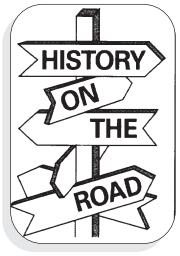
HISTORY ON THE ROAD

A MAPPED HISTORY OF THE CROSSETT EXPERIMENTAL FOREST

By Don C. Bragg



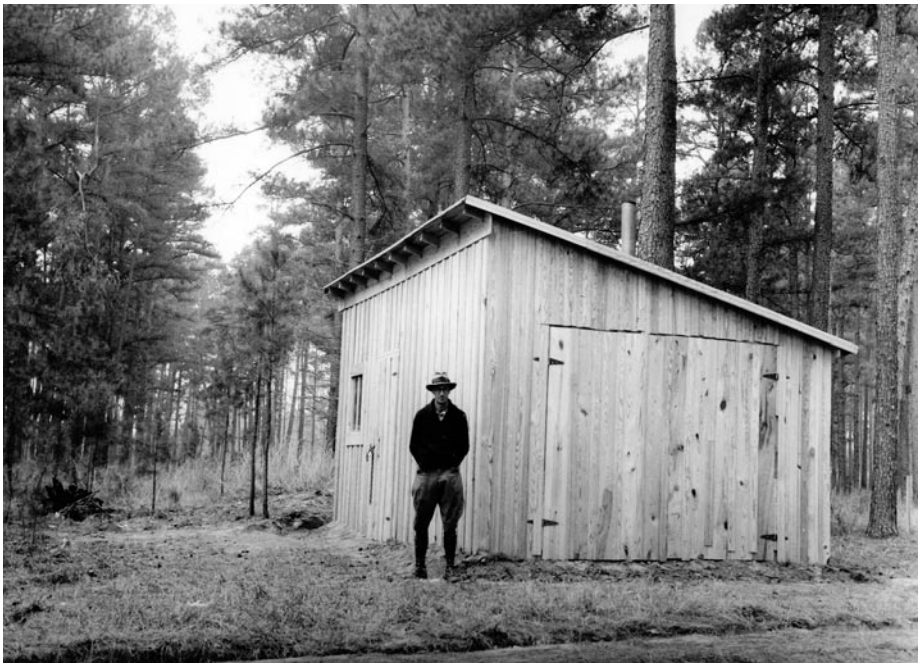
Carved out of the piney woods of southern Arkansas, the U.S. Forest Service's Crossett Experimental Forest recently celebrated 75 years in the science and practice of forestry. During that time, Crossett employees have published hundreds of papers and given untold numbers of presentations and tours, educating thousands of people of all ages and backgrounds about southern pine management. The silvicultural lessons learned there have helped improve forests across the southern United States.

But when Russell R. Reynolds officially opened the new experimental station on January 1, 1934, he was probably unaware of the site's history to that point in time. Although there was plenty of evidence of earlier human activity on the land, Reynolds was more concerned with helping the Crossett Lumber Company and other private landowners learn how to manage their cutover, pine-dominated forests. His hindsight, therefore, needed to extend only to the recent origin of any stand—when a lumber company had logged a particular tract, or how old the established regeneration was on that parcel. Over the years, Reynolds developed an appreciation for his role and that of the Crossett Experimental Forest in the history of the region, and how the practices of the past had created the forest he managed.[1] Yet a chronicle of this forest includes far more than just its recent narrative of exploitive lumbering, forest renewal, and sustainable timber management—it is a story found in the historical maps of the area.

PREHISTORY TO EUROPEAN SETTLEMENT

The Paleoindians were the first humans to occupy the lands that would eventually become the Crossett Experimental Forest; though they arrived more than 10,000 years ago, they left little evidence of their presence.[2] Over the millennia, a succession of prehistoric peoples inhabited the region, especially along the major waterways, such as the Mississippi, Ouachita, and Saline rivers and their tributaries.[3] By the time of first European contact, this part of southeastern Arkansas was occupied by Mississippian tribes, probably the ancestors of the Tunican Indians.[4] Spaniard Hernando de Soto's expedition may have ventured into Ashley County in 1542, although there is much uncertainty about the exact route of his expedition, and almost no archaeological evidence of it.[5] Europeans (but not their exotic diseases and escaped hogs) disappeared from the region until the late 1600s. The intervening decades saw dramatic declines in the Native American population due to illness, drought, and social upheaval. By 1673, when a French expedition under Jacques Marquette and Louis Jolliet reached the mouth of the Arkansas River, most of eastern Arkansas was only sparsely populated.[6]

The Spanish and French brought with them their proclivity to chart the lands they claimed. For European societies, maps contained knowledge and conveyed control over the world they explored. A multitude of maps were produced from the seventeenth century onward as the major European powers struggled to exploit various parts of the New World. Some of these maps, made with few formal measurements, are almost impossible to translate into modern-day geographic features. The earliest maps, even the most accurate ones, rarely depict places beyond the major river corridors traveled by their creators. For instance, Spanish cartographer Diego Gutiérrez's 1562 map of the western hemisphere clearly shows the Gulf of Mexico and the Florida peninsula but virtually no other details of this largely unknown realm. The Mississippi River (to early Spanish explorers, the Río del Espíritu Santo) is visible on this map and is shown flowing from the north, draining the highlands of the region between La Neuva Galitia (New Spain) and Tierra Florida.[7]



FOREST SERVICE PHOTOGRAPH FROM THE CROSSETT EXPERIMENTAL FOREST ARCHIVES

Figure 1. The original superintendent and first scientist stationed at the Crossett Experimental Forest, Russell R. Reynolds, stands next to the first building constructed at the new facility.

GEOGRAPHY AND MAP DIVISION AT THE LIBRARY OF CONGRESS

Figure 2. Diego Gutiérrez's 1562 map of the western hemisphere displayed virtually no details on the area that would eventually become the southeastern United States. However, it shows the Mississippi River (white arrow, "Río del Espíritu Santo") where it flows into the Gulf of Mexico.

Gradually, more and more geographic information was included on these maps.

During the Colonial period, Arkansas would receive its name from the Quapaw Indians, a group that apparently migrated (or were driven) from lands farther north and east of the region following the decline of the Mississippian peoples.[7] In contemporary maps (e.g., Figure 3), the settlements of the Quapaw were often labeled Akansa, which eventually became Arkansas. The region's rich hunting grounds were coveted by more easterly tribes whose own lands were under pressure from European settlers and hunters. A relatively small and peaceful people, the Quapaw established alliances with some of these tribes and French and Spanish colonists to help ensure their survival.[8] During much of the 1700s and early 1800s, hunters from many other nations could be found in eastern Arkansas, including the Europeans, Americans, Choctaw, Chickasaw, Cherokee, and Delaware, but few settled permanently.[9] American control after the 1803 Louisiana Purchase eventually led to the removal of southeastern tribes, with thousands of Native Americans forced across Arkansas to the newly created Indian Territory just to the west. Parts of the Choctaw and Chickasaw Trail of Tears along the Ouachita River and the overland trace between Point Chicot on the Mississippi River and Ecore Fabre (today's

GEOGRAPHY AND MAP DIVISION AT THE LIBRARY OF CONGRESS

Figure 3. When this Revolutionary War–period map of the lower Mississippi River valley was made in 1778, the "Akansas" tribe (today's Quapaw) controlled most of the region along the western bank of the Mississippi River. The "Black River" follows most of the course of the Ouachita River.

Camden, Arkansas) are just a few miles from the land that would become the Crossett Experimental Forest.[10]

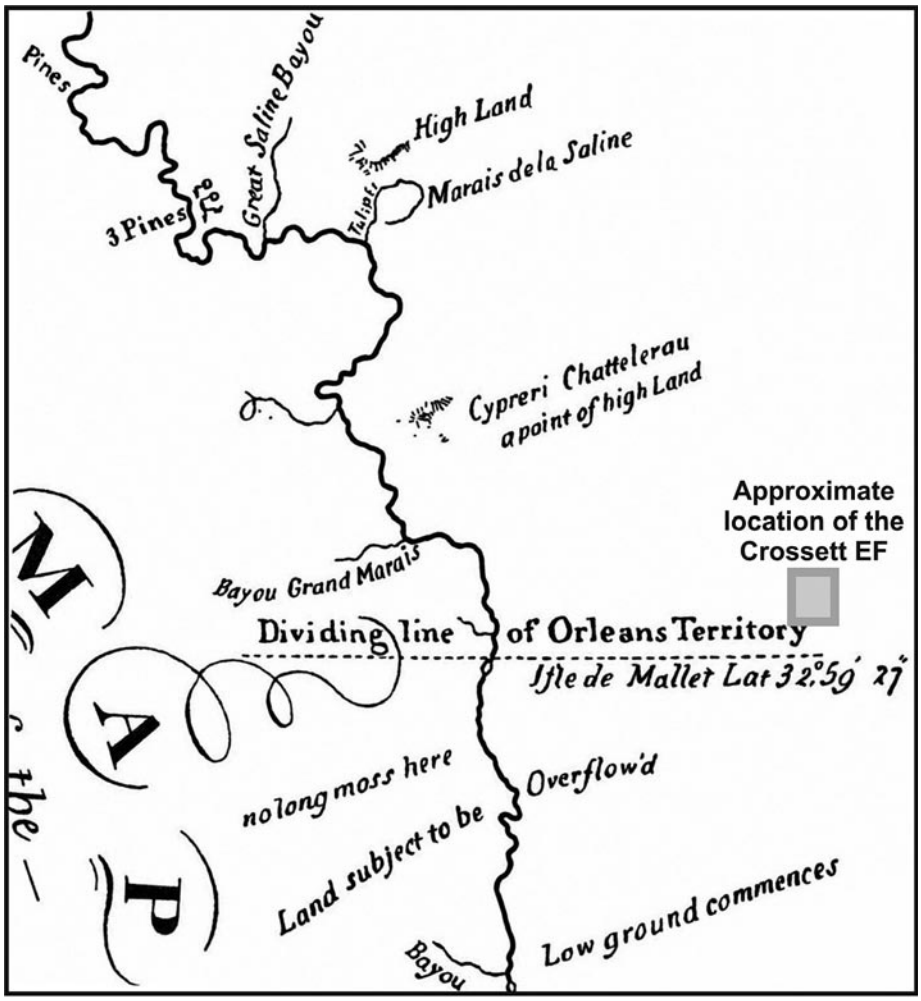
EUROPEAN SETTLEMENT BEFORE LUMBERING

Although Europeans began colonizing the Arkansas region in the 1680s, their settlements were few and far between. Most nonnatives were hunters, trappers, missionaries, and explorers, largely transient in their life style; a few settled along the major rivers. All this began to change with American control of the region following the Louisiana Purchase of 1803. President Thomas Jefferson authorized government-sponsored expeditions of this acquisition, including one in 1804–05 to what is now Hot Springs, Arkansas.[11] William Dunbar and George Hunter traveled along the Ouachita River, passing within eight miles of the future site of the Crossett Experimental Forest—an area that was just another blank on cartographer Nicholas King's otherwise accurate and intricate map. Their expedition traveled almost exclusively along the rivers, so they made few observations of the nearby uplands. Dunbar and Hunter reported few signs of permanent habitation but did encounter Native Americans, trappers, hunters, and travelers, including some seeking therapeutic baths in the hot springs.

In an era of limited sources of revenue, the acquisition of large blocks of territory provided the fledgling American government an opportunity to generate income. But before this could happen, the federal government needed to identify the resources it had acquired, package them for sale, and then provide legal processes for land transfer—tasks for a standardized public land survey system under the General Land Office (GLO). Beginning in 1815, Arkansas was the first part of the Louisiana Purchase outside the state of Louisiana to be surveyed. This early start was largely due to legislation requiring the federal government to designate two million acres of the public domain in Arkansas to satisfy land bounties promised to military veterans and settlers displaced by the massive New Madrid earthquakes of 1811 and 1812.[12]

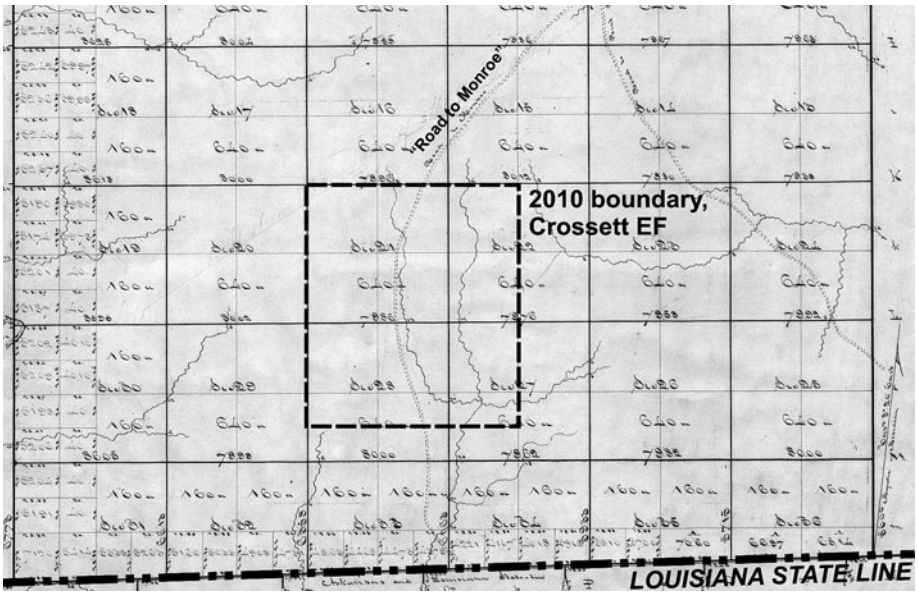
The initial GLO survey work consisted of laying out the township and range lines on a six-mile-by-six-mile grid, based on principal meridians and baselines.[13] These boundary line surveys reached into southeastern Arkansas by 1818, although many were not completed until the 1840s.[14] After establishing the main lines, GLO surveyors would return to subdivide each township into 36 sections, from which land claims could then be referenced. Many did not wait for the public land surveys to be completed before they moved in: GLO surveyors mentioned settlers in this part of the state as early as the 1820s.[15] More importantly for the Crossett Experimental Forest, GLO surveyors established the township and range lines for Township 19 South Range 8 West between 1828 and 1842, and then subdivided this township into sections in 1842. By then, even remote portions of Arkansas were developing, as seen by the "Road to Monroe" in what is now Louisiana (see Figure 5).

The first land patents for the properties that eventually became the Crossett Experimental Forest were filed at the GLO office in Champagnolle, Arkansas.[16] Interestingly, these claims were approved on June 1, 1861, in Washington, D.C., by bureaucrats in Abraham Lincoln's administration almost a full month after Arkansas had seceded from the Union. Most of these early patents were from scrip authorized in an 1855 federal law granting bounty lands to soldiers and civilians who had served in specific military campaigns.[17] Land speculator Robert P. McMaster was particularly active in acquiring these transferrable certificates from the original grantees. Of the 1,675 acres that would become the experimental forest, McMaster acquired the patents on 760 acres between 1861 and 1873. These lands certificates were sold by Pedro Navarro, Juan Basques, and Anastacio Gonzalez, who served as teamsters during the Mexican-American War; Morris Conden, a teamster in the Florida War (one of the Seminole Indian Wars); and James Shaw, a private in Captain Nathan Boone's Company of the Missouri Mounted



ARKANSAS MUSEUM OF NATURAL RESOURCES

Figure 4. President Thomas Jefferson dispatched William Dunbar and George Hunter to explore the Ouachita River to the hot springs of Arkansas in 1804–1805, a journey mapped by cartographer Nicholas King. Dunbar and Hunter followed the course of the river for most of this trip and thus passed within eight miles of the land that would become the Crossett Experimental Forest.



ARKANSAS GLO RECORDS ARCHIVED WITH THE USDI BLM, WWW.GLORECORDS.BLM.GOV

Figure 5. This 1842 plat map was drawn by federal General Land Office surveyors. The road to Monroe follows a small, ephemeral stream in what would become the Crossett Experimental Forest.

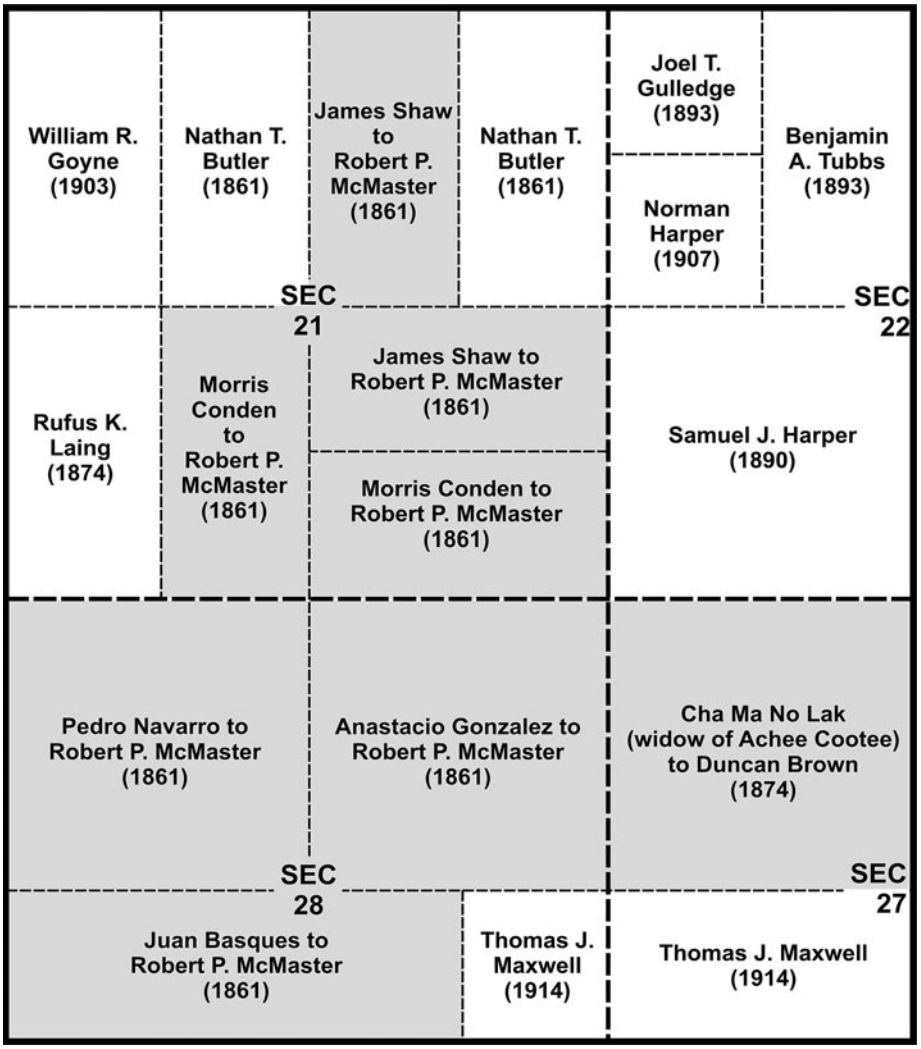


Figure 6. The U.S. land patents (including initial ownership and dates the patents were filed) are evident for the 1,675-acre parcel that became the Crossett Experimental Forest. The shaded section shows properties acquired (mostly by Robert P. McMaster) by transfer of the patents from the original grantees.

Rangers that saw action on the frontier during the War of 1812.[18] Even Native Americans forcibly removed from their lands farther east were eligible. For instance, Duncan Brown acquired scrip worth 160 acres from Cha Ma No Lak, widow of Achee Cootee, who was a warrior in Captain Meushoolatubbee's Company of the Choctaw Volunteers during the Creek Indian campaign of the War of 1812.[19] Although no other records of Achee Cootee or Cha Ma No Lak exist, it is possible that they had passed through the Crossett area between 1830 and 1833, when thousands of people of the Choctaw Nation were removed to Indian Territory through Arkansas. The remaining lands that would become the experimental forest were claimed by other individuals between 1861 and 1914.

On the western edge of the Crossett Experimental Forest is Hickory Grove, a cemetery named after one of Arkansas's many small rural communities that are defined by a church, a cemetery, and a rural school. According to local resident Lois Farrar, Hickory Grove Church first organized in 1856.[20] An 80-acre parcel of land for the church was conveyed by Rufus K. Laing and his wife Nancy on March 13, 1878; a small church of rough-sawn logs, the first of several on this same site, was built shortly thereafter.[21] The earliest marked burials at Hickory Grove Cemetery, mostly of young children, date to 1880.[22] According to the history of First United Methodist Church in Crossett, Hickory Grove Church was one stop on a Methodist minister's circuit in Ashley County in the early 1900s.[23] In addition to the church and cemetery, a school at Hickory Grove appears on the first soil survey map of Ashley County, published in 1916.[24] This soils map also reveals the location of numerous home sites, including at least two along Williamson Creek in what would become the Crossett Experimental Forest. The soils map did not show the large Hickory Grove Camp of the Crossett Lumber Company, apparently established after the fieldwork for the soils map had been completed in 1912. Today, only the cemetery remains at Hickory Grove; the old church, school, lumber camp, houses, and original roads have long since disappeared.

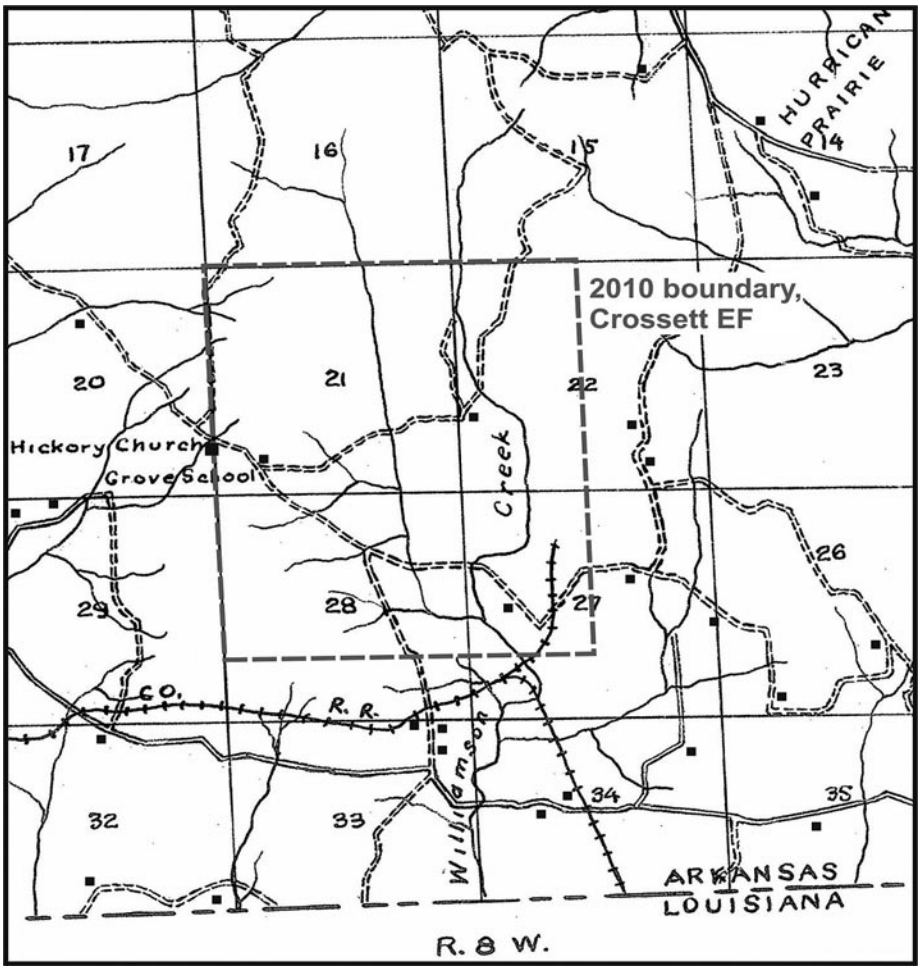
THE BIG CUT AND THE POSTLUMBERING ERA

We shall never know the true nature of the virgin timber that once covered the

grounds of the Crossett Experimental Forest. Although parts of it had been cleared for farming, the land was largely forested, since the Crossett Lumber Company acquired it from previous landowners for the timber. Yale University forestry professor Herman Haupt Chapman, in cooperation with the Crossett Lumber Company, took his students in spring 1912 to inventory and map approximately 27,000 acres of company land south of the town of Crossett.[25] The company's ownership extended into northern Louisiana, so it seems likely that the future grounds of the experimental forest were included in this survey. Chapman described these forests as comprising an almost equal mixture of shortleaf (*Pinus echinata*) and loblolly pine (*Pinus taeda*), with shortleaf dominating the drier uplands and loblolly dominating the lower, moister flats and abandoned fields.[26] Upland hardwoods were largely fire-stunted oaks, with some better-quality hardwoods along minor stream terraces and the floodplains of major streams.[27]

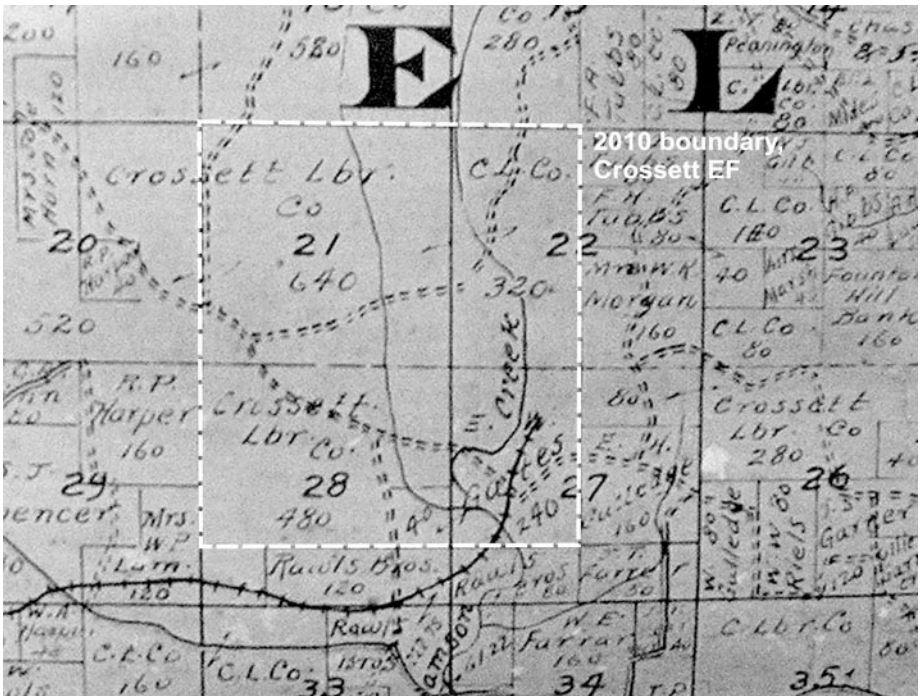
The virgin pines encountered by Chapman were on average fairly sound, with little evidence of extensive decay, beetle kill, or fire wounds.[28] The oldest trees rarely exceeded 200 years, and the forest had a multi-aged, patchy structure arising from periodic mortality and concurrent recruitment of new pine seedlings.[29] These stands were relatively grassy underneath the mature pine timber, with little brush and few pine or hardwood seedlings. Frequent light surface fires and below-ground competition for moisture helped keep the mature stands open and also ensured a suitable seed bed, with plenty of exposed mineral soil or other favorable substrates for the pines that quickly seeded in following the death of overstory trees. The 1912 Yale inventory of this tract found that pine stands "under ordinary conditions" were 100 to 150 years of age and averaged 12,000 to 17,000 board feet per acre.[30]

The Crossett Lumber Company's Hickory Grove Camp was established to cut the timber in the southern part of Ashley County and operated until the larger Crossett Camp was built in 1920.[31] Located on the southbound main line of the company's railroad that extended into Louisiana, Hickory Grove Camp consisted of a large number of portable buildings, including a commissary, homes, and recreational facilities, all of which were hauled in by train and then moved onto concrete foundation



COURTESY OF O. H. "DOOGIE" DARLING

Figure 7. N. D. Canterbury's 1923 map of Ashley County, Arkansas, traced and updated a soils map drawn from fieldwork in 1913. The lands that would become the Crossett Experimental Forest had multiple homes, a school, and a church, plus a railway spur and several small roads.

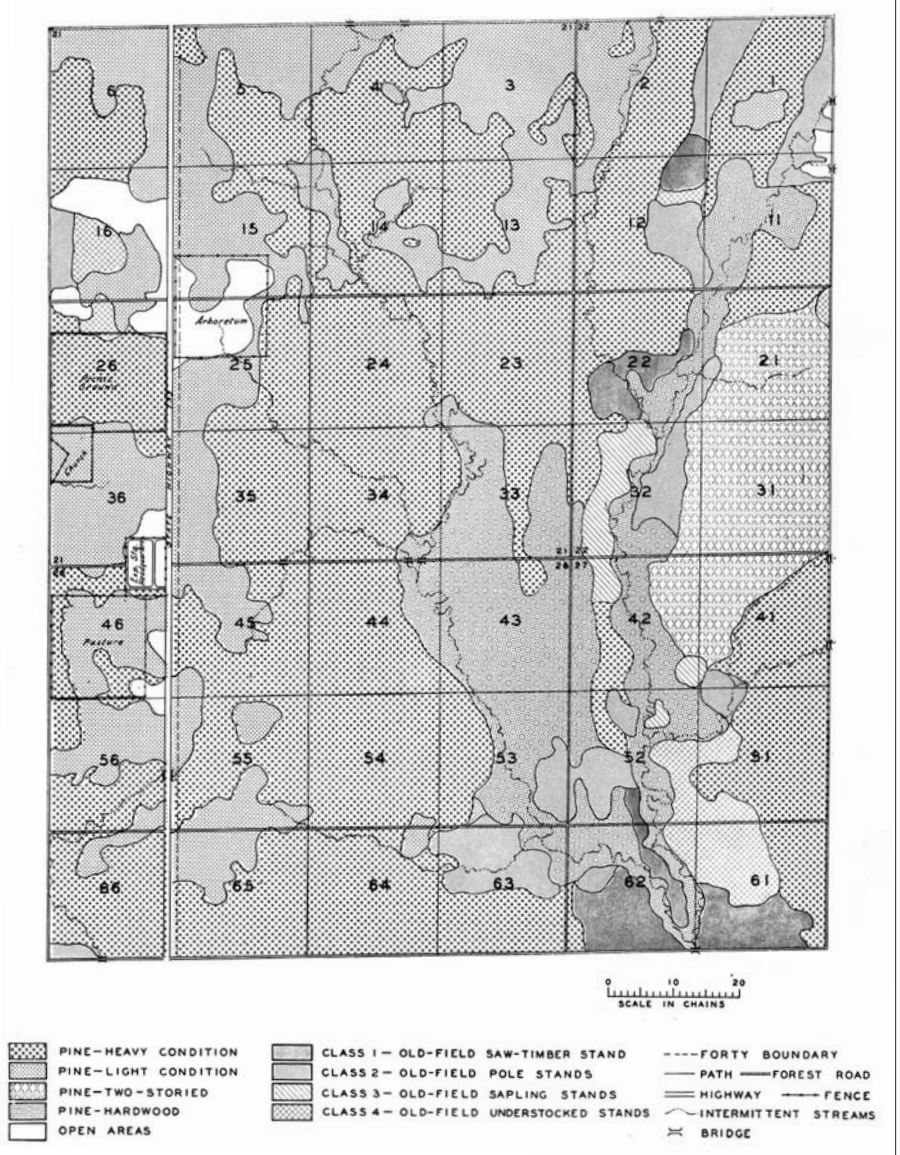


COURTESY OF ED AND PATSY WHITE AND THE ASHLEY COUNTY MUSEUM

Figure 8. In 1920, according to this ownership map of Ashley County, all the lands of the Crossett Experimental Forest were owned by either the Crossett Lumber Company or "Cap" Gates, the company manager.

blocks. At this time, railroads were critical to the company's lumbering operations: to harvest a parcel, they built temporary spur rail lines to position steam log loaders that filled railcars for shipping to the mill.[32] The Crossett Lumber Company appears to have logged the lands that would become the experimental forest between 1917 and 1919, with the possible exception of the extreme southeastern corner of the property, which may have been cut a few years earlier by the Gulledge Brothers Lumber Company.[33] Once the site of this camp ceased to be viable, it was disassembled and merged into Crossett Camp. Over the years, part of the former Hickory Grove Camp was maintained as a picnic area (even after the establishment of the experimental forest) and sometimes served as a campground for later groups of Yale forestry students accompanying Professors Chapman and Ralph Bryant on their spring field schools.

By the early 1920s, advice from Chapman, early Forest Service extension work, and the appeals of fellow lumberman (such as Henry Hardtner of Louisiana) helped steer the entrepreneurial head of the Crossett Lumber Company, Edgar Woodward "Cap" Gates, toward a more conservation-minded model of land management. In 1922, the company hired its first professionally trained forester, W. K. Williams, and its forestry department was soon promoting "perpetual" management practices and forest protection to the local community.[34] The company also made a strategic shift away from selling to acquiring cutover timberlands. In March 1927, Albert E. "Wack" Wackerman replaced Williams as the company's forester and continued to push the company toward sustained-yield forestry. During his tenure, Wackerman helped implement fire control, cruised the property to determine how much virgin timber was left, and reported on how the second-growth timber was performing.[35] The efforts of Williams and Wackerman were a good first step for the Crossett Lumber Company, but more was needed.



REPRODUCED FROM WAHLENBERG (1941)

Figure 9. Map of the forest cover types and stocking conditions on the Crossett Experimental Forest following the initial (circa 1937) 100 percent inventory.

REYNOLDS AND THE U.S. FOREST SERVICE

Throughout much of the 1920s, some lumber companies, private citizens, the federal government, and even commercial railroads had promoted sustained-yield forestry in Arkansas, as well as the need for a state agency to support this new approach.[36] During this period, state legislators remained largely unsupportive, as did a small number of influential local opponents.[37] It was in this phase that the U.S. Forest Service's Southern Forest Experiment Station and Russell R. Reynolds entered the picture. In 1932, Reynolds began working collaboratively with the Ozark-Badger Lumber Company of Wilmar, Arkansas, on the economic viability of its "pine tree banking" system.[38] The next year, Wackerman resigned from the Crossett Lumber Company to accept a position with the Southern Forest Experiment Station, at its headquarters in New Orleans. Soon, the company entered a cooperative agreement with the experiment station to provide the company with trained staff to mark its 25,000 acres of remaining old-growth timber according to recommendations developed by Wackerman. Reynolds moved to Crossett in summer 1933 to begin this task.[39]

The need for reliable, scientifically evaluated management strategies for the pine-dominated forests of the region, coupled with Reynolds's presence, prompted the Crossett Lumber Company to offer the Southern Forest Experiment Station some cutover lands for an experimental forest. The boundaries were scouted by Reynolds and Wackerman and agreed upon in late 1933. Formal legal assignment came the next year. The first warranty deed, dated August 6, 1934, transferred the western portions of the northwest and southwest quarters of Section 21 in Township 19 South, Range 8 West (officially, 154.71

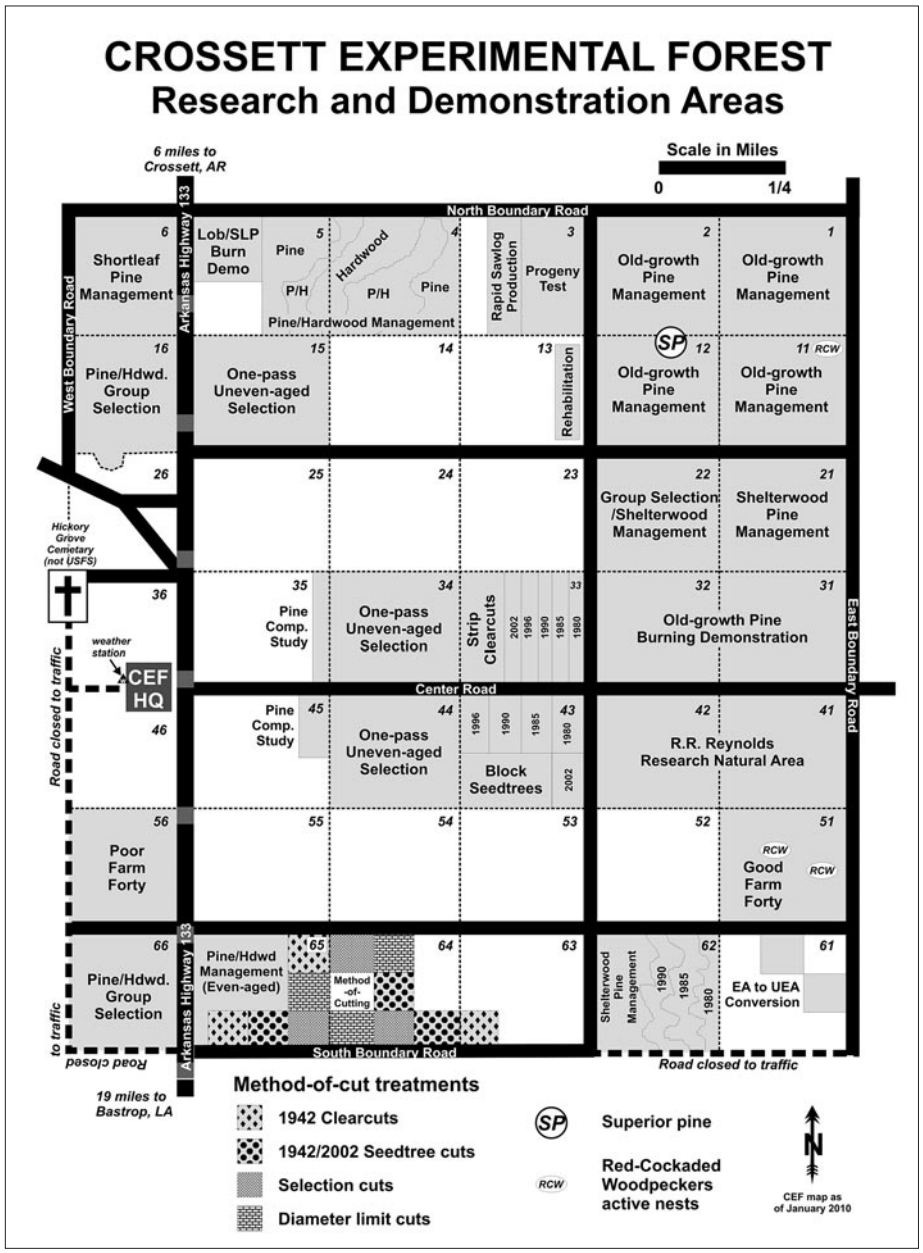


Figure 10. The current layout of the Crossett Experimental Forest shows the primary research and demonstration areas.

acres). A second warranty deed, on July 22, 1937, transferred an additional 1,520 acres of land, providing for the property currently controlled by the U.S. Forest Service. As soon as the boundaries of the Crossett Experimental Forest were demarcated and for the next few years, Reynolds employed workers from several economic relief programs, including the Federal Emergency Relief Administration, the Works Progress Administration, and the Civilian Conservation Corps (CCC) to build the research station's facilities and infrastructure.[40]

The first projects on the Crossett Experimental Forest included a complete inventory of the trees on its land and the establishment of the road network, firebreaks, and study compartments. Using CCC laborers, the inventory project was completed in 1937, allowing for the production of a very detailed map of forest conditions.[41] The vegetation patterns of this initial map reflected the area's history of land use. For example, the lands along Williamson Creek on the eastern side were primarily old-field stands, indicating their prior agricultural use. The western and northern portions were dominated by open grounds or pine in a "light condition," suggestive of areas used as pasture, and most of the central parts were either heavy pine forests or pine-hardwood stands, signifying limited human manipulation. Within a decade, Reynolds transformed this disturbed landscape into one of the premier forest experiment stations in the country.

SINCE ESTABLISHMENT

The permanent boundaries of the Crossett Experimental Forest have changed little since the 1930s. Before the end of 1945, the Crossett Lumber Company provided a no-cost lease on an additional adjacent 1,800 acres for additional studies; this property was eventually returned to the company.[42] Over the years, many new studies have been added to those established during the 1930s. Most of the forest is now covered in mature loblolly and shortleaf pine, with hardwoods in the riparian management zones and an occasional compartment receiving mixed-species management.

Like Reynolds, later managers and researchers of the Crossett Experimental Forest have also left their mark on the land and in the forestry profession. As with any landscape, past environments and human use patterns have indelibly shaped the forests of today. The lands surrounding the experimental forest have changed even more dramatically, especially over the past half-century. Industrial forest management practices have greatly increased the amount of even-aged loblolly pine across the southeastern United States, and most of their upland pine forests are now managed as short-rotation plantations.[43] Publicly accessible land is increasingly scarce, placing greater recreational and aesthetic demands on mature pine forests. Invasive species have penetrated the region, and a few have even become abundant on the experimental forest. Native species populations have also fluctuated significantly, with some increasing and others declining. As the demands for natural resources continue to shift, Crossett staff will continue to look to the past to help understand the change of today and the possibilities of tomorrow—and mapmaking will continue to support that mission. □

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Georgia-Pacific forester; Ann Early, Arkansas Archeological Survey; James M. Guldin, U.S. Forest Service, Southern Research Station; and Michael G. Shelton, U.S. Forest Service, Southern Research Station (retired). The work of Russ Reynolds and many others over the years at the Crossett Experimental Forest is also greatly appreciated.

NOTES

1. Russell R. Reynolds, "The Crossett Story: The Beginning of Forestry in Southern Arkansas and Northern Louisiana," (SO-32) (New Orleans: USDA Forest Service, Southern Forest Experiment Station, 1980).
2. Marvin D. Jeter and Ann M. Early, "Prehistory of the Saline River Drainage Basin, Central to Southeast Arkansas," *Arkansas Archeology: Essays in Honor of Dan and Phyllis Morse* (Fayetteville, AR: University of Arkansas Press, 1999), 31–63. A Dalton dart point has been excavated on the grounds of the experimental forest, confirming the presence of Paleoindians.
3. Patsy K. White, "Prehistory of Ashley County," *Reflections of Ashley County* (Dallas, TX: Curtis Media Corporation, 1987), 75–77.
4. Michael P. Hoffman, "Protohistoric Tunican Indians in Arkansas," *Cultural Encounters in the Early South: Indians and Europeans in Arkansas* (Fayetteville, AR: University of Arkansas Press, 1995), 61–75.
5. Gloria A. Young and Michael P. Hoffman (editors), *The Expedition of Hernando de Soto West of the Mississippi, 1541–1543* (Fayetteville, AR: University of Arkansas Press, 1993); Jeffrey M. Mitchem, "Investigations of the Possible Remains of de Soto's Cross at Parkin," *The Arkansas Archeologist* 35 (1996): 87–95.
6. Barbara A. Burnett and Katherine A. Murray, "Death, Drought, and de Soto: the Bioarcheology of Depopulation," *The Expedition of Hernando de Soto West of the Mississippi, 1541–1543* (Fayetteville, AR: University of Arkansas Press, 1993), 227–36.
7. According to Quapaw oral histories, their ancestors came down the Ohio and Mississippi rivers and displaced the tribes that had resided in eastern Arkansas, including the Tunican Indians, who may have been seriously weakened by their first contact with Europeans in the mid-sixteenth century. George Sabo III, *Paths of Our Children: Historic Indians of Arkansas* (Fayetteville, AR: Arkansas Archeological Survey, 1992), 28–29.
8. Sabo, *Paths of Our Children*, 32–40; Wendy St. Jean, "The Chickasaw-Quapaw Alliance in the Revolutionary Era," *Arkansas Historical Quarterly* 68 (Autumn 2009): 272–82.
9. Sabo, *Paths of Our Children*, 85–86; St. Jean, "Chickasaw-Quapaw Alliance," 280.
10. Amber M. Horne, *Footprints across Arkansas: Trail of Tears Removal Corridors for the Cherokees, Chickasaws, Choctaws, Creeks & Seminoles* (Fayetteville, AR: Department of Arkansas Heritage and Arkansas Archeological Survey, 2006), 107–08.
11. Trey Berry, Pam Beasley, and Jeanne Clements, *The Forgotten Expedition, 1804–1805: The Louisiana Purchase Journals of Dunbar and Hunter* (Baton Rogue, LA: Louisiana State University Press, 2006).
12. David A. Smith, "Preparing the Arkansas Wilderness for Settlement: Public Land Survey Administration, 1803–1836," *Arkansas Historical Quarterly* 71 (Winter 2012): 381–406; John P. Gill (editor), *Journal of the Louisiana Purchase 2002 Base Line Expedition* (Little Rock, AR: Louisiana-Purchase Bicentennial Committee of Arkansas), 4; Arkansas Commission of State Lands, "New Madrid Claims (1815)," information accessed 29 October 2010 online at www.cosl.org/history/newmadrid.aspx.
13. Gill, *Journal of the Louisiana Purchase 2002 Base Line Expedition*, 1–5.
14. Richard L. Elgin and David R. Knowles, *The U.S. Public Land Survey System for Arkansas* (Little Rock, AR: Arkansas Department of Agriculture, Land Survey Division, 2011), 2—1–2—15.
15. Don C. Bragg, "General Land Office Surveys as a Source for Arkansas History: The Example of Ashley County," *Arkansas Historical Quarterly 63* (Summer 2004): 166–84. The land claims of most of these public domain squatters would be legalized with later passage of the Preemption Act of 1841.
16. Originally named Scarborough's Landing when founded around 1839, Champagnolle was a small town on the southern bank of the Ouachita River. The first seat of Union County, Champagnolle housed the GLO office for that region from 1845 until 1865. Anna H. Cordell, "Champagnolle, a Pioneer River Town," *Arkansas Historical Quarterly* 10 (Spring 1951): 37–45.
17. L. P. Waldo, *Instructions and Forms to Be Observed by Persons Applying to the Pension Office for Bounty Land under the Act of March 3, 1855, Entitled "An Act in Addition to Certain Acts Granting Bounty Land to Certain Officers and Soldiers Who Have Been Engaged in the Military Service of the United States"* (Washington, DC: A.O.P. Nicholson, 1855). These land certificates, or scrip, were intended to compensate veterans by giving them the right to claim available surveyed land in the public domain, but this was not always the case. Once issued, scrip (for varying acreages) could also be donated or sold to others, and many awardees did so to raise cash. It would thus be possible for an individual or group of investors to accumulate a large number of scrips and claim a substantial area in any given location.
18. Navarro, Basques, and Gonzalez probably were Mexican nationals who served the army (there was no specification in the act of 1855 that these teamsters had to be American citizens). The nationality of Conden was not provided or obvious, but he may have been an American or French citizen. Captain Nathan Boone, the youngest son of Daniel and Rebecca Bryan Boone, led the Missouri Mounted Rangers against the Illinois Indians in 1813 (Michael L. Tate, "Nathan Boone (1781–1856)," *Encyclopedia of Oklahoma History & Culture* [online], digital.library.okstate.edu/encyclopedia/entries/B/BO013.html, accessed 3 April 2012).
19. Provisions of the act of 1855 permitted scrip claims for "all Indians who have served the United States in any of their wars the provisions of this and all the bounty-land laws heretofore passed, in the same manner, and to the same extent, as if said Indians had been white men." Widows and minor children of eligible individuals could pursue these claims if the entitled person was deceased, as was apparently the case with Cha Ma No Lak (Waldo, *Instructions and Forms*, 4). Captain Meushoolatubbee (also spelled Moshulatubbee), a good friend of General Andrew Jackson who fought under Jackson's command during the War of 1812, was a signatory of the Treaty of Dancing Rabbit Creek and eventually led some of his people overland (without federal government support) from Arkansas Post to Indian Territory in late 1832; Wanda L. Clark, "The Last Great Mingo: The Story of Moshulatubbee, the Last of the Royal Kings of the Choctaws." Unpublished paper accessed online at: www.skullyville.com/mosh2.html on 15 September 2010; Horne, *Footprints Across Arkansas*, 107–08.
20. Since the land on which the Hickory Grove church was eventually located was not formally patented by Laing until 1874 and then transferred a few years later, this early date cannot be confirmed. The Hickory Grove cemetery extends into the western boundary of the experimental forest. Farrar wrote a letter (on file at the experimental forest) to support a 1993 request by the Hickory Grove Cemetery Committee for the U.S. Forest Service to agree to a quitclaim deed on the cemetery, whose boundary was poorly designated in the original property conveyance.
21. Laing's name has been spelled "Lang" or "Lainge" by various sources; Rosa Maxwell, "Hickory Grove," *Kin Kollecting* 4 (Fall 1989): 37; Ashley County Genealogical Society, "Early Land Conveyances to Churches," *Kin Kollecting* 11 (Summer 1996): 30. The Hickory Grove church was formally affiliated with the Methodists, but it is likely that local Baptists also used the church, at least on occasion.
22. Ashley County Genealogical Society, *Tombstones Inscriptions and Notes of Ashley County, Arkansas* (Crossett, AR: Ashley County Genealogical Society, 1992), 117–22.
23. "History of the First United Methodist Church of Crossett, Arkansas," accessed online at www.gbgm-umc.org/fumcrossett/history.htm on 28 June 2010. Lois Farrar's aforementioned letter describes the first Ashley County Methodist circuit as dating to as early as 1847.
24. S. Vanatta, B. D. Gilbert, E. B. Watson, and A. H. Meyer, "Soil Survey of Ashley County, Arkansas," *Field Operations of the [U.S. Department of Agriculture's] Bureau of Soils, 1913 [Fifteenth Report]* (November 1916), 1185–1219. The large map from this government publication (copied to vellum in 1923 by N. D. Canterbury of the Crossett Lumber Company for the company's use) is a digitally scanned version of the 1923 map that appears in Figure 7. The 1923 map did not include the houses (black squares) on the original soils map; these have been annotated in digitally from the original 1916 map.
25. Herman H. Chapman, "Prolonging the Cut of Southern Pine, Part 1: Possibilities of a Second Cut," *Yale Forest School Bulletin 9* (April 1913): 1–22. This fieldwork led to a long and productive relationship between Chapman and other Yale

University professors and the Crossett Lumber Company. According to a newspaper article, the Yale students stayed at one of the Crossett Lumber Company's camps in spring 1912, though it was probably not Hickory Grove Camp, which was not built until later that year. Yale students eventually did camp at Hickory Grove when it was a picnic area during the early years of the Crossett Experimental Forest. Janice Clark, "Crossett Forests Leap into the 20th Century," *Ashley News Observer Arkansas Sesquicentennial Section*, April 9, 1984, 34; Anonymous, "1912 Yale Foresters Class Held Spring Training Here," *Ashley News Observer: Centennial Keepsake Edition*, June 9, 1999, 2D; O. H. "Doogie" Darling and Don C. Bragg, "The Early Mills, Railroads, and Logging Camps of the Crossett Lumber Company," *Arkansas Historical Quarterly* 67 (Summer 2008): 128–30.

26. Chapman, "Prolonging the Cut," 4.
27. Ibid., 5.
28. Ibid., 5.
29. Ibid., 6.
30. Ibid., 8. Board foot volumes use the Doyle log rule.
31. Darling and Bragg, "The Early Mills," 107–40.
32. Ibid., 115–27.
33. Ibid., 122. According to the 1920 ownership map (Figure 8) of Ashley County, the southeastern corner of what would become the Crossett Experimental Forest was owned by E. W. Gates, the first manager of the Crossett Lumber Company. The 1913 map (Figure 7) of Ashley County clearly showed a spur of the Gulledge Brothers Lumber Company Railroad extending through the middle of this 240-acre parcel.
34. Department of Forestry, *Timber Growing on Farm Woodlands and Forest Fire Prevention* (Crossett, AR: Crossett Lumber Company, March 1924), 1–20.
35. James P. Barnett, "Faces from the Past: Profiles of Those Who Led Restoration of the South's Forests," *General Technical Report* SRS-133 (Asheville, NC: USDA Forest Service, Southern Research Station, 2011), 43–45.
36. William L. Hall, "Arkansas' Romance Reforestation," *Nature Magazine* 6 (October 1925): 233–36; J. R. Hamlen, "What Practical Forestry Can Do for Arkansas," *Proceedings of the Seventh Southern Forestry Congress* (Durham, NC: Seeman Printery, 1925), 18–22; Alexander C. Millar, "Proposed Forestry Law For Arkansas," *Proceedings of the Seventh Southern Forestry Congress* (Durham, NC: Seeman Printery, 1925), 46–50; W. K. Williams, "The Forestry Situation in Arkansas," *Southern Lumberman* 121 (December 19, 1925): 160–62; Anonymous, "Hyde Urges Organized Forestry for Arkansas," American Forests 36 (October 1930): 658–59; P. T. Cole, "What Permanent Forests Mean to the Railroads of Arkansas," *Journal of Forestry* 29 (April 1931): 572–74.
37. Fred H. Lang, "Two Decades of State Forestry in Arkansas," *Arkansas Historical Quarterly* 24 (Autumn 1965): 208–19; Don C. Bragg, "Percy George and *The Pine Tree Menace*," *Arkansas Historical Quarterly* 69 (Winter 2010): 346–67. The Arkansas State Forestry Commission was finally authorized by the legislature in 1931, although it was not funded until 1934.
38. Reynolds, *The Crossett Story*, 4; Samuel Lubell and Al Pollard, "Pine-Tree Bankers," *American Forests* 45 (December 1939): 594–96, 622.
39. Reynolds, *The Crossett Story*, 4–5.
40. Reynolds, *The Crossett Story*, 7–15.
41. Reynolds, *The Crossett Story*, 12, 25. This copy of the map was reproduced from W.G. Wahlenberg, "Methods of Forecasting Timber Growth in Irregular Stands," *USDA Technical Bulletin* 796 (December 1941), 23.
42. Clark, "Crossett Forests Leap into the 20th Century.
43. David N. Wear and John G. Greis, "The Southern Forest Futures Project: Summary Report," *USDA Forest Service General Technical Report* SRS-168 (Asheville, NC: USDA Forest Service, Southern Research Station, 2012): 9–49.