in places like the Wilcox County community of Pineview, or in Evergreen, Ala., or Pineville, S.C., have little reason to notice the absence of longleaf in the landscapes they inhabit, nor to consider how that absence affects their lives.

For people who do remember longleaf – most likely second-growth stands – their experiences indeed can motivate them to participate in restoration. Some landowners describe their choice to plant and manage longleaf in personal terms, as a way of “leaving my woods like the ones I grew up in,” states Rhett Johnson, co-founder of the Longleaf Alliance. Nevertheless, most people are not likely to see living in the longleaf region as a meaningful part of their identities, in the way that people might see themselves as living, for example, in a “tobacco community,” or in “lake country,” or “hill country.” Therefore, the work of longleaf restoration requires “restoring” more collective memory of the longleaf forests, through telling the history

repeatedly and reminding people of what existed, why it was valuable, and why it is wise to conserve and build upon the existing longleaf acreage in the present.⁴¹⁹

Aware of the perception that the South has plenty of pine trees and all pine forests have basically the same value, advocates counter by arguing for the broadest range of values for longleaf forests, in particular emphasizing the forests as an ecosystem full of diverse life that performs “services” for the environmental health of the region. This means describing the “extraordinary wealth and diversity of cultural, ecological, and socio-economic values” that the longleaf forests once contained in great measure, as advocates put it. The most ambitious and thoughtful work in recent years to claim multiple values for longleaf forests is *Longleaf, Far as the Eye Can See: A New Vision of North America’s Richest Forest*, published in 2012 by several conservationists who combined color photographs with detailed text. Their “new vision” in one respect is the colorful, full-of-life documentation of the longleaf ecosystem via the photographs. The photos illustrate the natural beauty and biodiversity that advocates see in the ecosystem by showing wildflowers, birds, and other plants and animals in the extant longleaf stands around the South. The authors intend those images to contrast with the older “vision” of longleaf created by historical, black-and-white photos that often focused on turpentine and timbering, or the aftermath of clear-cutting. The text highlights the aesthetic value and biodiversity of the ecosystem, and relates stories about interrelated economic and cultural threads in the history of people using longleaf. The images and stories are a pitch to a broad audience for caring about

⁴¹⁹ Johnson in Finch et al., *Longleaf, Far as the Eye Can See*, 162. In addition to Jones, *The Tribe of Black Ulysses*, an excellent study of men who worked in naval stores in south Georgia and north Florida in the mid-twentieth century is Timothy C. Prizer, “Pining for Turpentine: Critical Nostalgia, Memory, and Commemorative Expression in the Wake of Industrial Decline” (M.A. thesis, University of North Carolina at Chapel Hill, 2009).

longleaf in all of these aspects. The authors hope building such concern will be a step in creating a “new vision” of restored longleaf forests, in contrast to the older vision of destroyed forests.⁴²⁰

Actions such as making longleaf the unofficial tree of North Carolina and the official tree of Alabama, or establishing the prestigious Order of the Longleaf Pine award in North Carolina, seem at first glance to reflect a meaningful awareness of longleaf history. In fact, the understanding of this history, and of the natural workings of the ecosystem, that underlies these symbolic actions does not run deep. Rather, these symbols reflect a vague sense that longleaf has had a certain economic and cultural importance. Conservationist Bill Finch observes a similar disconnect in the way many residents of southeast Alabama are proud to be called “wiregrassers,” since the term has come to connote toughness and resiliency. When most of those residents think about wiregrass, they do not often relate it to the longleaf ecosystem in which wiregrass was integral, according to Finch. The wiregrass region “wears its old association with longleaf on its sleeve, even though its proudest citizens seem to have forgotten how the longleaf forest contributed to their identity,” he points out. The knowledge of wiregrass as interrelated with longleaf and part of the ecosystem has faded in part because so much of that ecosystem is gone.⁴²¹

Longleaf forests do not appear in the lasting memories of prominent biologist and writer Edward O. Wilson, who grew up in south Alabama where old-growth longleaf once was abundant. Born in 1929, Wilson was deeply engrossed from an early age in exploring the natural

⁴²⁰ Regional Working Group, America’s Longleaf, “Range-Wide Conservation Plan for Longleaf Pine,” accessed Mar. 5, 2016 at <http://www.americaslongleaf.org/resources/conservation-plan/>, (p. 1). Perhaps because they want a broad audience for *Longleaf, Far as the Eye Can See*, the authors do not provide a detailed, scientific argument for the importance of biodiversity. Rather, they illustrate and describe the great diversity of life within longleaf forests, and the more complex value of that diversity largely is implied; a good example of using historical photographs to illustrate the timber/lumber industry in the southern pines is James E. Fickle, *Timber: A Photographic History of Mississippi Forestry* (Jackson, MS: Mississippi Forestry Foundation Inc. and University Press of Mississippi, 2004).

⁴²¹ Finch et al., *Longleaf, Far as the Eye Can See*, 16.

world, roaming the green spaces around Mobile, collecting countless insects, and observing sea creatures along the Gulf of Mexico coast. As an adult, Wilson recalls clearly many of his encounters with nature as a young boy. He remembers large areas of pine stumps, but no longleaf forests. Timbermen had cut most of that old-growth longleaf well before Wilson was exploring in the early 1930s. “Even though I came from longleaf country in Alabama and in my later years had learned more and more about the subject, I realized how little I really knew,” Wilson concedes, adding that much remains for scientists to learn about “the American South’s signature tree” and the longleaf ecosystem.

Wilson had no personal memory of longleaf forests as a major part of the landscape, so he had to circle back as an adult to “discover” longleaf. He viewed the destruction of longleaf as a tragic misuse of “the south’s natural heritage,” but he also expressed support for conserving and restoring longleaf and was hopeful for substantial progress. Wilson thus sought an upside to the story of longleaf as well, but he found it in the prospects for longleaf restoration, rather than in developments such as the expansion of loblolly plantations.⁴²²

Most advocates of restoration agree that many scientific questions remain about the best practices for growing and managing longleaf forests. They recognize the complexity of the ecosystem and the fact that changing one aspect of it can affect other aspects. Charles Mohr had contended in 1897, in the midst of the intensifying timbering of longleaf, that studies of the “life history of the Longleaf Pine, of the conditions required for its growth and best development, of the laws regulating its distribution, and of the possibilities for its natural or artificial restoration,”

⁴²² Discussion of Edward O. Wilson’s perspective based on an interview that Wilson recorded with the author, July 13-14, 2013, Lexington, MA, on behalf of the E.O. Wilson Biodiversity Foundation, which holds the recording; Wilson’s foreword in Finch, et al., *Longleaf, Far as the Eye Can See*, vii; Wilson’s memoir, *Naturalist* (Washington, D.C.: Island Press/Shearwater Books, 1994), 5-15.

were critical for the South to have any shot at retaining significant longleaf. More than a century later, researchers continue trying to address this challenge.⁴²³

The complexity of longleaf forests drives the work of research centers, with the Tall Timbers Research Station in north Florida and the Joseph W. Jones Ecological Research Center in southwestern Georgia as the leading examples of private longleaf-focused centers. The Nature Conservancy and other groups sponsor longleaf research as well, while the Forest Service's Southern Research Station in Asheville, N.C., is another important source of research. The drive to understand the natural processes in the longleaf ecosystem more clearly is intertwined with the goal of recreating those processes effectively.

While Tall Timbers pursues a broad approach by focusing on all ecosystems within the coastal plain, the longleaf forests are at the core of its focus. The relationship of fire and longleaf is a major emphasis, and Tall Timbers researchers have worked on questions such as exactly how prescribed burns impact characteristics of the soil and the plant and wildlife communities in the longleaf forests. Studying longleaf and water resources, such as wetlands and rivers, is the research focus of the Jones center, located thirty miles from Albany, Ga., on lands once owned as a quail-hunting preserve by former Coca-Cola Co. president Robert W. Woodruff. The centers share the goal of enhancing understanding of the ecology of longleaf forests, so that understanding is available to people making policies and actively managing longleaf.⁴²⁴

⁴²³ Mohr, *Timber Pines*, 29.

⁴²⁴ Stephen J. Pyne, *Florida: A Fire Survey* (Tucson: University of Arizona Press, 2016), 45; a couple examples of papers published by Tall Timbers and Jones researchers are B.T. Rutledge and L. M. Conner, "Potential effects of groundcover restoration on breeding bird communities in longleaf pine stands," *Wildlife Society Bulletin* 30 (2002): 354-360; and K.M. Robertson and T.L. Hmielowski, "Effects of fire frequency and season on resprouting of woody plants in southeastern U.S. pine-grassland communities," *Oecologia* 174 (2014): 765-776; see "Ecological Forestry and Restoration of Longleaf Pine Ecosystems," Joseph W. Jones Ecological Research Center at Ichauway, accessed Aug. 1, 2016, <http://www.jonesctr.org/research/ecoforestry/>; "The Fire Ecology Program at Tall Timbers," Tall Timbers Research Station and Land Conservancy, accessed Aug. 1, 2016, <http://talltimbers.org/fire-ecology->

In this quest for greater ecological understanding of longleaf, researchers have inquired extensively into the lives of red-cockaded woodpeckers, an endangered species and an integral bird in the longleaf story. Red-cockaded woodpeckers ranged beyond the longleaf region in the past, in areas such as eastern Tennessee and southwestern Missouri. But most lived in the longleaf region and were particularly numerous in South Carolina, Georgia, and Florida. Old-growth longleaf forests were home largely because the woodpeckers were adapted to making their nests in mature longleaf. Today, while the birds can nest in other living pines, older longleaf trees meet their needs most effectively. They seek out trees some eighty years old or older, with outer layers that still have flowing sap, known as “sap wood,” and “heart wood” in the center where the sap no longer flows. The birds also need the heart wood to be softened up by the fungus causing “red-heart” disease, so they can carve cavities in the heart wood.⁴²⁵

At the same time, the birds use the sap in the outer layer to their advantage. Biologists observe them pecking at the surface regularly to promote sap flow on the bark around their cavities, possibly as sticky, chemical barriers to predators, especially snakes. Longleaf often produces more sap for a longer period than other pines – a quality, of course, that turpentiners long recognized. In addition, the periodic fires in longleaf forests in the past that kept down hardwoods also favored the woodpeckers, since predators could not climb along the branches of nearby hardwoods to access the birds’ longleaf nests.

program/; and “Restoring and Managing Longleaf Pine Ecosystems,” USDA Forest Service Southern Research Station, accessed Aug. 1, 2016, <http://www.srs.fs.usda.gov/longleaf/>.

⁴²⁵ Details on the red-cockaded woodpecker from Richard L. Thompson, ed., *The Ecology and Management of the Red-Cockaded Woodpecker* (Proceedings of a Symposium at Okefenokee National Wildlife Refuge, U.S. Dept. of the Interior and Tall Timbers Research Station, Folkston, Ga., May 26-27, 1971), 4-20, 31-32, 88, and 125-26; Ralph Costa and Susan J. Daniels, *Red-Cockaded Woodpecker: Road to Recovery* (Surrey, B.C.: Hancock Ham Publisher, 2004), 15-16, 34-42, 90-91, 174-77; Robert W. McFarlane, *A Stillness in the Pines: The Ecology of the Red-Cockaded Woodpecker* (New York: W.W. Norton and Co., 1992), 155, 167, 200-12; and U.S. Fish and Wildlife Service, “Red-cockaded Woodpecker Recovery Plan,” accessed Aug. 16, 2016, <https://www.fws.gov/rcwrecovery/files/RecoveryPlan/finalrecoveryplan.pdf>.

Longleaf forests remain the core habitat for this species, and its future depends on the work of conserving and restoring longleaf. However, since federal law protects this species, longleaf advocates walk a line between highlighting the red-cockaded woodpecker as a keystone species in the ecosystem, and recognizing that many private landowners in recent decades cut their stands of old longleaf out of fear that the woodpeckers might set up housekeeping there. Their grievance was not with these small, benign birds, but with the federal regulations that can be invoked in the species' name.

Helping this endangered woodpecker recover clearly is critical to longleaf advocates, who understand the relationship between this bird and mature longleaf, and value the species as part of the life within the ecosystem. Protecting the species is the job of the Fish and Wildlife Service, which also is a lead partner in the America's Longleaf initiative. However, advocates do not tend to promote the red-cockaded woodpecker as prominently as they might as an iconic animal for longleaf restoration, in part because they have a holistic view of the ecosystem as supporting many forms of life, and red-cockaded woodpeckers as one species among many. But advocates also have reason to fear that promoting the red-cockaded woodpecker too heavily could be counterproductive, when they consider the history of people and these woodpeckers since the mid-1970s.⁴²⁶

After conservationists expressed increasing concern about the status of the red-cockaded woodpecker for several years, the species received federal protection under the Endangered Species Act of 1973. By that time, perhaps a few thousand "groups" of the birds lived in southern pine forests, with an average group including a breeding pair plus one to three other individuals. By comparison, there were perhaps 920,000 to 1.6 million groups in the pre-colonial

⁴²⁶ Bill Finch and co-authors write about the red-cockaded woodpecker partly to highlight the importance of regular fires in shaping the longleaf ecosystem, *Longleaf, Far as the Eye Can See*, 90-93.

forests. The woodpeckers totaled just 4,700 groups in 1993, even after twenty years of federal protection. Recovery efforts boosted the estimated population to 5,700 groups by 2003, but the numbers possibly have declined again in recent years.⁴²⁷

Most red-cockaded woodpeckers today live on federal forest lands, and they are gone from all but a few privately held properties. After the species received legal protection, many landowners with mature longleaf chose to cut those trees, rather than risk having red-cockaded woodpeckers nest there, and possibly attract federal wildlife managers who would prevent owners from cutting the nest trees and surrounding trees. Hoping to avoid such preemptive timbering, the Fish and Wildlife Service established a “safe harbors” program in 1995, which offered landowners some ability to cut mature longleaf, and also grant funding, if they took steps to support red-cockaded woodpeckers on parts of their land. Still, most of the birds now are found on federal lands, mainly national forests and Department of Defense bases, such as Fort Bragg in the North Carolina Sandhills. To a great extent, the red-cockaded woodpecker’s name recognition arises more from controversy over federal law and property rights, than from advocates positioning the bird as a prominent symbol for longleaf restoration.⁴²⁸

Touting bobwhite quail as an appealing inhabitant of the longleaf ecosystem and a beneficiary of restoration is a different matter, since this bird does not have federal protection. The bobwhite quail is considered a threatened species in much of its range, but it does not bring

⁴²⁷ On possibly declining population, see IUCN Red List of Threatened Species, “*Leuconotopicus borealis*,” accessed Sept. 23, 2016, <http://www.iucnredlist.org/details/22681158/0>.

⁴²⁸ Michael L. Bean, “Rethinking Conservation Strategies After Thirty Years,” in Ralph Costa and Susan J. Daniels, *Red-Cockaded Woodpecker: Road to Recovery* (Surrey, B.C.: Hancock Ham, 2004), 15-36; “Rare woodpecker sends a town running for its chainsaws,” *New York Times*, Sept. 24, 2006; “Accord is reached to aid forest bird,” *New York Times*, Apr. 16, 1993; Caroline Roth, “Sustaining the Red-Cockaded Woodpecker Population,” National Forests in Florida, U.S. Forest Service, accessed Nov. 2, 2016, <http://www.fs.usda.gov/detailfull/florida/landmanagement/resourcemanagement/?cid=STELPRDB5270811&width=full>.

the Endangered Species Act into play. Owners who manage their lands to support quail populations do not have to worry that the Fish and Wildlife Service might prevent them from cutting some of their mature longleaf. Nor do longleaf advocates have to fret over that kind of regulatory conflict, when invoking the benefits that longleaf restoration can provide to quail.

With antecedents in the story of Stoddard in the Red Hills, the fact that quail is a popular game bird in the South today has benefitted longleaf restoration and conservation, in that landowners who hunt quail or take guests or customers hunting are keenly interested in maintaining quail-friendly conditions. That means multi-aged forests with native understory plants that quail need for cover and food, interspersed with open areas. As Stoddard learned, practices like controlled burning, planting native plants, and selective timbering help to create such conditions. Therefore, the restored longleaf ecosystem that advocates have in mind matches well in many ways with how quail-hunting enthusiasts envision it. While advocates do not necessarily promote the bobwhite quail broadly and loudly as a symbol for restoration, they do make good progress in working with people at the intersection of hunting quail, sustaining quail populations, and restoring longleaf.⁴²⁹

Restoration advocates are motivated in part by the particular appeal of longleaf, but many are aware of other environmental issues and histories of environmental change in the nation and world, from air and water pollution to climate change. Those other histories contribute to their

⁴²⁹ Quail hunting is central in the history and ongoing work of the Tall Timbers Research Station, in the Red Hills region where Herbert Stoddard made his name. In 1919, Henry L. Beadel of New York City bought the land that would become Tall Timbers, and managed it primarily for the quail that he and his friends loved to hunt. Tall Timbers today manages its lands in part to boost quail and conserve longleaf, while conducting research on ecology, forestry, and land conservation; see “Welcome to Tall Timbers,” Tall Timbers Research Station and Land Conservancy, accessed Aug. 30, 2016, <http://talltimbers.org/welcome-to-tall-timbers/>, along with “Our Mission and Philosophy” and “Game Bird Program” sections; Theron M. Terhune and Bill Palmer, “Surviving the Odds,” Tall Timbers e-newsletter, accessed Aug. 31, 2016, http://talltimbers.org/news/news.php?news_id=543; Robert L. Crawford and William R. Breuckheimer, *Legacy of a Red Hills Hunting Plantation: Tall Timbers Research Station and Land Conservancy* (Gainesville, FL: University Press of Florida, 2012); Stoddard, *Bobwhite Quail*.

motivation, in the sense that advocates crave a tangible and visible example of environmental progress, and can find it in the form of increased longleaf acreage. Encouraging landowners to plant trees, restore native plants, and conduct burns, or actually doing that work as landowners, are actions that people can take and get a psychological payoff from the results. Restoration is challenging because it takes so much on-the-ground work, but this work also is essential to its appeal. The work is achievable, in a time of complex environmental challenges that often seem intractable, and a counter to the feeling that making a positive difference is impossible.

Many questions that persist about longleaf restoration are the same questions that confront us in shaping the future of many other ecosystems. Even people most committed to addressing environmental degradation as a global problem do not have fully convincing answers to questions such as whether we can truly restore ecosystems in a lasting way and “save” threatened species. What ecosystems should people care about most? Is there a hierarchy of values for ecosystems, among the economic, ecological, aesthetic, cultural, historical and other possible values, that makes the strongest case for restoration? In many cases, we do not know for sure what is required in restoring ecosystems, and whether an ecosystem truly can be restored so effectively that people can intervene less or not at all. We have to consider if we are overtaken by hubris in thinking that we can “restore” such complex ecosystems after long histories of damaging them. The questions are reminders of just how much work, research, resources, and time must be invested to have only a chance at effectively restoring more of the natural environment, which came to us as a gift or inheritance.

For longleaf, leading advocates contend that prioritizing the economic potential is the best way to advance restoration, because it can encourage more landowners to plant trees and give them incentive to manage the trees over multiple decades. Advocates like Longleaf Alliance

co-founders Rhett Johnson and Dean Gjerstad make an “Economics 101” argument, in the sense that building stronger consumer demand for longleaf products will create more incentive to grow longleaf to meet that demand. The “premium” product that such advocates have in mind is lumber from longleaf, rather than cutting longleaf for pulp and paper, and the way to increase demand for longleaf lumber is to promote qualities like its greater strength and resistance to rot – the kinds of qualities, of course, that lumber companies touted when they were turning the longleaf forests into lumber in the late nineteenth and early twentieth centuries.⁴³⁰

It will be important to continue asking whether emphasizing the economic potential is the most reliable foundation for long-term restoration. Convincing a large number of landowners across the South to plant, manage, and improve millions of acres of longleaf over multiple decades, without touting the potential to make money from the trees in the future, clearly would be difficult. At the same time, one wonders if it is wishful thinking to expect that, when the time comes to reap some financial benefit, landowners will cut longleaf with a light touch, rather than going for maximum return and cutting more destructively. Advocates are chasing an elusive ideal that consists of biodiverse, multi-aged, regenerating, beautiful longleaf forests that also are “working forests,” which allow for activities like hunting, and for regularly cutting a small percentage of trees when they are large enough to sell. Conservationist Finch contends that longleaf is “one of the few forests that allows us to have it both ways,” meaning a thriving, biodiverse, sustainable forest that also generates money for the owner. There are examples of longleaf forests that approach the ideal, but trying to achieve them on the scale of millions of

⁴³⁰ Finch et al., *Longleaf, Far as the Eye Can See*, 131 and 139.

acres takes the challenge to an entirely different level. Long-term restoration has many moving parts, and the prospects for getting the parts moving in sync over many years are uncertain.⁴³¹

Advocates cannot control or predict with any certainty how landowners will use restored longleaf in the future, and as Finch concedes, it would be “disastrous and economically self-destructive to build a market for longleaf if it resulted in another sea of stumps.” In the shorter term, if advocates created stronger demand for longleaf lumber fairly quickly, perhaps owners of the existing 1.9 million acres of longleaf on private lands would choose to cut more of their mature longleaf. This dissertation has argued that the drive for economic gain from longleaf in the past largely muted the occasional critiques of clearing the old-growth forests destructively and failing to invest in the next growth. The economic drive overpowered the conservationist musings. How can that history inform the restoration work today? It suggests that it is critical to question whether weighting the argument for restoration too heavily toward economic value could contribute to a new cycle of intensive timbering in the future that wipes out the gains. The history suggests that advocates are wise to argue tenaciously for the ecological, aesthetic, cultural, and other values of longleaf forests. They should do so even more forcefully, and give those values equal weight with economic value, if the aim is achieve and sustain biodiverse, healthy, appealing longleaf forests over the long term, rather than just more pine plantations masquerading as restored forests. Those values must be central in the argument that advocates make to landowners, and in the philosophy that landowners pass on to their children and grandchildren, as they pass on the land.⁴³²

⁴³¹ Ibid., 139.

⁴³² Ibid.

Conclusion

Advocates today are drawing on the history of people's interconnections with the southern longleaf forests that, since the colonial era, has been in part a contested evolution of conceptions of these forests and their value in meeting human needs. People have seen longleaf forests as a plentiful resource to be used for making naval stores and lumber as intensively as possible, a "piney woods" realm of hardscrabble, subsistence living and working, an agricultural crop that could be renewed continuously with proper management by foresters, a southern preserve for gentlemanly hunting, a dynamic ecosystem full of diverse life, and a source of pine-scented, healthier air and natural beauty. The longleaf forests also became an important arena for developing more effective ideas about professional forestry, scientific ecology, and related disciplines like conservation biology that sometimes were applicable beyond the longleaf region.

The work of professional foresters, conservation scientists, naturalists, and other longleaf advocates, along with the federal government's authority after 1911 to buy cutover longleaf lands and pursue reforestation, were essential in keeping longleaf intact as a species. In addition, a very small number of landowners in the longleaf South in the early decades of the twentieth century pursued alternatives to the "cut-and-run" approach – we might say they were "cut-but-don't-run" landowners. Their willingness to cut mature trees selectively and plant new longleaf, and establish relationships with researchers who created knowledge, also helps to explain why a small percentage of the longleaf forests survived, and a certain amount of second growth occurred – the sources of the 3.5 million acres or so of longleaf today. These figures did express alternative ideas to the dominant preference for maximum use of longleaf with no real investment in future longleaf forests. However, these figures and their forums, commitment, and imaginations were not nearly strong enough to achieve the daunting task of turning destructive timbering in a different direction during the intensive 1880-1920s period. They could not

demonstrate compellingly that the many individual instances of using longleaf, from a small landowner timbering a forty-acre parcel or a turpentine operator creating an “orchard” of 10,000 longleaf trees, to a large lumber company clear-cutting tens of thousands of acres, would add up to nearly eliminate longleaf altogether. In the late nineteenth and early twentieth centuries, the critiques that emerged called mainly for trying to procure a second growth of longleaf, and did not challenge fundamentally the destructive use of the old growth.

Longleaf history is a story of the American South for several reasons that go beyond geography. Longleaf forests were one aspect of the nonhuman environments in the antebellum South that contributed to making the system of slavery economically viable, although not to the same degree as the soils and climates that enabled growing cotton, tobacco, rice, and other cash crops. Starting in the colonial era, enslaved people were working not only in their owners’ crop fields and homes, but in the longleaf forests making naval stores and sawing trees into rough lumber, for use on plantations and for sale as market products.

After Reconstruction, the opportunity to acquire millions of acres of longleaf either by grant or purchase at relatively low prices made the longleaf forests increasingly appealing to lumber capitalists from outside the South. These capitalists relied on their own expertise, and used some workers experienced in logging and sawmilling in places like the Great Lakes region, but they relied mainly on a relatively cheap labor force of both black and white southerners. As much as possible, they used features that helped define “the South” to their advantage, such as Jim Crow racial hierarchies and anti-unionism, and therefore helped to perpetuate these features. These approaches were true for many turpentine companies as well. The New South political economy was in part about injections of northern capital, and the use of lower-cost southern labor and southern natural resources, in the interest of greater industrialization. While social

historians clearly recognize the severe inequalities and hardships of the post-Reconstruction South, they also have shown that opportunities to work in longleaf-based industries and build communities were critical for many black and white southerners. The history of longleaf is an inseparable thread in this broader New South history. Put another way, the society and political economy of the South after Reconstruction help to explain why Great Lakes lumbermen shifted much of their focus from white pine in Michigan to longleaf in the South in the late nineteenth century, rather than turning all their attention directly to the Pacific Coast forests.

As for the clearcutting that took down the longleaf forests from more than 95 percent of their historical range, it was distinct in some ways from other environmental transformations in the South in the late nineteenth century and first half of the twentieth century, with the damming of rivers as a key example. Capitalist aims related to industrialization and modernization – with the aid of hydropower – were important in driving the damming of the Tennessee, the Savannah, and other southern rivers, and private power companies dammed many streams in the region. But the federal government through the Army Corps of Engineers and the Tennessee Valley Authority had a massive influence as well, and this kind of direct investment of federal money, power, and expertise did not have the same place in the private, capitalist enterprise of cutting longleaf and making lumber, even though federal grants of millions of acres of longleaf lands certainly were important.⁴³³

On the other hand, the near elimination of longleaf was a distinctly southern style of deforestation only to a certain degree. Longleaf deforestation between 1880 and the 1920s in

⁴³³ While this is my broad view of dams and southern rivers, and the roles of public and private entities, an extremely valuable book-length study of the complex history of southern rivers and dams is Christopher J. Manganiello, *Southern Water, Southern Power: How the Politics of Cheap Energy and Water Scarcity Shaped a Region* (Chapel Hill: University of North Carolina Press, 2015); on one federal dam project on the Savannah River, see Robert P. Shapard, “Building an Inland Sea: Clarks Hill Lake on the Upper Savannah and the Twentieth-Century Lives, Land, and River Hidden by its Waters” (M.A. thesis, North Carolina State University, 2009).

particular was another illustration of southerners, often with the help of money and expertise from non-southerners, as adept and relentless at extracting subsistence and greater wealth from the nonhuman environment – forests, soils, wildlife – and from human labor as well. To consider one comparative example, the clearing of longleaf from more than 95 percent of its historical range is a much higher rate of deforestation than in the Brazilian rainforest in more recent decades. The Amazon rainforest is the earth’s largest tropical rainforest, with about 60 percent of its area in Brazil and the rest in several adjoining countries. Many researchers who focus on Brazil concur that a very high percentage of this country’s rainforest was intact before 1970. But the Trans-Amazonian Highway was constructed in the early 1970s, and this transportation route has helped facilitate the clearing of vast swaths of the Amazon rainforest.⁴³⁴

Before 1970, the rainforest extended over one billion acres or so in Brazil, and another 400 million acres in the adjoining countries. By 2016, deforestation in Brazil reduced the country’s total rainforest area to about 821 million acres, or by nearly 20 percent. This means that people cleared about 192 million acres of the Brazilian rainforest in this time period, logging massive trees for lumber, burning trees, and opening land for cattle ranches, subsistence farms, and large-scale farms for soy beans and other crops. In terms of acreage, this area of cleared rainforest in Brazil is more than twice the area of the full historical range of longleaf. However, people have deforested a much lower percentage of the Brazilian rainforest over the past forty-five years or so, than did the people timbering the longleaf forests. This is not a perfect forest-to-

⁴³⁴ Thiago Nunes Kehl, et al., *Real Time Deforestation Detection Using ANN and Satellite Images: The Amazon Rainforest Study Case* (New York: SpringerBriefs in Computer Science e-book, 2015), 1-4; Rhett Butler, Mongabay, “Calculating Deforestation Figures for the Amazon,” accessed Mar. 31, 2017, http://rainforests.mongabay.com/amazon/deforestation_calculations.html; William Balée, *Cultural Forests of the Amazon: An Historical Ecology of People and their Landscapes* (Tuscaloosa: University of Alabama Press, 2013), vii-xv, 1-6, and 174-184.

forest, or ecosystem-to-ecosystem, comparison, but it provides a relative sense of how thoroughly the longleaf forests were cleared.⁴³⁵

However, the period of intensive longleaf timbering also has much in common with American deforestation more generally, deforestation on other continents, and most broadly, the destructive use of the nonhuman environment around the world in the twentieth century. The need for humans to make their living, and the drive to amass greater individual and community wealth, are among the commonalities. These forces relate directly to consumerism, as companies around the world have used staggering amounts of natural resources to make consumer products, and thus build their wealth, and people work to make a living in part to consume these products.

Another important commonality is the long history of using the nonhuman environment, such as waterways and the atmosphere, to absorb a significant part of the true costs of economic activities, in the name of keeping down consumer prices, and in the interest of higher margins. For example, in the longleaf South, lumbermen during the intensive period were not required to put money into keeping soils out of streams after their loggers exposed the soils in clearcutting, or preventing fires that swept through cutovers littered with timbering debris, or mitigating air pollution from steam-powered lumber mills and logging machinery. Today, in spite of the strengthening of environmental regulations in this country since the early 1970s, and in some other nations as well, we still use the nonhuman environment to absorb much of the costs of human economic activities. In the future, restored longleaf forests that people can use to make money while also genuinely sustaining the capacity of the forests to support diverse life, enhance air and water quality, and offer natural beauty, would be an extremely valuable model, in this time when such a balance between economy and environment can seem as elusive as ever.

⁴³⁵ Ibid.

BIBLIOGRAPHY

PRIMARY SOURCES

Manuscript Collections

Baton Rouge, LA

Special Collections, Louisiana State University Libraries
Great Southern Lumber Company Collection

Chapel Hill, NC

Wilson Library, University of North Carolina
Southern Historical Collection
William Willard Ashe Papers

Columbia, MO

State Historical Society of Missouri
Louisiana Central Lumber Company Records

Durham, NC

Archives, Forest History Society

Eglin Air Force Base, FL

Archives, Eglin Air Force Base

Franklin, VA

Archives, Camp Manufacturing Company
Camp Family Private Collection

Hammond, LA

Sims Memorial Library, Southeastern Louisiana University
Center for Southeast Louisiana Studies
William H. Sullivan Collection

Raleigh, NC

North Carolina State University Libraries, Special Collections
Bertram W. Wells Papers

Statesboro, GA

Henderson Library, Georgia Southern University
Special Collections
Roland Harper Articles

Henderson Library, Georgia Southern University
Special Collections
Richard W. Lighty Collection
Roland Harper Writings

Tallahassee, FL

Archives, Tall Timbers Research Station and Land Conservancy
Herbert L. Stoddard Collection

Archives, National Forests in Florida

Tuscaloosa, AL

W.S. Hoole Special Collections, University of Alabama Libraries
Charles T. Mohr Collection
Roland Harper Papers

Newspapers and Periodicals

American Lumberman

Atlanta Constitution

Brunswick Advertiser and Appeal (Brunswick, GA)

Fayetteville News (NC)

Fayetteville Observer (NC)

North Carolinian (Fayetteville, NC)

North Carolina Gazette (Fayetteville, NC)

Tallahassee Democrat

The Caucasian (Clinton, NC)

The Eagle (Fayetteville, NC)

The Lumber World

The Sunny South (Atlanta, GA)

Maps

D.G. McDuffie, "McDuffie's Map of Cumberland County, North Carolina." New York: Robert A. Welcke, 1884. Accessed online, Aug. 2, 2015,
<http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/250>.

John McDuffie, "Map of Robeson County, N.C. 1884." Accessed online, Aug. 2, 2015,
<http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/253/rec/9>.

Published Works

- Addresses and Proceedings of the First National Conservation Congress Held at Seattle, Washington, Aug. 26-29, 1909.* Washington, D.C.: W.F. Roberts Co. for the National Conservation Congress.
- American Lumbermen: The Personal History and Public and Business Achievements of One Hundred Eminent Lumbermen of the United States.* Chicago: The American Lumberman, 1905.
- Ashe, William W. *Forest Fires: Their Destructive Work, Causes, and Prevention.* Raleigh, N.C.: North Carolina Geological Survey Bulletin No. 7, 1895.
- . *Loblolly or North Carolina Pine.* Raleigh, N.C.: North Carolina Geological and Economic Survey Bulletin No. 24, 1915.
- . William W. “The Longleaf Pine and its Struggle for Existence.” *Journal of the Elisha Mitchell Society*, 11 First Part (January-July, 1894): 1-15.
- Averitt, H.S. *Historical Sketch of Cumberland County.* Delivered at dedication of new Cumberland County courthouse, Mar. 15, 1926. North Carolina Collection, UNC Libraries, University of North Carolina at Chapel Hill.
- Coker, William C., J.S. Holmes, C.F. Korstian. “William Willard Ashe.” *Journal of the Elisha Mitchell Society*, 48, no. 1 (October 1932): 40-47.
- Daniell, E.L. *Personnel of the Texas State Government* (Austin, Texas: Smith, Hicks, and Jones, 1889), 326-28.
- Eastern Carolina Chamber of Commerce. *Eastern North Carolina Encyclopedia.* Wilmington, N.C.: National Press, 1924.
- Eldredge, Inman F. Interview by Elwood R. Maunder. Tape recording. New Orleans, Feb. 3-4, 1959. Recording held by Forest History Society, Durham, NC, and transcript online at http://www.foresthistory.org/Research/Biltmore_Project/OHIs/Eldredge.pdf.
- Florida Legislature. *The Acts and Resolutions Adopted by the Legislature of Florida at its Eleventh Session.* Tallahassee, Fla.: Charles E. Dyke, State Printer, 1881.
- Forestry Division, U.S. Department of Agriculture, “Strength of ‘Boxed’ or Turpentine Timber,” *Circular No. 8*, March 1892.
- Forestry Division, U.S. Department of Agriculture, “Effect of Turpentine Gathering on the Timber of Longleaf Pine,” *Circular No. 9*, January 1893.

- Forest Service, U.S. Department of Agriculture. *Florida National Forests*. Washington, D.C.: Government Printing Office, 1939.
- Godwin, Parke, ed. *The Life and Works of William Cullen Bryant* (Vol. 6). New York: D. Appleton and Co., 1889.
- Greeley, William B. "The Relation of Geography to Timber Supply." *Economic Geography* Vol. 1 No. 1 (March 1925): 1-14.
- Green, Myron. *County Government and County Affairs in Cumberland County, N.C.* Chapel Hill: University of North Carolina Institute for Research in Social Science, 1926.
- Harper, Roland M. "Development of agriculture in the pine-barrens of the southeastern United States." *Journal of Geography* 15 (October 1916): 42-48.
- . *Economic Botany of Alabama, Part 1: Geographical Report, Including Descriptions of the Natural Divisions of the State, their Forests and Forest Industries, with Quantitative Analyses and Statistical Tables*. University, AL: Geological Survey of Alabama, Monograph 8, 1913.
- . *Economic Botany of Alabama, Part 2: Catalogue of the Trees, Shrubs and Vines of Alabama, with their Economic Properties and Local Distribution*. University, AL: Geological Survey of Alabama, Monograph 9, 1928.
- . "Geography and Vegetation of Northern Florida," in Sixth Annual Report, Florida State Geological Survey, Tallahassee, 1914.
- . "Phytogeographical explorations in the coastal plain of Georgia," *Bulletin of the Torrey Botanical Club* 32 (1905): 451-467.
- . "Some neglected aspects of the campaign against swamps," *Southern Woodlands* 2, no. 3 (August 1908): 46-65.
- . "The coniferous forests of Eastern North America. *Popular Science Monthly* 85 (October 1914): 338-61.
- Hough, Franklin B. "On the Duty of Governments in the Preservation of Forests," in Proceedings of the American Association for the Advancement of Science, Twenty-second Meeting, August 1873. Salem: AAAS, 1874.
- Ivy, Thomas Parker. *The Long Leaf Pine, with Prefatory Remarks on the Political and Geological History of North Carolina and the Sandhills, including a Summary of the Flora and Fauna*. Southern Pines, N.C.: Sandhill Citizen Print, 1923.

Loughery, E.H. *Personnel of the Texas State Government for 1885, Containing Biographical Sketches of the Governor, Lieutenant Governor, Heads of Departments and Members and Officers of the Nineteenth Legislature*. Austin, TX: J.M. Snyder, 1885.

———. *Texas State Government: A Volume of Biographical and Sketches and Passing Comment*. Austin, TX: McLeod and Jackson, 1897.

McEachern, D.P., ed. *All About Robeson County*. Lumberton, N.C.: W.W. McDiarmid (by order of Board of County Commissioners), 1884.

McPherson, O.M. *Indians of North Carolina: Letter from the Secretary of the Interior Transmitting, in Response to a Senate Resolution of June 30, 1914, a Report on the Condition and Tribal Rights of the Indians of Robeson and Adjoining Counties of North Carolina*. Washington, D.C.: Government Printing Office, 1915.

Mohr, Charles T. *Plant Life of Alabama: An Account of the Distribution, Modes of Association, and Adaptations of the Flora of Alabama, Together with a Systematic Catalogue of the Plants Growing in the State*. Montgomery, AL: Brown Printing Co., 1901 (the “Alabama edition”).

———. *Timber Pines of the Southern United States*. Washington, D.C.: U.S. Department of Agriculture (Bulletin No. 13 Revised Edition), 1897.

Myrover, J.H. *Short History of Cumberland County and the Cape Fear Section*. Fayetteville, N.C.: N.C. Baptist Publishing Co. (for Bank of Fayetteville), 1905.

Rose, Duncan. *The Resources and Industries of Cumberland County and Fayetteville, North Carolina*. Fayetteville, N.C.: Commissioners of Cumberland County and Mayor and Aldermen of Fayetteville, 1897.

Schaw, Janet. *Journal of a Lady of Quality: Being the Narrative of a Journey from Scotland to the West Indies, North Carolina, and Portugal, in the Years 1774 to 1776*. New Haven: Yale University Press, 1921 (Evangeline Walker Andrews, ed., with Charles McLean Andrews).

Terry, Edward A. *County Government and County Affairs in Sampson County, N.C.* Chapel Hill: University of North Carolina Institute for Research in Social Science, 1928.

U.S. Department of Agriculture. *Annual Reports of the Department of Agriculture, for the Year Ended June 30, 1910*. Washington, D.C.: Government Printing Office, 1911.

SECONDARY SOURCES

Alexander, Elizabeth Urban. *Notorious Woman: The Celebrated Case of Myra Clark Gaines*. Baton Rouge: Louisiana State University Press, 2001.

- Atwood, Anthony D. "A State of War: Florida from 1939 to 1945." Doctoral dissertation, Florida International University, 2012.
- Ayers, Edward L. *The Promise of the New South: Life after Reconstruction*. New York: Oxford University Press, 1992.
- Balaine, Wesley C. "The Revested Oregon and California Railroad Grant Lands: A Problem in Land Management." *Land Economics* Vol. 29 No. 3 (Aug. 1953), 219-232.
- Balée, William. *Cultural Forests of the Amazon: An Historical Ecology of People and their Landscapes*. Tuscaloosa: University of Alabama Press, 2013.
- Barrow, Mark V. Jr. *Nature's Ghosts: Confronting Extinction from the Age of Jefferson to the Age of Ecology*. Chicago: University of Chicago Press, 2009.
- Behan, Richard W. *Plundered Promise: Capitalism, Politics, and the Fate of the Federal Lands*. Washington, D.C.: Island Press, 2001.
- Benac, David. *Conflict in the Ozarks: Hill Folk, Industrialists, and Government in Missouri's Courtois Hills*. Kirksville, Mo.: Truman State University Press, 2010.
- Berry, Trey. "The Expedition of William Dunbar and George Hunter along the Ouachita River, 1804-1805." *Arkansas Historical Quarterly*, 62, no. 4 (Winter 2003): 386-403.
- Berry, Trey, Pam Beasley, and Jeanne Clements, eds. *The Forgotten Expedition, 1804-1805: The Louisiana Purchase Journals of Dunbar and Hunter*. Baton Rouge: Louisiana State University Press, 2006.
- Block, W.T. (William Theo). *Early Sawmill Towns of the Louisiana-Texas Borderlands*. Woodville, TX: Dogwood Press, 1996.
- . *East Texas Mill Towns and Ghost Towns* (Vols. 1-3). Lufkin, Texas: Best of East Texas Publishers, 1994, 1995, and 1997.
- Blu, Karen I. *The Lumbee Problem: The Making of an American Indian People*. New York: Cambridge University Press, 1980.
- Bounds, Jamie D. *The L.N. Dantzler Lumber Company: A Prosperous South Mississippi Lumber Company*. M.A. Thesis, University of Southern Mississippi, 2003.
- Boyd, William. *The Slain Wood: Papermaking and its Environmental Consequences in the American South*. Baltimore: Johns Hopkins University Press, 2015.
- Bowcutt, Frederica. *The Tanoak Tree: An Environmental History of a Pacific Coast Hardwood*. Seattle: University of Washington Press, 2015.

- Brinkley, Douglas. *The Wilderness Warrior: Theodore Roosevelt and the Crusade for America*. New York: Harper, 2009.
- Burns, Anna C. *Fullerton: The Mill, the Town, the People, 1907-1927*. Alexandria, LA: publisher not identified, 1970.
- Butler, Carroll B. *Treasures of the Longleaf Pines Naval Stores*. Shalimar, FL: Tarkel Publishing, 1998.
- Carle, David. *Burning Questions: America's Fight with Nature's Fire*. Westport, CT: Praeger, 2002.
- Carter, Mason C., Robert C. Kellison, and R. Scott Wallinger. *Forestry in the U.S. South: A History*. Baton Rouge: Louisiana State University Press, 2015.
- Cawley, R. McGregor. *Federal Land, Western Anger: The Sagebrush Rebellion and Environmental Politics*. Lawrence: University Press of Kansas, 1993.
- Chapman, H.H. "Why the Town of McNary Moved: A Tragedy of the Southern Pines and a Parallel Which Carries its Own Lesson," *American Forests* 30, no. 370 (October 1924): 589-592, 626.
- Childers, William T. *Echoes from the Millpond: A Brief History of the Louisiana Central Lumber Company, Clarks, Louisiana, 1902-1953*. Columbia, LA: Caldwell Parish Library, 1987.
- Christensen, Lawrence O. and Gary R. Kremer. *A History of Missouri: Volume IV, 1875-1919*. Columbia, MO: University of Missouri Press, 1997.
- Clepper, Henry. *Professional Forestry in the United States*. Baltimore: The Johns Hopkins Press, 1971.
- Coker, William C., and Henry R. Totten. *Trees of the Southeastern United States, Including Virginia, North Carolina, South Carolina, Tennessee, Georgia, and Northern Florida*. Chapel Hill: University of North Carolina Press, 1937.
- Coles, Harry Lewis. *History of the Administration of Federal Land Policies and Land Tenure in Louisiana*. New York: Arno Press, 1979.
- Conrad, David E. "Creating the Nation's Largest Forest Reserve: Roosevelt, Emmons, and the Tongass National Forest." *Pacific Historical Review*, 46, no. 1 (Feb. 1977): 65-83.
- Crittenden, H. Temple. *The Comp'ny: The Story of the Surry, Sussex & Southampton Railway and the Surry Lumber Company*. Parson, WV: McClain Printing Company, 1967.

- Cronon, William. *Nature's Metropolis: Chicago and the Great West*. New York: W.W. Norton and Co., 1991.
- . "The Trouble with Wilderness, or Getting Back to the Wrong Nature," in Louis S. Warren, ed. *American Environmental History*. Malden, MA: Blackwell Publishing, 2003.
- Crosby, Alfred W. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge: Cambridge University Press, 2015 edition.
- Culhane, Paul J. *Public Lands Politics: Interest Group Influence on the Forest Service and the Bureau of Land Management*. Baltimore: The Johns Hopkins Press, 1981.
- Daniel, Terry C. et al., eds. *People, Fire, and Forests: A Synthesis of Wildfire Social Science*. Corvallis, Ore.: Oregon State University Press, 2007.
- Dargavel, John and Elisabeth Johann. *Science and Hope: A Forest History*. Cambridge, England: The White Horse Press, 2013.
- Davis, Donald E. et al., *Southern United States: An Environmental History*. Santa Barbara, CA: ABC-CLIO, 2006.
- Davenport, L. J. and G. Ward Hubbs. "Roland Harper, Alabama Botanist and Social Critic: A Biographical Sketch and Bibliography." *Bulletin of the Alabama Museum of Natural History* (May 1, 1995): 25-45.
- Dayton, William A. *William Willard Ashe (1872-1932)*. Unnamed publisher, 1936 (short biography in North Carolina Collection, Wilson Library, UNC Chapel Hill).
- De Boer, Tycho. *Nature, Business, and Community in North Carolina's Green Swamp*. Gainesville: University Press of Florida, 2008.
- Dick, Everett. *The Lure of the Land: A Social History of the Public Lands from the Articles of Confederation to the New Deal*. Lincoln: University of Nebraska Press, 1970.
- Dombeck, Michael P., Christopher A. Wood, and Jack E. Williams. *From Conquest to Conservation: Our Public Lands Legacy*. Washington, D.C.: Island Press, 2003.
- Dovell, J. E. "The Railroads and the Public Lands of Florida, 1879-1905." *Florida Historical Quarterly* 34, no. 3 (Jan. 1956): 236-58.
- Eakin, Sue and Manie Culbertson, eds. *Louisiana: The Land and its People*. Gretna, La.: Pelican Publishing Co., 1986.
- Earley, Lawrence S. *Looking for Longleaf: The Fall and Rise of an American Forest*. Chapel Hill: UNC Press, 2004.

- Egan, Timothy. *The Big Burn: Teddy Roosevelt and the Fire That Saved America*. Boston: Houghton Mifflin Harcourt, 2009.
- Ellis, Richard J. *The Development of the American Presidency*. New York: Routledge, 2015.
- Fausold, Martin L. *Gifford Pinchot: Bull Moose Progressive*. Syracuse: Syracuse University Press, 1961.
- Finch, Bill, Beth Maynor Young, Rhett Johnson, and John C. Hall. *Longleaf, Far as the Eye Can See: A New Vision of North America's Richest Forest*. Chapel Hill: University of North Carolina Press, 2012.
- Frank, Bernard. *Our National Forests*. Norman, OK: University of Oklahoma Press, 1955.
- Fries, Robert F. *Empire in Pine: The Story of Lumbering in Wisconsin, 1830-1900*. Madison, WI: State Historical Society of Wisconsin, 1951.
- Galloway, John A. "John Barber White: Lumberman." Doctoral dissertation, University of Missouri, 1961.
- Gates, Paul W. *History of Public Land Law Development*. Washington, D.C.: Public Land Law Review Commission, 1968.
- Gates, Paul W. (eds. Allan G. and Margaret Beattie Bogue). *The Jeffersonian Dream: Studies in the History of American Land Policy and Development*. Albuquerque: University of New Mexico Press, 1996.
- Gibson, Henry H. *American Forest Trees*. Chicago: Hardwood Record, 1913.
- Goins, Charles R. and John M. Caldwell. *Historical Atlas of Louisiana*. Norman, OK: University of Oklahoma Press, 1995.
- Harrison, Robert Pogue. *Forests: The Shadow of Civilization*. Chicago: University of Chicago Press, 1992.
- Hart, Albert Bushnell, and Herbert R. Ferleger, eds. *Theodore Roosevelt Cyclopedia*. New York: Roosevelt Memorial Association, 1941.
- Herr, Kincaid. *The Louisville and Nashville Railroad: 1850-1963*. Lexington, KY: University Press of Kentucky, 1964.
- Heyward, Frank. *History of Industrial Forestry in the South*. Seattle: University of Washington College of Forestry, 1958.
- Hill, Leslie G. "History of the Missouri Lumber and Mining Company, 1880-1909." Doctoral dissertation, University of Missouri, 1949.

- Jones, Voncille L. *Camp Pinchot, A National Historic Site at Eglin AFB, Florida: Fifty Year Tribute*. Eglin Air Force Base, FL: Air Armament Center Office of History and Eglin Multimedia Center, 2001.
- Jones, William P. *The Tribe of Black Ulysses: African American Lumber Workers in the Jim Crow South*. Champaign: University of Illinois Press, 2005.
- Johnson, Christopher, and David Govatski. *Forests for the People: The Story of America's Eastern National Forests*. Washington: Island Press, 2013.
- Jose, Shibu, Eric J. Jokela, and Deborah L. Miller, eds. *The Longleaf Pine Ecosystem: Ecology, Silviculture, and Restoration*. New York: Springer, 2006.
- Kane, Sharyn and Richard Keeton. *Southern National Forests*. Helena, MT: Falcon Press, 1993.
- Kell, Michael W. "Francis Marion National Forest: A Forest History." M.A. thesis, University of Charleston and The Citadel, 1997.
- Kendrick, Baynard, and Barry Walsh. *A History of Florida Forests*. Gainesville: University Press of Florida, 2007.
- Kerr, Ed. *History of Forestry in Louisiana*. Baton Rouge: Office of the State Forester, 1958.
- Klein, Maury. *History of the Louisville and Nashville Railroad*. New York: The Macmillan Co., 1972.
- Lanza, Michael L. *Agrarianism and Reconstruction Politics: The Southern Homestead Act*. Baton Rouge: Louisiana State University Press, 1990.
- Lefler, Hugh Talmage and Albert Ray Newsome. *North Carolina: The History of a Southern State*. Chapel Hill: University of North Carolina Press, 1973.
- Lewis, James G. *The Forest Service and the Greatest Good: A Centennial History*. Durham, NC: Forest History Society, 2005.
- Link, William. *North Carolina: Change and Tradition in a Southern State*. Wheeling, IL: Harlan Davidson, 2009.
- Lockett, Samuel H. *Louisiana as it is: A Geographical and Topographical Description of the State*. Baton Rouge: Louisiana State University Press, 1969.
- Mackin, Anne. *Americans and Their Land: The House Built on Abundance*. Ann Arbor: The University of Michigan Press, 2006.

- Marks, Ken and Lisa Marks. *Hannibal, Missouri: A Brief History*. Charleston, SC: The History Press, 2011.
- Massoni, Julie. *Camp Pinchot*. Eglin Air Force Base, FL: Office of History, Armament Division, 1988.
- McCarthy, G. Michael. "The Forest Reserves Controversy: Colorado Under Cleveland and McKinley," *Journal of Forest History* 20, no. 2 (April 1976): 80-90.
- McClurkin, D.C. "Soil and Climatic Factors Related to the Growth of Longleaf Pine." New Orleans: Southern Forest Experiment Station, U.S. Forest Service, Dec. 1953.
- McDonald, Mary Lou L. and Samuel J. Lawson III. *The Passing of the Pines: A History of Wilcox County, Georgia* (2 vols.). Roswell, GA: WH Wolfe Associates, 1984-87.
- McFarlane, Robert W. *A Stillness in the Pines: The Ecology of the Red-Cockaded Woodpecker*. New York: W.W. Norton and Co., 1992.
- Morris, Christopher. "A More Southern Environmental History." *Journal of Southern History* LXXV, no. 3 (Aug. 2009): 581-598.
- Neel, Leon, Paul S. Sutter, and Albert G. Way. *The Art of Managing Longleaf: A Personal History of the Stoddard-Neel Approach*. Athens, GA: University of Georgia Press, 2010.
- Oates, John A. *The Story of Fayetteville and the Upper Cape Fear*. Fayetteville, NC: Fayetteville Woman's Club, 1981.
- Oden, Jack P. "Origins of the Southern Kraft Paper Industry, 1903-1930." *Mississippi Quarterly* 30, no. 4 (Fall 1977): 565-84.
- Orr, Douglas M. Jr., and Alfred W. Stuart, eds. *The North Carolina Atlas: Portrait for a New Century*. Chapel Hill: University of North Carolina Press, 2000.
- Ottoson, Howard W., ed. *Land Use Policy and Problems in the United States*. Lincoln: University of Nebraska Press, 1963.
- Outland, Robert B. *Tapping the Pines: The Naval Stores Industry in the American South*. Baton Rouge: Louisiana State University Press, 2004.
- Parker, Roy Jr. *Cumberland County: A Brief History*. Raleigh, NC: North Carolina Division of Archives and History, 1990.
- Pinchot, Gifford. *Breaking New Ground*. New York: Harcourt, Brace and Company, 1947.
- Pinchot, Gifford and W.W. Ashe. *Timber Trees and Forests of North Carolina*. Bulletin No. 6. Winston, N.C.: North Carolina Geological Survey, 1897.

- Powell, William S., ed. *Dictionary of North Carolina Biography*, Vol. 1, 3. Chapel Hill: University of North Carolina Press, 1979.
- . *Encyclopedia of North Carolina*. Chapel Hill: University of North Carolina Press, 2006.
- . *North Carolina Through Four Centuries*. Chapel Hill: University of North Carolina Press, 1989.
- Price, Jennifer. *Flight Maps: Adventures with Nature in Modern America*. New York: Basic Books, 1999.
- Pyne, Stephen J. *Fire in America: A Cultural History of Wildland and Rural Fire*. Princeton, N.J.: Princeton University Press, 1982.
- . *Florida: A Fire Survey*. Tucson: University of Arizona Press, 2016.
- Rakestraw, Lawrence. "Uncle Sam's Forest Reserves." *Pacific Northwest Quarterly* 44, no. 4 (Oct. 1953): 145-51.
- Ray, Janisse. *Ecology of a Cracker Childhood*. Minneapolis, MN: Milkweed Editions, 1999.
- Robbins, Roy M. *Our Landed Heritage: The Public Domain, 1776-1970*. Lincoln: University of Nebraska Press, 1976.
- Rodgers, Andrew Denny III. *Bernhard Eduard Fernow: A Story of North American Forestry*. Princeton: Princeton University Press, 1951.
- Ross, Thomas E. *One Land, Three Peoples: An Atlas of Robeson County, North Carolina*. Lumberton, NC: Thomas Ross, 1982.
- Rouse, Parke Jr. *The Timber Tycoons: The Camp Families of Virginia and Florida and Their Empire, 1887-1987*. Richmond, VA: The William Byrd Press for the Southampton County Historical Society, 1988.
- Rutkow, Eric. *American Canopy: Trees, Forests, and the Making of a Nation*. New York: Scribner, 2012.
- Shapard, Robert P. "Building an Inland Sea: Clarks Hill Lake on the Upper Savannah and the Twentieth-Century Lives, Land, and River Hidden by its Waters." M.A. thesis, North Carolina State University, 2009.
- Shores, Elizabeth Findley. *On Harper's Trail: Roland McMillan Harper, Pioneering Botanist of the Southern Coastal Plain*. Athens: University of Georgia Press, 2008.

- Smith, T.C. *The Tale of Three Sawmill Towns: Alco, Long Leaf, and Meridian, Louisiana*. Natchitoches, LA: Northwestern State University of Louisiana Press, 2007.
- Special articles, “The National Conservation Commission,” *Science*, New Series 27, no. 704 (June 26, 1908): 994-96.
- Sprunt, James. *Chronicles of the Cape Fear River: Being Some Account of Historic Events on the Cape Fear River*. Raleigh, NC: Edwards & Broughton Printing Co., 1914.
- Steen, Harold K., ed. *Origins of the National Forests: A Centennial Symposium*. Durham, NC: Forest History Society, 1992.
- . *The U.S. Forest Service: A History*. Durham, NC: Forest History Society and University of Washington Press, 2004 edition.
- Steinberg, Ted. *Down to Earth: Nature’s Role in American History*. New York: Oxford University Press, 2009.
- Stoddard, Herbert L. Sr. *Memoirs of a Naturalist*. Norman, OK: University of Oklahoma Press, 1969.
- . *The Bobwhite Quail: Its Preservation, Habitats and Increase*. New York: Charles Scribner’s Sons, 1931.
- Strole, Glenn F. *Chadbourn and her Sunny South Colony*. Whiteville, NC: New Reporter Company, Inc., 1976 revised edition.
- Sutter, Paul. “The World with Us: The State of American Environmental History.” *Journal of American History* 100, no. 1 (June 2013): 94-119.
- Troyer, James R. “Botany at Biltmore: An Unusual Case of Private Support of Science.” *Journal of the North Carolina Academy of Sciences*, 122, pt. 4 (2006): 135-41.
- Wahlenberg, W.G. *Longleaf Pine: Its Use, Ecology, Regeneration Protection, Growth, and Management*. Washington, D.C.: Charles Lathrop Pack Forestry Foundation, 1946.
- Wall, Bennett H., ed. *Louisiana: A History*. Wheeling, IL: Harlan Davidson, Inc., 2002.
- Warren, Louis S., ed. *American Environmental History*. Malden, MA: Blackwell Publishing, 2003.
- Watson, Alan D. *Internal Improvements in Antebellum North Carolina*. Raleigh, NC: Office of Archives and History, N.C. Dept. of Cultural Resources, 2002.

- Watson, Harry L. *Jacksonian Politics and Community Conflict: The Emergence of the Second American Party System in Cumberland County, North Carolina*. Baton Rouge: Louisiana State University Press, 1981.
- Way, Albert G. *Conserving Southern Longleaf: Herbert Stoddard and the Rise of Ecological Land Management*. Athens: University of Georgia Press, 2011.
- Wells, B.W. and I.V. Shunk. "The Vegetation and Habitat Factors of the Coarser Sands of the North Carolina Coastal Plain: An Ecological Study." *Ecological Monographs* 1, no. 4 (Oct., 1931): 465-520.
- Williams, Brett W. et al. "Protecting Red-Cockaded Woodpecker Cavity Trees Predisposed to Fire-Induced Mortality." *Journal of Wildlife Management*, 70 no. 3 (June 2006): 702-707.
- Williams, Michael. *Americans and their Forests: A Historical Geography*. Cambridge: Cambridge University Press, 1989.
- Wilson, Edward O. *Naturalist*. Washington, D.C.: Island Press/Shearwater Books, 1994.