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The Ouachita and Ozark-St. Francis National Forests: A History of the Lands and USDA Forest Service Tenure

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SUMMARY

This brief history of the Ouachita and Ozark-St. Francis National Forests shows that many factors influenced the land, vegetation, wildlife, and other resources that have been under USDA Forest Service administration for almost 90 years. These two national forests are somewhat unique because they were created from land in the public domain, as were the western forests, but also contain land purchased under the Weeks Law and Clarke-McNary Act, as do all eastern national forests. This history also shows that laws, acts, and regulations not only created the national forests in Arkansas and Oklahoma, but continue to give more and more specific direction for their use and management. The effects of political and judicial decisions on these forests have been tremendous.

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The Ouachita and Ozark-St. Francis National Forests: A History of the Lands and USDA Forest Service Tenure

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INTRODUCTION

The United States Department of Agriculture (USDA) Forest Service (FS) is dedicated to conserving the resources and environmental benefits of the Nation's forests and rangelands. National forests and grasslands are managed to serve the needs of the people who own them and to conserve them for future generations. The Forest Service works with State forestry organizations to help private landowners apply good forestry practices on their lands. Also, research is conducted to find better ways to manage and use the Nation's renewable resources. The 1897 Organic Administration Act, which created the Forest Service, states that "no national forest shall be established, except to improve and protect the forest within the boundaries." That is a mission the Forest Service continues to pursue (USDA FS 1991b).

Throughout the domain of the Forest Service, the multiple users of national forest lands are locked in political combat. Despite the best intentions of the agency, contrasting views about the use of National Forest System resources are being fought out in the courts and the media. Two of the forests managed by the Forest Service are the Ouachita and Ozark-St. Francis National Forests (NF's), encompassing almost 3 million acres in Arkansas and Oklahoma (USDA FS 1991b). A historical analysis of the situation on these forests prior to and during the stewardship of the Forest Service allows for illumination and appraisal of both the impediments and opportunities for the use of National Forest System lands. The history of shifting congressional mandates and public interactions provides an appreciation of the changing role of the Forest Service in Arkansas and Oklahoma.

The Ouachita NF is located south of the Arkansas River in western Arkansas and extends into eastern Oklahoma, and most of the Ozark-St. Francis NF's are north of the river (fig. 1). These national forests have been the site of recent controversy in which users were at odds with each other as well as with the Forest Service. Using Forest Service appeals procedures, the judicial system and their congressional representatives, various organized groups, and individuals are demanding reappraisal of the role of the Forest Service in the stewardship of these lands.

The debate over the future of these national forests is rooted in the past. How did nature and humans interact to shape these forests? How did laws, regulations, and policies over the years influence management practices for various resources?

The material presented here will concentrate on lands in western Arkansas and eastern Oklahoma and will not cover the St. Francis NF in eastern Arkansas. More information about the St. Francis NF can be found in Bass (1981) and Wilkinson.[1] Hopefully, this brief history of the Ouachita and Ozark NF's will help shed some light on the above questions.

ORIGINAL PEOPLE AND FOREST COVER IN WESTERN ARKANSAS AND EASTERN OKLAHOMA

Native Americans and Early Explorers

The forest cover of the Ouachita and Ozark Mountains was first explored and utilized by American Indians approximately 10,000 to 12,000 years ago during the Paleo-Indian Cultural Period (Jeter and Williams 1989, Sabo and Early 1990). Archaeological and ethnographic evidence indicates that later indigenous inhabitants named the Tom's Brooks Culture were present between about 5000 and 4000 B.C. (Jeter and Williams 1989). They camped along the rivers and streams that flowed through the region and ate fish, hickory nuts, black walnuts, hazelnuts, chestnuts, pecans, and beech nuts. They also mined novaculite and used it to make spear points, knives, and tools. These people disappeared after 3000 B.C. for unknown reasons (McGimsey 1969).

A new native American settlement, known as the Hopewell Civilization, appeared about 500 A.D. These

[1] Wilkinson, G.M. 1961. History of the Ozark-St. Francis National Forests. 40 p. Unpublished report (mimeographed). On file with: Ozark-St. Francis National Forests, P.O. Box 1008, 605 West Main, Russellville, AR 72801.

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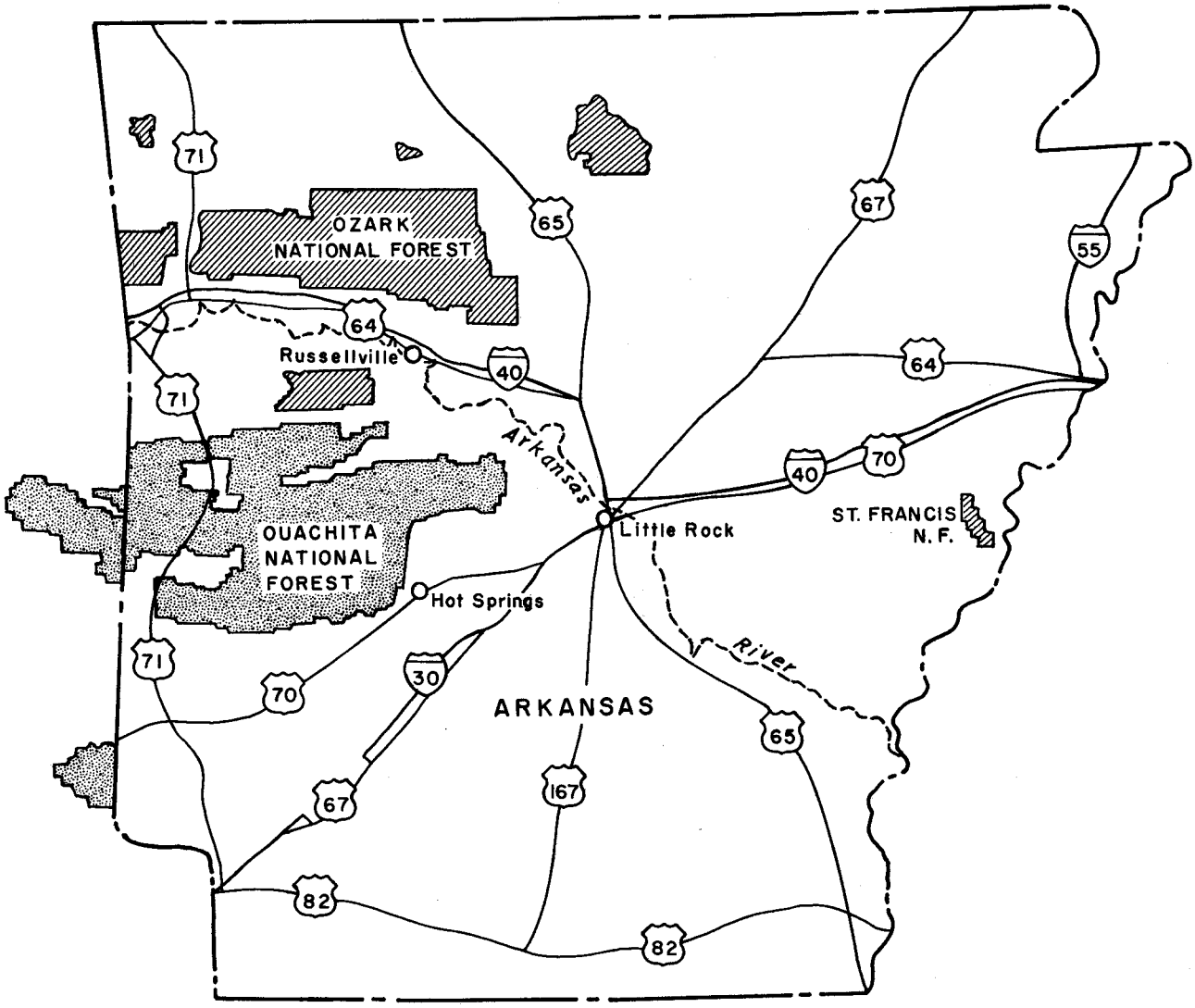

Figure 1.—*Location of Ouachita and Ozark-St. Francis National Forests.*

Indians of the Woodland Cultural Period were the ancestors of the Caddo Tribes. It is believed these people cleared portions of the forest with fire and stone axes to cultivate corn and squash and to establish settlements containing structures of oak logs (McGimsey 1969). About 1,000 years ago, new forms of social integration emerged with the appearance of political and religious hierarchies (Sabo and Early 1990). The most populous native American sites were along the Mississippi River. The Caddo Indians, who settled in western Arkansas, traded salt and buffalo meat and hides to these flourishing settlements on the Mississippi floodplain (McGimsey 1969).

The expedition of Hernando de Soto between 1539 and 1543 is reported to have traveled through Arkansas. De Soto is believed to be the first European to set foot in what is now Arkansas near present day Helena, Arkansas, on June 18, 1541. He led his army up along the Arkansas River to the Little Rock area. After spending the winter somewhere south of Little Rock, De Soto may have visited the thermal springs at present day Hot Springs in early 1542. The expedition then followed the Ouachita River back to the Mississippi River where De Soto died on May 21, 1542 (Albornoz 1986). The account by Luis Hernandez de Biedma of De Soto's journey referred to crossing large fields of maize and seeing hot springs during the group's meandering, indicating they may have passed through the Ouachitas (Reynolds 1906).

It is believed that the total number of native Americans declined following the De Soto expedition, possibly as a result of contact with diseases carried by the Europeans. Whatever the cause—climate, topography, war between tribes, or disease—there were few Indian tribes in Arkansas when the French arrived in the area in the 1670's. In 1673, a small party of French explorers was led down the Mississippi River by Father Jacques Marquette and Louis Joliet. They did not stay in Arkansas long and returned north after a brief visit with the Quapaw at the confluence of the

Arkansas and Mississippi rivers. In 1682, LaSalle and de Tonti returned to this area because of the fur trade they hoped to develop with these Indians (Sabo 1990). French trappers and fur traders were probably in western Arkansas at about this time or soon after. In 1686, the first permanent settlement in what is now known as Arkansas was established by the French at Arkansas Post near the juncture of the White, Arkansas, and Mississippi rivers.

Documented Descriptions of Forest Cover between 1804 and 1839

The first reliable description of forest cover in western Arkansas was given by William Dunbar and George Hunter as they traveled up the Ouachita River in the fall of 1804. The United States acquired the Arkansas Territory as part of the Louisiana Purchase in 1803, and Dunbar and Hunter were to report to President Thomas Jefferson about these newly acquired lands. As their party traveled up the river, Dunbar's journal indicates "the highland earth . . . is seen on the left bank; the soil is not rich, bearing pines, interspersed with red oak, hickory, and dogwood" (Dunbar 1807). He also reported that beyond the valley of the "Washita" there was high land covered with pines and noted a high rocky hill that was "crowned with a very handsome Pine-woods." Arriving in the environs of the hot springs, he reported that the timber was not large and consisted chiefly of oak, pine, cedar, holly, hawthorn, and others common to this climate. He also commented on a great variety of vines, some said to produce black, and others, yellow grapes (Dunbar 1807). On reaching the height of 200 feet above the valley floor, he observed a considerable change in the soil; the timber diminished, and the rocks increased in size to the summit. Dunbar wrote that "the cedar, the wax myrtle, and the cassina yaupon, all evergreens, attach themselves particularly to the calcareous region, and seem to grow and thrive in the clefts of the solid rock" (Dunbar 1807).

During November and December, Dunbar noted that the atmosphere had a "smokey [sic] or misty" appearance. He attributed it to "the common pracitize [sic] of the Indians and Hunters, of firing the woods, planes [sic] or savannah; the flames often extending themselves some hundred miles, before the fire is extinguished . . ." (Rowland 1930). Dunbar remarked about the sparse Indian population in the Ouachita Mountains due to the rough terrain, and he also commented on the condition of land cleared by the native Americans as follows:

> "When a piece of ground has once got into this state, in an Indian country, it can have no opportunity of re-producing timber, it being an invariable practice to set fire to the dry grass in the fall or winter, to obtain the advantage of attracting game when the young tender grass begins to spring: this destroyes [sic] the young timber, and the prairie annually gains upon the woodland. It is probable that the immense plains known to exist in America, may owe their origin to this custom" (Dunbar 1807).

In 1812, Louisiana became a State, and the Arkansas Territory was separated from Louisiana and became part of the Missouri Territory. Henry Schoolcraft traveled through the Missouri Territory in 1818 and described the variety of trees he saw in the valleys or bottoms, including sycamore, cottonwood, elm, buckeye, walnut, ash, oaks, hackberry, maple, mulberry, dogwood, sassafras, pawpaw, and persimmon. He also noted the slopes included black walnut and many of the species already listed. The bluffs and highland ridges were occupied by yellow pine and "a stinted growth of oaks, denominated post oaks" (Schoolcraft 1819). In 1819, Schoolcraft traveled through the Arkansas Territory. He went up the White River from the Mississippi River into the Ozark Mountains and wrote about the area indicating:

> "The only inhabitants on the upper parts of the White River . . . are hunters . . . [who] support themselves by hunting bear, deer, buffaloe [sic], elk, beaver, racoon, and other animals found in great plenty in that region. . . . Its mineral products may also claim our future attention. Iron ore, lead, zinc, and manganese have already been discovered; and among its *earthy* minerals may be enumerated marble, flint, agate, hornstone, and rock crystal" (Schoolcraft 1819).

Schoolcraft also indicates in his journal that he visited the "Hot Springs of the Ouachitta [sic], (Washitaw [sic])." He called the mountain with the springs issuing at its feet "Hot Mountain" and described the top as having lots of rock and a few pine and oak trees. The side slopes "are covered by a most luxuriant growth of vines. . . . Haws and blackberries are also found in great abundance." On the other side of the narrow valley was "Cold Mountain." It also had some pine trees on top but "its sides are destitute of vegetation." In the Ouachita Mountains, large forests of pine timber were common. He also noted that a "luxuriance of grass in the woods, and an abundance of acorns in the fall" made it possible for the local people to raise and fatten hogs and cattle (Schoolcraft 1819).

In 1819, Congress created the Arkansas Territory, including what is now Oklahoma. During 1819, Thomas Nuttall traveled up the Arkansas River from Arkansas Post to Fort Smith and beyond to compile a natural history. He described the forests along the river in some detail but lamented that he "saw many of the plants common to every mountainous and hilly region in the United States . . . and though no way peculiarly interesting, serve to show the wide extension of the same species . . ." (Nuttall 1821). Farther

west in the Winding Stair Mountains, he mentions traveling through a thicket of abundant dwarf-oaks (including dwarf chestnut oak, rock chestnut oak, and dwarf post oak) and crossing pine ridges (Lottinville 1979). He also reported the pattern of hills with pine trees on the south side and hardwoods on the north-facing slopes (Nuttall 1821). While Nuttall was in the Hot Springs area on his return trip during the fall, he commented on the atmosphere being filled with smoke, often reducing visibility to 100 yards. He concluded, as did Dunbar, that the smoke was a result of annual burning of the surrounding prairies by the "savages and whites" to improve hunting. He also believed the fires prepared the ground for early vegetation the succeeding spring and assisted its growth by the stimulating effects of the resulting alkaline ash (Lottinville 1979).

Also in 1819, during an expedition by U.S. Army engineer Major Stephen H. Long, the Ouachita highlands were described as generally covered with forests of yellow or pitch pine and also supported an exuberant growth of pines and bramble (Schwaab 1973).

In 1832, the Ozarks were surveyed in preparation for a land sale. Using the surveyors' notes, Phillip Chaney (1990) of the University of Arkansas, Department of Geography, compiled a list of trees used to witness the land corners and for sighting the survey lines. Although only a sample, Chaney also calculated the frequency of trees in the Ozarks from these notes (table 1).

Perhaps the most colorful of all these early descriptions was given by German naturalist George Engelmann who visited Hot Springs, Arkansas, in the fall of 1835. He recounts:

> ". . . with great pleasure our eyes light upon the majestic foliage of the magnolia and the shiny green American cherry laurel; between them are stands of dwarf chestnuts and the strange looking Aralia. . . . The holly, with its dark green thick foliage, out of which smile the red berries. . . . At higher elevations is a mixed woods of oak and citron-yellow nut trees, overtowered [sic] by the thin, dark-green pine; all with wine-red leaves vines climb up, and fall flowers shine their blue and yellow colors throughout. . . . Magnolias and cherry laurel, the holly and the sweet-gum, myrtle and cypress, mixed with many another strange form of plant life, . . . with many shades of green, gray, yellow, of rose, carmine, brown, and almost black" (Jansma and Jansma 1991).

The Arkansas Territory became the 25th State of the Union on June 15, 1836. Between 1838 and 1839, Frederick Gerstaecker (1856) lived, traveled, and hunted extensively in western Arkansas. His descriptions give an interesting view of the landscape and conditions in both the Ouachita and Ozark Mountains as follows:

> ". . . we went to the source of the Washita [sic]; but the forests not having been burnt for many years, were so thickly overgrown with underwood, that it was impossible to find deer, or shoot game enough to live upon."

> ". . . we had crossed the main range of the 'Boston divide,' which parts the waters of the Mulberry from the White River. The country and vegetation differed considerably from that south of the Arkansas. There was no trace of fir; the mountains were covered with oak, beech, and hickory, all at this season without leaves, which to an eye accustomed to green hollows, seemed rather mournful and monotonous."

> "It struck me as extraordinary that the best and most fertile land was on the hill tops, where, in other places, it was generally the worst; here grow black walnut, wild cherry, with stems sometimes twenty inches in diameter, black locust, and sugar maple, trees which generally grow only in the richest soils. The black locust was very frequent and the long sharp thorns are by no means pleasant on a journey. Game seemed to abound. Flocks of wild turkeys filled the forests as thick as partridges in Germany and deer were equally plentiful" (Gerstaecker 1856).

During one of his trips through Little Rock, Gerstaecker observed that north of town, with the exception of the valley of the Arkansas, there was little except pine woods growing in stony soil. He made the observation that "storms are frequent in Arkansas, and occasionally hurricanes, which will sweep a distance of a mile in width and several miles in length, levelling everything in their path. After a time blackberries, thorns, and creepers, grow . . . over the heaps of fallen trees. . . ." He also wrote that the woods of Arkansas presented a beautiful aspect in the spring of the year when the logwood [sic] trees were in bloom. They grew in immense numbers and gave the forest the appearance of a garden (Gersteacker 1856).

INFLUENCE OF EUROPEAN SETTLEMENT AND LOGGING: 1686–1910

As mentioned earlier, the first permanent European settlement in Arkansas was established by the French in 1686 at Arkansas Post. Settlement of this area of the State, and especially the western mountains, was slow, and inhabitants were few in 1803 when the United States acquired the Arkansas Territory as part of the Louisiana Purchase. As described earlier, Schoolcraft (1819) wrote about his travels in the Ozarks and indicated that the only inhabitants were

Table 1.— *General Land Office witness trees of the Middle Fork White River (adapted from Chaney 1990)*

Witness tree	Species	No. of trees	Percent
White oak	*Quercus alba*	221	29.39
Post oak	*Q. stellata*	128	17.02
Black oak	*Q. velutina*	125	16.62
Red oak	*Q. rubra* or *falcata*	100	13.30
Hickory	*	74	9.84
Elm	*	21	2.79
Chinquapin oak	*Q. muehlenbergii*	9	1.20
Sugar tree	†	8	1.06
Blackjack oak	*Q. marilandica*	6	0.80
Dogwood	*Cornus florida*	6	0.80
Black walnut	*Juglans nigra*	5	0.66
Linn tree	*Tilia americana*	5	0.66
Black gum	*Nyssa sylvatica*	5	0.66
Maple	*	5	0.66
Mulberry	*Morus rubra*	5	0.66
Sycamore	*Platanus occidentalis*	5	0.66
Ash	*	4	0.53
Hackberry	*Celtis occidentalis*	4	0.53
Sweet gum	*Liquidambar styraciflua*	2	0.27
Blue ash	*Fraxinus quadrangulata*	2	0.27
Sassafras	*Sassafras albidum*	2	0.27
Willow	*Salix nigra*	2	0.27
Black cherry	*Prunus serotina*	2	0.27
Wild cherry	*P. serotina*	1	0.13
Black locust	*Robinia pseudoacacia*	1	0.13
Overcup oak	*Q. lyrata*	1	0.13
Bur oak	*Q. macrocarpa*	1	0.13
Pin oak	*Q. palustris*	1	0.13
Ironwood	*Ostrya virginiana*	1	0.13
Total		752	100.00

*Numerous possibilities.
†Possibly sugar maple or sugarberry.

hunters. European settlers gradually penetrated the Ouachita and Ozark highlands of Arkansas, generally from the Mississippi River via the Arkansas and White rivers in search of cheap, fertile land. For the subsistence farmer, forests supplied everything—fuel, food, and building materials. By 1821, the population in Arkansas had reached 14,000 (Bass 1981).

Commercial Logging Begins: Condition of Forest Resources in 1880

Commercial logging began in western Arkansas in 1879 with the westward building of railroads such as the St. Louis, Iron Mountain, and Southern Railroad—now the Missouri Pacific—when this line was extended from Little Rock to Fort Smith. This created both a market for crossties and the means of transportation for large-scale exploitation of the forest resources in western Arkansas.[2] In 1880, Sargent prepared a report on forests of North America for the Tenth Census of the United States. He stated that:

"North of the Arkansas river the forests are mostly deciduous trees of the Mississippi basin, through which isolated belts occur, often of considerable extent, in which short-leaved pine, . . . is mixed with hardwoods. The southwest part of the State south of the Arkansas river and west of the broad, level plain of the Mississippi is covered outside the river bottom lands with an almost continuous forest of pine, in which short-leaved species occupies the high, dry ridges and the loblolly the moist soil above the bottoms. The pine forests are almost intact" (Sargent 1884).

Sargent, using estimates made by Professor F. L. Harvey of Fayetteville, showed that the amount of merchantable shortleaf pine standing in Arkansas, May 31, 1880, was slightly over 41 billion board feet. The estimated cut for the year ending May 31, 1880, was about 130 million board feet of shortleaf pine (Sargent 1884).

At the national level, the Division of Forestry was established within the Department of Agriculture in 1881 (Steen 1977). This event had no immediate impact on the forests or people of Arkansas but would in the future.

[2] See footnote 1, p. 1.

By 1890, the logging industry was well established in Arkansas (Bass 1981). Demands for telephone poles, barrel staves, and crossties brought about frenzied cutting (fig. 2). Companies such as Dierks, Crossett, Fordyce, Bradley, Southern, Long-Bell, Union, and Caddo River (fig. 3) were among the largest operators (Smith 1986). With a few exceptions such as Dierks and Crossett, most companies intended to cut the timber and then abandon the lands. Although most lumber companies practiced the "cut-out and get-out" method of logging, a few used a harvesting technique known as "high-grading." This was a form of selective cutting where only the trees with high value and quality were removed. The favored species included white oak, black cherry, black walnut, and select pines. The stands that remained were made up of trees with less commercial value. Although commercial values changed over time, the major problem with "high-grading" was that remaining trees were frequently of poor genetic quality and provided an inferior seed source for development of future stands.

Concern Over Forest Resource Depletion

On March 3, 1891, during President Harrison's administration, Congress enacted the Forest Reserve Act in response to scientific and public concern that the Federal government must reduce the rapid depletion of the nation's forest resources (Steen 1977). The act was limited to reserving forest lands from public domain for watershed protection. Most reserves established during the first few years after passage of this act were in the West.

In 1897, an amendment to the Sundry Civil Appropriations Act listed the purposes for which forest reserves could be established, administered, and protected. This act is now referred to as the Organic Act (Steen 1977).

Also in 1897, the Division of Forestry was given an analysis of Arkansas' forest cover by Charles Mohr. He informed the Division, then headed by Bernard Fernow, that north of the longleaf pine region, shortleaf pine was widely distributed between the Ouachita River and the eastern boundary of Texas. The resources of pine timber had been removed in accessible parts of these mixed forests of oaks, hickories, and shortleaf pine, but off the highway, the resource had been only slightly drawn down (Mohr and Roth 1896). Mohr described 1 acre in the vicinity of Gurdon as representing average conditions:

> "Twenty-two shortleaf pines have been counted from twelve to twenty-five inches in diameter, with no pines of smaller growth, the scattered undergrowth of dogwood, huckleberries, scrubby oaks, blackgum, and hickories. . . . On the steep slopes, the pines are rarely found to exceed twelve inches in diameter and seventy-five feet in height. The hardwoods are most Spanish oak and post oak scattered beneath the pines and are scrubby and of no value for their timber" (Mohr and Roth 1896).

Figure 2.—*Logging crew on Ozark National Forest cutting white oak tree into stave bolts.*

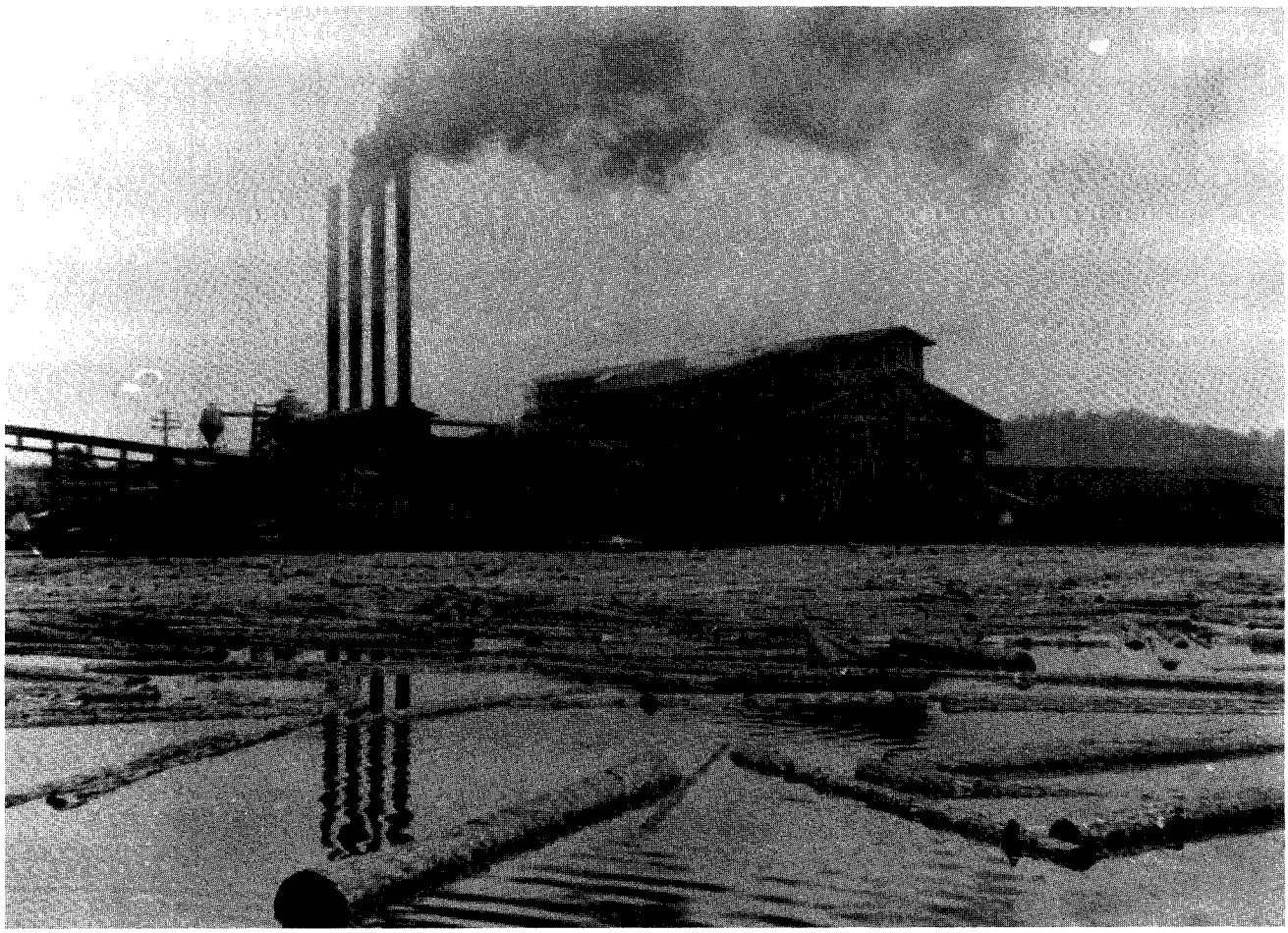

Figure 3.— *Caddo River Lumber Company mill at Glenwood, Arkansas.*

In 1899, the total manufactured output of the 10 leading industries in the State of Arkansas equalled slightly over $15 million. However, the lumber industry contributed almost $11 million of this wealth, or more than two-thirds of the total (Jones 1979).

At the national level, another change occurred in 1901 when the Division of Forestry was expanded and named the Bureau of Forestry (Steen 1977).

Logging Peaks in 1909

From 1906 to 1909, the last extensive virgin forest east of the Rocky Mountains, located in Arkansas, was opened to widespread, large-scale cutting. The year 1909 marked the climax of the lumber industry's most frantic period of expansion into the Ouachitas. It also was the all-time high year for lumber production in Arkansas, the South, and the entire United States (Smith 1986). It was estimated that about 1.2 billion board feet of yellow pine lumber were produced in Arkansas that year, and about 121 million board feet were produced in Oklahoma (Mattoon 1915b). Total lumber manufactured in Arkansas in 1909 was 2.1 billion board feet (Smith 1986).

Impact of Cutting and Burning by Farmers

Small farmers augmented the pace of denuding Arkansas' forest lands by cutting the original stands of their own with no intention of replanting. When one place played out (fig. 4), the farmer just moved to a new one (Bass 1981). Many farmers tried to raise crops on the land that had thin topsoil and rough terrain, thus accelerating erosion. During slack winter seasons, subsistence farmers worked at small portable mill operations to earn money. White oak was cut for ploughs, handles, wagon parts, beams, boards, fence rails, and fenceposts (Bass 1981).

The depredation of the virgin forests in the Ozark and Ouachita Mountains was further aggravated by the practice of burning the woods every year in the fall or early spring to improve forage production or create pastures. Also, there were no stock laws, so farmers allowed their cattle and hogs to range freely throughout the forests. Southerners accepted spring burning as a routine, and folk wisdom also indicated woods burning was a method of killing ticks and driving out snakes. Fred Lang, Arkansas' second State forester, estimated that it was not uncommon for at

Figure 4.—*Abandoned homestead on Highway 27 in Montgomery County, Arkansas.*

least one-third of the Ozark and southern pine regions of the State to burn every year (Lang 1965). Burning, however, also destroyed seedlings and new growth.

Samuel Record, first forest supervisor of the national forests in Arkansas and later Dean of Yale School of Forestry, also believed that forest fires undermined Arkansas' timber resources. He felt that providing markets for pine timber would do a lot to save pine forests from fires. Ready markets and cash for trees would do more than any amount of preaching to secure the cooperation of owners to prevent carelessness with fires. In his pamphlet, "The Forest Resources of Arkansas," he spoke of the recuperative power of nature, if it could be protected from fires, as follows:

> "Blessed with abundant rainfall and other favorable conditions for forest growth, Arkansas is rapidly replacing the virgin forests with valuable second-growth. The cutover lands now bear dense stands of pine and hardwoods in spite of the fact that no effort is made to protect such areas from fire. On the flats and rolling lowlands, the lobolly pine seedlings quickly fill up old fields, cut-over lands, and openings in the woods. The density of the stand causes the trees to grow tall and straight and clears the trunks for future supplies of lumber of good grade. The same is true for shortleaf pine on the uplands" (Record 1910).

ORIGINS OF THE ARKANSAS AND OZARK NATIONAL FORESTS: 1907–1908

In February 1905, administration of all existing forest reserves was transferred from the U.S. Department of the Interior (USDI) to the USDA, and later that year the Bureau of Forestry became the Forest Service (Steen 1977). Congress passed the Forest Homestead Act that opened agricultural lands for entry within forest reserves on June 11, 1906, and on June 30, passed an act requiring 10 percent of receipts from forest reserves to be returned to States for benefit of public roads and schools. Payments to States were later increased to 25 percent in 1908 (Steen 1977).

In 1906, Gifford Pinchot, then Chief of the USDA Forest Service, sent Cornell-trained forester William Logan Hall to Arkansas to select the areas of land that would eventually become the two designated national forests. Fred Lang described Hall as one of Pinchot's "stalwart men." "Bill was a good thinker and full of energy." Hall personally took a team of horses and tra-

versed the rugged terrain to select acreage for his mentor Gifford Pinchot. He was to remain active in Arkansas forestry, later serving as one of the founders of the Arkansas Forest Protection Association in October 1928.[3] The local newspapers urged cooperation with Hall in his preliminary investigation and determination of the Arkansas situation.

In March 1907, forest reserves were renamed "national forests" (Steen 1977). That same year, Gifford Pinchot prevailed upon President Theodore Roosevelt to withdraw large portions of the public domain from public use in northern and western Arkansas based on Hall's suggestions. This was in preparation for the creation of national forest reserves. The first withdrawal of Arkansas' public domain was made May 10, 1907, and further withdrawals were made June 17, 1907, and November 23, 1908, resulting in a total gross acreage of 1,663,300 acres (Wootten 1917). The initial reaction in Arkansas was favorable. The Fayetteville newspaper, the "Arkansas Sentinel," published an article on how these forest reserves would serve the people. The article discussed the new philosophy of having the forests "... managed by the people in their own interests..." (Fayetteville Arkansas Sentinel 1907).

A proclamation by President Roosevelt on December 18, 1907, created the Arkansas National Forest on reserved public domain lands south of the Arkansas River (U.S. Government Printing Office 1907). Pinchot remarked that this forest was the only major shortleaf pine forest under Federal government protection. In January 1908, the "Arkansas Sentinel" reprinted an article from "Forestry and Irrigation Magazine" that praised the hearty spirit of cooperation manifested by the Arkansas people and spoke of benefits to be gained by the conservation of timber supplies (Fayetteville Arkansas Sentinel 1908).

By another Presidential proclamation, March 6, 1908, those reserved public domain lands north of the Arkansas River were designated the Ozark National Forest. On March 8, 1908, the highly influential "Arkansas Gazette" published a favorable report on the newly created national forest (Little Rock Arkansas Gazette 1908). The Ozark NF was the only major hardwood timberland under governmental protection at that time (Bass 1981). The forest would assist the furniture industry in Fort Smith and be a renewable source of valuable hardwood. Just before leaving office, President Roosevelt added lands from the public domain to the gross area of the Ozark NF on February 25 and to the Ouachita NF on February 27, 1909 (USDA FS 1966).

[3] Lang, Fred H. 1961. Twenty years of razorback forestry. Hot Springs, AR: U.S. Department of Agriculture, Forest Service, Ouachita National Forest. 13 p. Unpublished report. On file with: Ouachita National Forest, Box 1270, Federal Bldg., Hot Springs National Park, AR 71902.

EARLY FOREST SERVICE ACTIVITIES: 1908–1925

First Forest Supervisors and Rangers

In January 1908, Samual J. Record was appointed forest supervisor of the Arkansas NF. He was responsible for both the Arkansas and Ozark NF's until late in 1908 when David Fitton became supervisor of the Ozark NF. The first supervisor's office for the Arkansas NF was established in January 1908 in Fort Smith, Arkansas. This also served as headquarters for the Ozark NF after it was established in March 1908. However, on July 10, 1908, Record moved the headquarters to Mena, Arkansas. Forest Supervisor Fitton set up the Ozark NF headquarters in Harrison, Arkansas, on December 31, 1908, where it remained until moved to Russellville, Arkansas, in 1918 (Bass 1981). In October 1909, Francis Kiefer replaced Fitton. Record resigned as supervisor of the Arkansas NF on July 1, 1910, to join the Yale University Forestry School. Daniel Adams replaced him and moved the supervisor's office to Womble for a short time and then to Hot Springs, Arkansas, in 1910.

Record believed that the rapid growth of trees and natural advantage of climate would enhance the position of the national forest as a region of rich timber resources supplying industrial needs. He foresaw future prosperity based on a timber industry that would be lasting. A naturalist, Record published a pamphlet in 1910 that discussed the state of Arkansas' timber resources. He indicated that 129 species of native trees had been identified in Arkansas of which 60 were of commercial importance. His paper included the names of trees of commercial importance found in the "Ozark Region" (appendix, table 1). This region of Arkansas included the Ozark Mountains north of the Arkansas River and the mountains south of the river commonly known as the Fourche and Ouachita ranges. He reported a great variation in the composition and quality of the forest due to elevation, exposure, and soil conditions as follows:

> "The crests of the ridges and some of the poorer knolls and foothills are stony and broken.... The trees are small, short, scrubby, and defective. The prevailing species are black jack oak, red oak, black locust, chinquapin, chestnut, winged elm, and hickory, with some shortleaf pine."
>
> "The slopes and foothills are usually well wooded with commercial timber.... The north slopes bear the best hardwood timber. South of the Arkansas River, the shortleaf pine is a very important tree [fig. 5] and is especially abundant on south slopes. ... Trees in mixture are red, white and post oaks; chinquapin chestnut, basswood, and cherry. White

Figure 5.—*Forest stand, mainly shortleaf pine, on Powell Mountain Trail, Jessieville-Umpheres Ranger District, Arkansas National Forest.*

oak is the principal tree on the north slopes. . . . North of the Arkansas River the shortleaf pine occurs sparingly. The most important trees are the oaks, gum, black walnut, ash, and red cedar."

"The river bottoms of the Ozark region are usually narrow, and much of their ground has been cleared for farming. The prevailing tree species are sycamore, black and red gum; white, red, willow and bur oak; black walnut, basswood, holly, red maple, beech, elm, hackberry, silver birch, mulberry, cherry, butternut, coffeetree, and hickory" (Record 1910).

The Forest Service and Supervisor Record faced a formidable task considering the scant resources that were available to patrol the vast and difficult terrain of western Arkansas. He advertised for eight rangers. The Forest Service demanded that these officers be professionally competent, physically fit, and morally above reproach (Bass 1981). For a wage of $900 per year, one of the first tasks of the rangers would be to delineate the boundaries of the national forests. This would not be an easy task because of previous inexact surveys.

The local forest guards and rangers were selected after passing the U.S. Civil Service examination. They had a difficult and demanding assignment and were on duty almost all the time (fig. 6). They not only protected against fire and land or timber grabbing, but they were also game wardens. They maintained miles of telephone lines on foot or on horseback. They checked homesteading, mining claims, timber cutting, and watched for timber poachers (Bass 1981). The work took its toll, as reported by the "Fort Smith Times" in 1908: "Numerous changes have been made in the administrative force of the Arkansas National Forest. Two guards have been dismissed . . . [for] conduct unbecoming a forest officer. Three others have resigned for various reasons. There are now twelve men in the Ozark Reserve" (Fort Smith Times 1908).

Administrative Structure

By 1909, the Forest Service's administrative structure was in place. The operating principle was decentralization, dividing the Arkansas and Ozark NF's into units under district rangers. A forest supervisor was responsible for each forest, and the supervisor's office

included a deputy supervisor, forest examiners, forest assistants, and timber scalers (fig. 7). All positions were under the U.S. Civil Service System—a provision that exempted appointments from political patronage and made the Forest Service a citadel of professional pride.

The district rangers were given major responsibilities in districts that averaged about 160,000 acres.[4] They were charged with management of timber sales, fire protection, and any other activities mandated by the Federal government. The ranger's salary of $900 per year in 1908 was finally increased to $1,200 in 1920. Rangers were expected to have a working relationship with locals in order to facilitate smooth operations. The "Use Book" of Forest Service regulations and instructions took effect in July 1905. It stated that Forest Service personnel were "agents of the people, with whom they come into close relations as fellow citizens" (USDA FS 1905). Rangers often had long tenure in the same district in order to foster good relations with the public.

[4] See footnote 1, p. 1.

Public Attitudes Change

The public attitude towards the Forest Service changed as the new rangers uncovered illegal use of the public domain. The Forest Service believed that the 2,500 families who lived within the national forest boundaries (fig. 8) when the public domain was withdrawn from entry had used the land for many years as a sort of commons. Their stock ran at large, timber was cut without regard to ownership, the woods were burned at will, and timber speculators operated

Figure 6.—*Start of another day as Ozark National Forest ranger prepares to saddle his horse.*

with little regard for legal land titles.[5] Record found that illegal timber cutting continued for years in open defiance of the law.[6]

After President Roosevelt made another addition of thousands of acres of public domain lands to the two national forests in Arkansas in February 1909, and, with the realization that the Forest Service was going to interfere with long standing local practices, a backlash developed. In May 1909, little more than 1 year after supporting the Federal forest reserves, the "Arkansas Gazette" printed a letter from a Polk County reader who complained that Supervisor Record was not sympathetic towards homesteading. The writer also noted:

> ". . . when the forest people refuse to grant them [Forest Service] deeds to their homes, the people are sore—claim bad faith with them as with the Indians—forest fires are set to annoy the officers; printed notices torn down, threats made . . . for

[5] See footnote 1, p. 1.

[6] U.S. Department of Agriculture, Forest Service. 1957. Ouachita National Forest celebrates 50th anniversary. [Not paged] [17 p.]. Unpublished report. On file with: Ouachita National Forest, Box 1270, Federal Bldg., Hot Springs National Park, AR 71902.

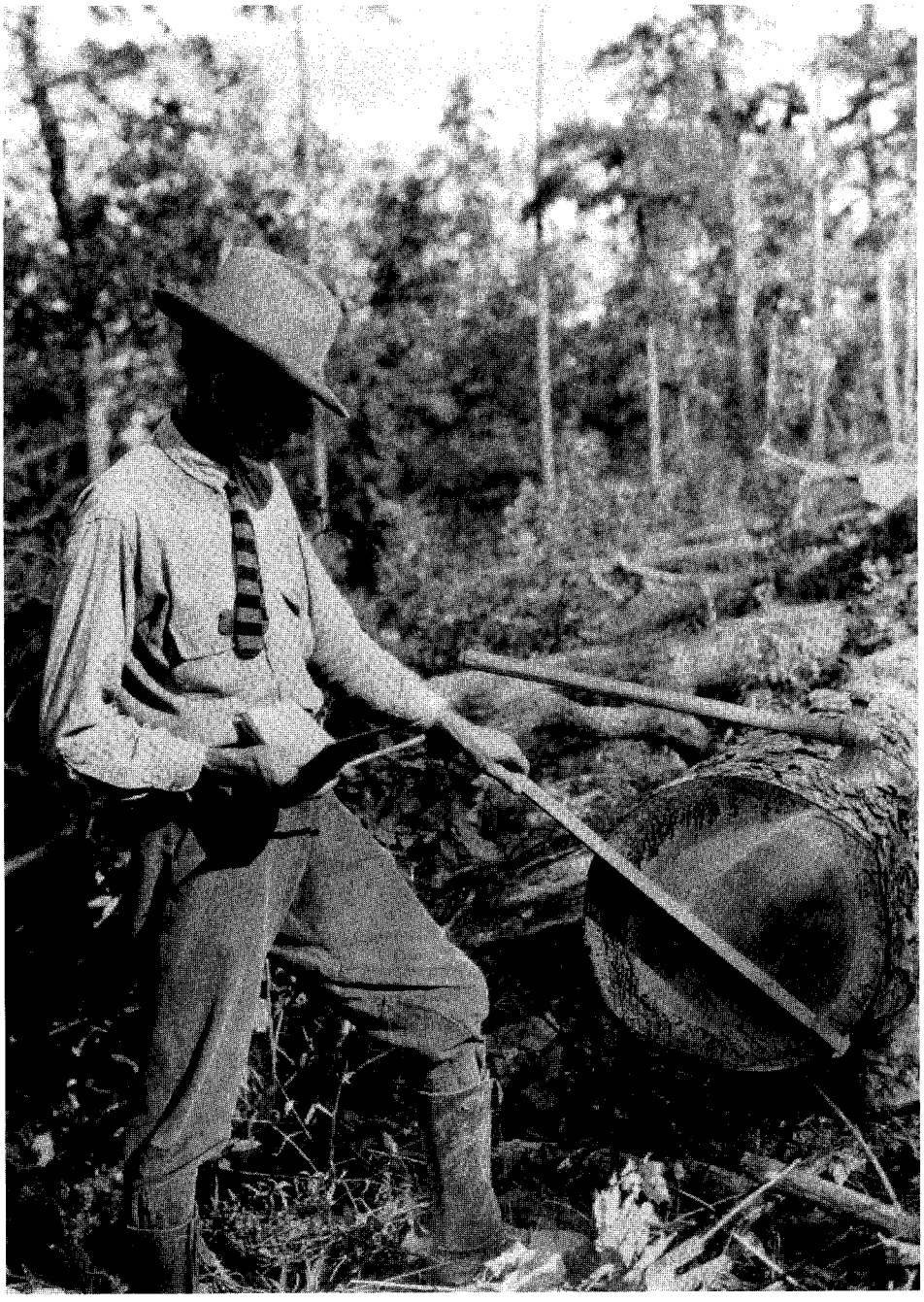

Figure 7.—*Forest officer David A. Younger scaling logs, Hodges 5-12-24 sale, Cold Springs Ranger District, Arkansas National Forest.*

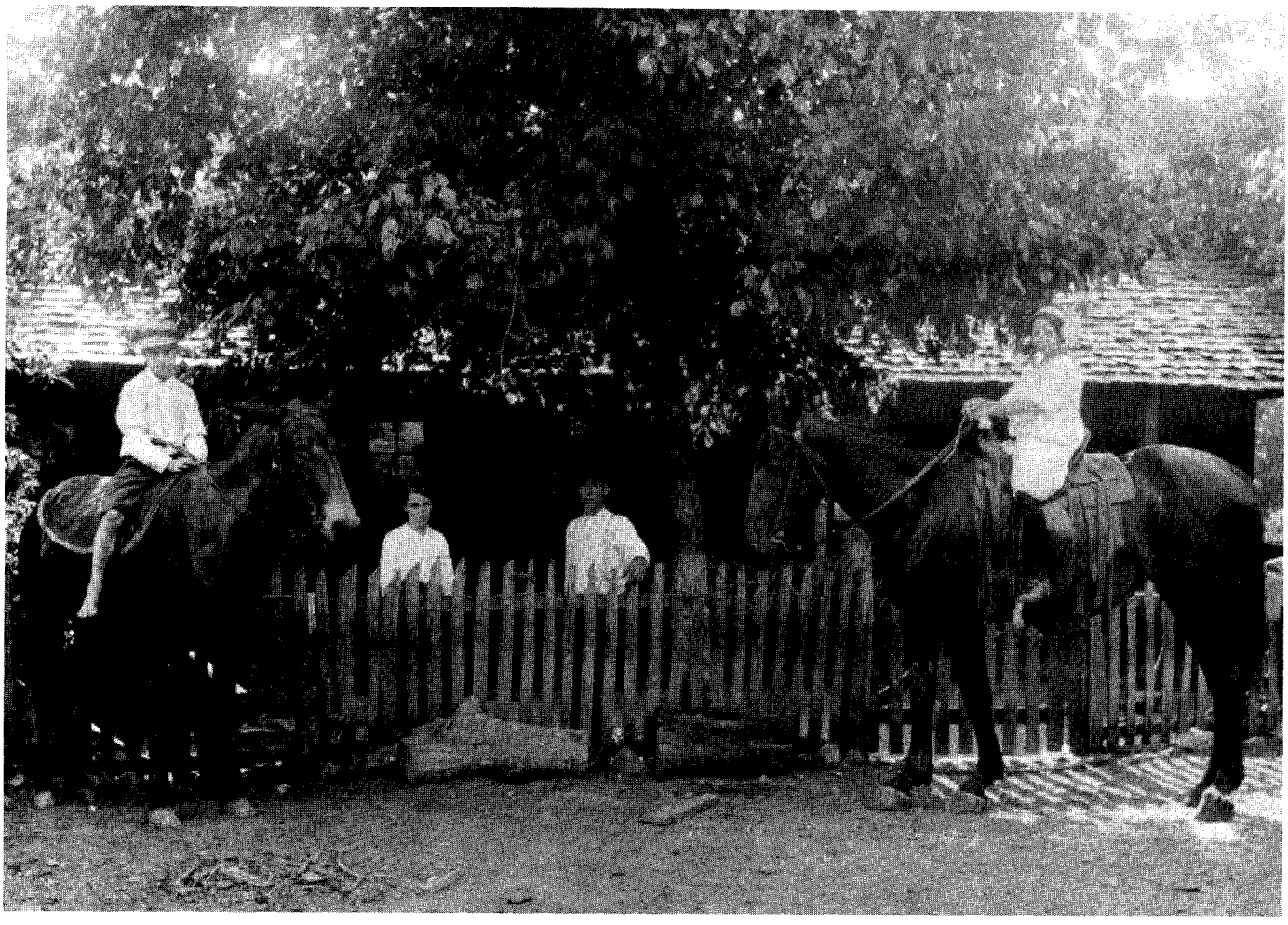

Figure 8.— *Typical farm family in the Ozark Mountains.*

these mountain people when aroused are as mean to combat as so many devils" (Little Rock Arkansas Gazette 1909b).

Forest Supervisor Record's reply to the letter was printed in the same article.

The Arkansas Legislature approved a resolution on May 6, 1909, asking the Arkansas congressional delegation to take such steps as necessary to abolish the national forests in Arkansas (Little Rock Arkansas Gazette 1909a). In February 1910, a meeting of 600 homesteaders in Mount Ida established an organization known as the "Homesteaders' Protection League of Montgomery County." They adopted a resolution petitioning the U.S. Congress to entirely eliminate the reserves in the county. The Committee on Public Lands of the House of Representatives held hearings for several days in May 1910 to gather public input on two bills: H.R. 20683, "To Abolish the Ozark National Forest," and H.R. 21894, "To Exclude from the Arkansas National Forest all lands within the County of Montgomery and restore the same to the public domain" (Committee on Public Lands 1910).

Ranger William Wootten was charged with the task of inventorying and classifying lands within the Arkansas NF that were chiefly valuable for agricultural purposes, as required under the Forest Homestead Act of 1906. After almost a decade of effort, Wootten noted, "Were agricultural land here bottled up, as some seem to think, it would have passed to patent long before the creation of the Arkansas NF. I repeat—the people have classified this land" (Wootten 1917). In western Arkansas and eastern Oklahoma, lumber companies had taken advantage of some individuals' fraudulent use of the Forest Homestead Act by buying land from these "farmers" (fig. 9). Ranger Wootten felt these itinerant farmers had abused the act by acquiring choice timber stands with no intention of living on the land and then selling these lands to logging companies (Wootten 1917).

The reaction against the Forest Service in Arkansas was also occurring in other parts of the country and at the national level. Congress had already passed the Forest Homestead Act in 1906 that allowed selection of 160 acres of agricultural land within the confines of the national forests (Steen 1977). Under the Forest Homestead Act, President William Howard Taft signed a proclamation on December 28, 1910, that shrank the Ozark NF by some 562,981 acres (Bass

1981). Also, a major change in Forest Service leadership occurred in January 1910, when President Taft fired Chief Gifford Pinchot for publicly criticizing the Secretary of the USDI over the processing of Alaskan coal claims (Steen 1977).

Fire Protection—the Most Important Job

During the early days on the national forests in Arkansas, the single most important responsibility of the forest rangers was fire protection. This was an especially difficult task due to local attitudes. Beginning with the 1910 fire season, the Forest Service made an effort to detect and suppress all forest fires (fig. 10). They also began to employ local people to assist in putting out these fires (fig. 11). This practice proved counter-productive, as hard-pressed subsistence farmers who needed money actually lit the fires and then offered their services to help extinguish them. In the Ozarks, some 52,452 acres were set ablaze in 1913.[7] As a result of the failure to reduce acres burned using local pickup crews and the lack of adequate permanent employees, the Forest Service abandoned forest-wide protection along with the practice of enlisting local aid to fight forest fires in 1913 (Bass 1981).

Also in 1910, the Forest Service started the systematic erection of guard towers. The construction of these towers proved to be difficult due to limited materials and poor roads. Efforts were also made to initiate an educational program to change the attitudes of the public toward the forests. Henry Koen, one of the original forest rangers and, later, forest supervisor of the Ozark NF, had been brought up in the Ozarks. He tried to convince locals of the necessity of fire protection. As Fred Lang[8] recalled, "Henry would ride a mule through the Ozark Mountains, staying overnight with the nesters, sampling their mountain dew and preaching forest fire protection." By 1925, Ranger James Maurice Wait conducted a much-expanded program of fire education using a government truck painted with the slogan, "When the forests burn, you and your children lose" (Bass 1981). Traveling over poor roads and across creeks, he covered more than 5,000 miles during his first full year, giving talks, enhanced by films and slide shows, that illustrated the advantages of fire protection. People were attracted to these meetings by the opportunity to view slides and motion pictures, some for the first time (Bass 1981).

Weeks Law

In 1911, Congress passed the Weeks Law that authorized Federal purchase of forest lands in the eastern part of the United States. Although the original impetus was from groups in the southern Appalachians and the White Mountains of New Hampshire, Congress wrote the law to include any lands in watersheds of navigable streams. Each acre purchased had to contribute to the protection of navigation (Steen 1977). The Weeks Law also authorized creation of a National Forest Reservation Commission charged with the responsibility of overseeing purchases of these lands. William Hall served as an advisor to the commission in the selection of Arkansas lands to be acquired.

The original withdrawals from the public domain in 1907 and 1908 totaled 1,663,300 acres, but this gross area included both public and private lands within the national forest boundaries (Wootten 1917). This area changed several times as a result of additions by President Roosevelt in 1909 and exclusions by President Taft in 1910 and President Wilson in 1914, 1916, 1918, and 1919. By 1919, the boundaries had been pulled in so that the gross area equaled 1,469,906 acres of which 915,650 acres were Federal lands (USDA FS 1966).

The first Arkansas lands purchased for the national forests under the 1911 Weeks Law were bought in 1919 from the Missouri Pacific Railroad on the recommendation of Hall (Bass 1981). By 1925, Forest Service ownership had increased to 963,287 acres (USDA FS 1966). The largest increases in national forest ownership occurred during the period from 1933 to 1941. Most of the lands purchased within the proclaimed forest boundaries had been cutover. Eventually, the national forests in Arkansas would expand to slightly more than 2.5 million acres and, in Oklahoma, to a little more than 300,000 acres, making the total over 2.8 million acres (USDA FS 1994). However, a majority of the purchased acreage was west of the original forest reserve that had been created from the public domain. Most of these additional acres consisted of submarginal cutover and burned land often acquired from timber companies (Bass 1981).

Condition of Forest Resources in 1913

In the Ouachita Mountains, pine forests were considered the most valuable resource. Wilbur R. Mattoon (1915a), a Forest Service examiner, published a bulletin on shortleaf pine. He reported that mature shortleaf occurred over a large region centering in western Arkansas and northern Louisiana. He indicated that this was the last extensive region of virgin shortleaf forest left in the path of the lumber industry as it moved southward and westward. Mattoon found shortleaf well adapted for growth in pure stands: "In the higher mountainous regions, including . . . the Arkansas and Ozark National Forests, the warm south-facing slopes are generally covered with pine in pure

[7] See footnote 1, p. 1.

[8] See footnote 3, p. 9.

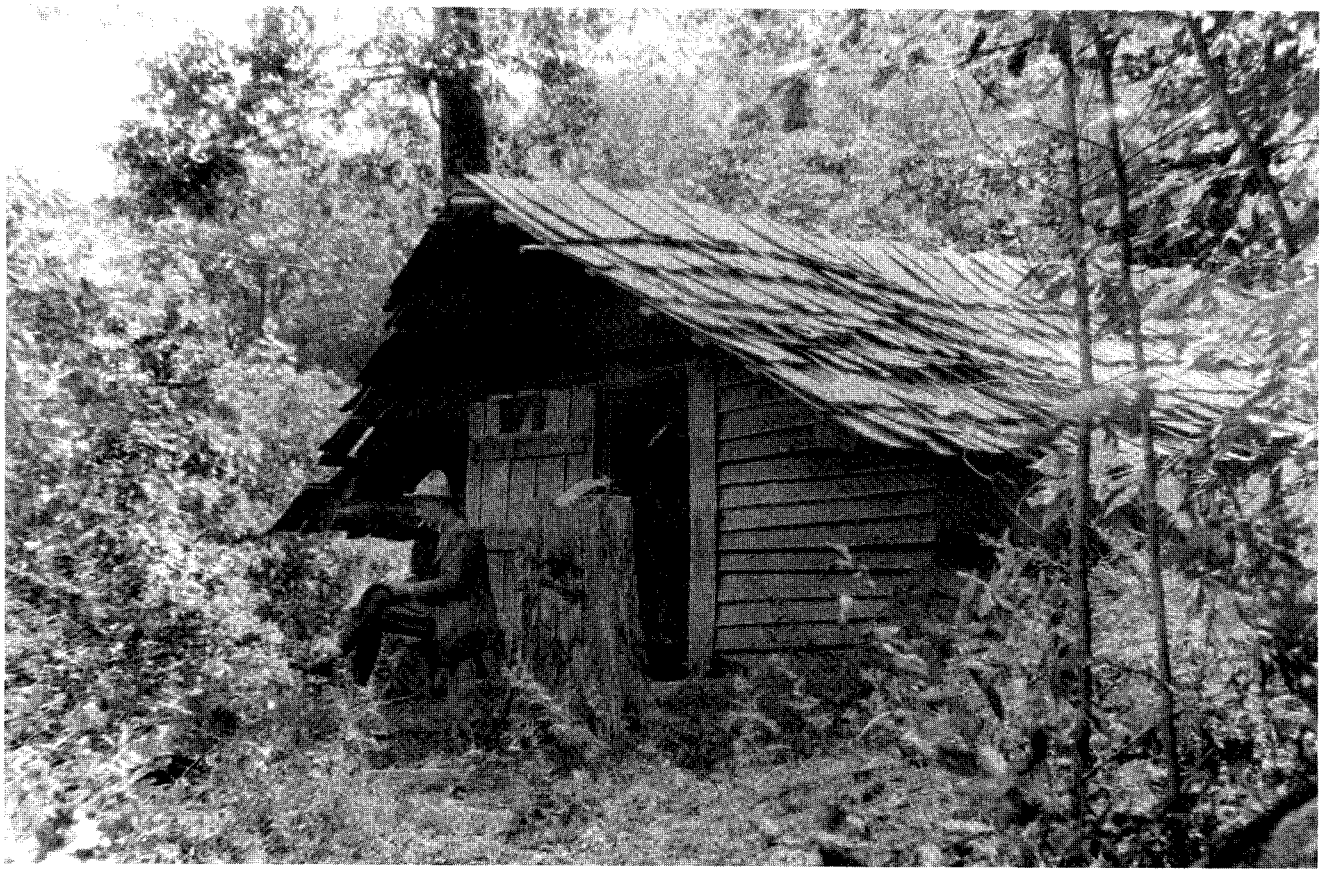

Figure 9.—*Settler's dugout, Womble Ranger District, Arkansas National Forest.*

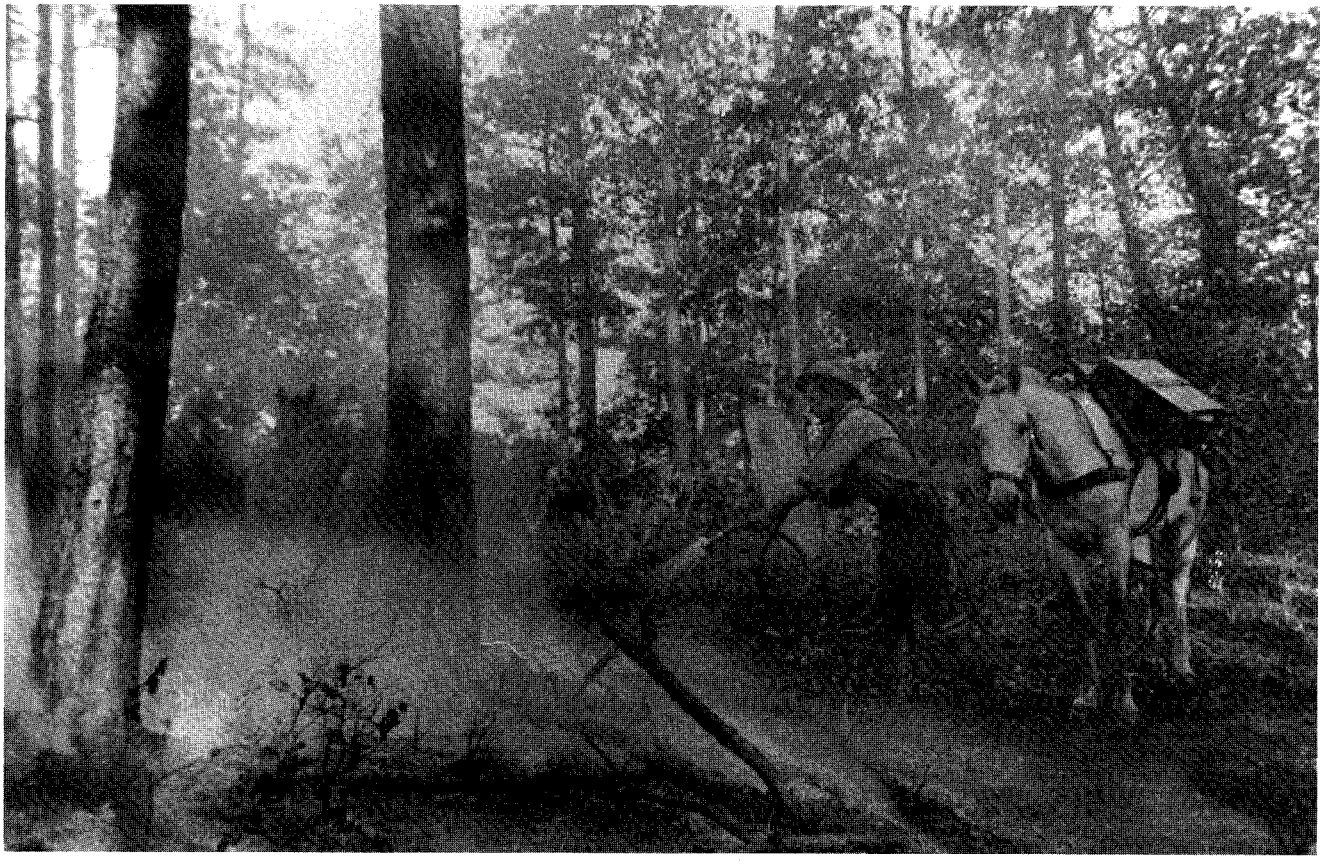

Figure 10.—*Early fire fighting on the Arkansas National Forest.*

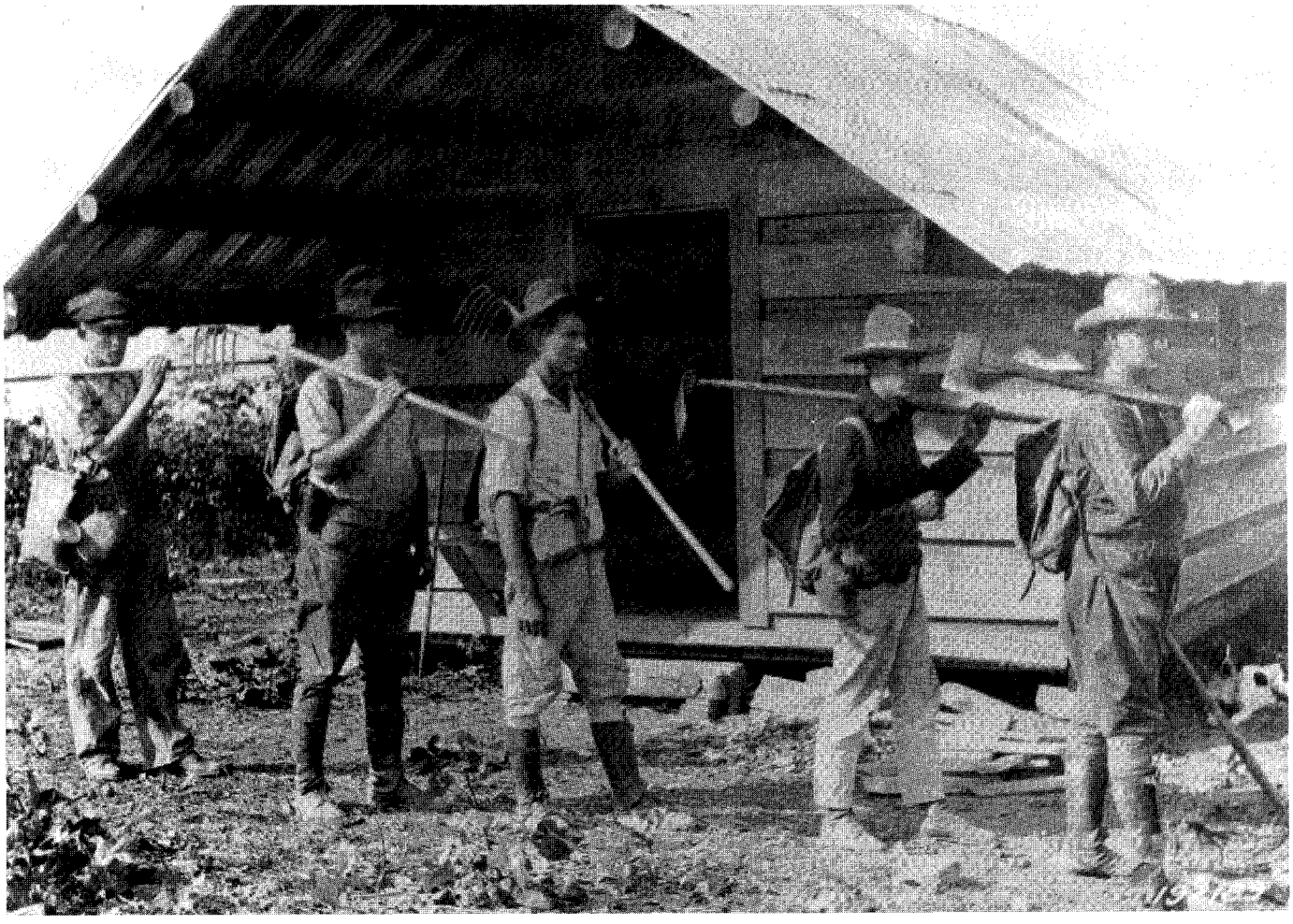

Figure 11.—*Fire fighters starting to a forest fire from the Powell Mountain cabin, Jessieville-Umphers Ranger District, Arkansas National Forest.*

stands, and the northerly slopes with little else than hardwoods, chiefly oaks and hickories" (Mattoon 1915a). Prevailing associates of shortleaf pine west of the Mississippi River were yellow [now black] oak and bitternut and pignut hickories; on dry ridges, post and black-jack oaks; and on fresher soils, white and red oaks, mocker-nut [sic] hickory, and red gum. He felt that the commercial importance of all hardwoods typically associated with shortleaf was comparatively small except white oak in areas of its better development (Mattoon 1915a).

Forest Service estimates for 1913 showed 1.5 billion board feet of standing shortleaf pine timber on the Arkansas NF and 108.9 million board feet on the Ozark NF (Mattoon 1915a). Based on estimates made for 1913 by the lumber industry, Mattoon calculated that there were about 12.5 billion board feet of standing shortleaf pine on privately owned lands in Arkansas (Mattoon 1915b). Thus, the estimated total standing volume of shortleaf pine in Arkansas in 1913 was 14.1 billion board feet—greatly reduced from the 1880 estimate of 41.3 billion board feet (Sargent 1884).

The most recent measurements of shortleaf pine sawtimber volume for Arkansas were made in 1988 by the USDA Forest Service, Southern Forest Experiment Station. The report (Beltz and others 1992) gives the statewide total volume of 15.4 billion board feet. Detailed estimates for the Arkansas portion of the Ouachita NF show a shortleaf volume of 5.58 billion board feet and 1.45 billion board feet for the Ozark NF.[9] These figures cannot be compared directly with the older estimates because of different acreages under national forest administration as well as different log scales used to calculate volumes. However, it does give the general impression that current standing volume of shortleaf pine in Arkansas appears to be similar to that remaining in 1913 after the major impact on forest resources of lumbering between 1879 and 1912.

[9] Personal communication, Joanne L. Faulkner, USDA Forest Service, Southern Forest Experiment Station, Forest Inventory and Analysis Research Unit, Starkville, MS 39759.

Early Shortleaf Pine Management

Mattoon (1915b) also published a bulletin on shortleaf pine management. He indicated that the aim of the Federal government on the national forests of Arkansas was to produce the sort of material most needed by the people—namely medium-sized saw timber. He estimated that a rotation of 90 to 100 years in fully stocked stands would give the greatest annual yields. He calculated that the average tree at this age would be 74 feet tall and have a diameter of 16.6 inches (Mattoon 1915b). Mattoon proposed that management of pure shortleaf stands should be under some form of clearcutting system. In mixed stands where shortleaf competed with various hardwoods, it was more profitable to encourage the pine, thus bringing about a gradual change in forest type. Mattoon (1915b) found that in the mixed stands in the national forests of western Arkansas, "the ranging of hogs in large numbers for many years greatly reduced the natural seeding of associated nut-bearing oaks and hickories, and by preparing a good seed bed, has greatly increased that of shortleaf pine." According to Mattoon: "On the two National Forests of Arkansas, where the mixed type prevail, the ultimate aim in the silvicultural management of shortleaf pine is to convert the present more or less uneven-aged forest into even-aged stands."

FOREST SERVICE ACTIVITIES: 1925–1939

On June 7, 1924, Congress passed the Clarke-McNary Act that expanded many Weeks Law programs. One of the more significant stated that the purchase of forest lands was no longer restricted to watersheds of navigable streams (Steen 1977). This act authorized the Forest Service to acquire large tracts of cutover timberlands as well as submarginal farm lands that were uneconomical for row crop production.

Proposed Change from National Forest to National Park

At the end of World War I, despite the initial efforts of the Forest Service, the timber resource in Arkansas, as well as the rest of the South, continued to deteriorate. Pressured by ruthless competition, taxes, and predatory lumber operators, Arkansas timber resources declined (Mena Weekly Star 1957). In the early 1920's, with the advent of automobile travel, the Mena Chamber of Commerce wanted Congress to transfer the control of the Arkansas NF from the USDA Forest Service to the USDI National Park Service (Mena Weekly Star 1926d, St. John 1926). In 1926, Vincent St. John, publisher of the "Mena Star" and secretary-treasurer of "The Ouachita National Park Foundation Society," worked with the Oklahoma Forestry Commission and Eastern Oklahoma Playgrounds to request the designation of 160,000 acres of Arkansas NF as a national park. Both the Arkansas and Oklahoma governors endorsed the concept of a large nature preserve located within a day's driving distance of 40 million people (Ouachita National Park Foundation Society 1926). However, the Federal government's Outdoor Recreation Commission and the Forest Service opposed the idea (Greeley 1926). Congress enacted the legislation for the transfer, but President Calvin Coolidge pocket-vetoed the bill.

Arkansas NF Renamed Ouachita; Hunting Refuges Established on Ozark NF

On April 29, 1926, by Executive order (U.S. Government Printing Office 1926), President Coolidge changed the name of the Arkansas NF to the Ouachita NF. He also proposed extending the national forest into eastern Oklahoma. In addition, he announced the creation of four Federal hunting refuges within the Ozark NF (Mena Weekly Star 1926c). Arkansas had been a game-hunting paradise in the 19th century, with an abundance of deer, elk, bear, mountain lion, fox, and wild turkey. However, the effects of overkilling, overcutting, and changing habitat had contributed to the virtual elimination of all game by the mid-1920's. The refuges were established in response to criticism of the lack of hunting opportunities on the national forest. The Forest Service was to work with State agencies to begin the laborious task of restoring wildlife to western Arkansas.

In the wake of the Coolidge veto, Chief Forester William Greeley traveled to Mena, Arkansas, (Mena Weekly Star 1926b) where he met with Vincent St. John and the Chamber of Commerce to talk about the Forest Service's vision for the Ouachita NF. Leading citizens were assured that their complaints had been heard and were being acknowledged. Greeley also visited the Ozark NF and, after inspecting the forest, said he was impressed with the future hardwood timber supply and recreation possibilities (Mena Weekly Star 1926a).

Growing Pine Timber as a Crop and Better Fire Protection Proposed

Even as politicians were advancing the benefits of a national park's recreational potential, forest experts were writing about the opportunities for growing commercially valuable pine timber as a crop in the Ouachita Mountains and the good sense of protecting the trees from fire (Lang 1965). As early as 1925, William Hall saw the potential of good forestry practices

in Arkansas. "Pass along a road today," he'd say, "and there is a field in cotton. Come along two or three years later, and that field will be fully set with pine trees."[10] Others who were just as foresighted included: A.E. Wackerman, with Crossett Lumber Company, Charles Evans and H.N. Wheeler, of the Forest Service, Charles Gillett, of the Arkansas Extension Service, and Henry R. Koen, supervisor of the Ozark NF (Lang 1965).

In 1928, the Forest Service started a pine nursery on the Pleasant Hill Ranger District in the Ozark NF. The site proved to have inadequate moisture, so a plot was started the following year at a site on the campus of Arkansas Polytechnic College in Russellville. This attempt failed at first due to a devastating drought in the summer of 1930. Nevertheless, after the installation of an irrigation system, the site proved to be suitable for the production of pine seedlings for the Ozark NF (Bass 1981).

With the new interest in growing trees as a crop, there was a need for improved forest fire protection. The Forest Service continued to have problems with wildfires. In the summer of 1929, due to prolonged drought in western Arkansas, the Ouachita NF experienced 37 major fires (fig. 12), with the largest covering more than 12,000 acres. William Hall, Secretary of the Arkansas Forest Protection Association, estimated the fires cost the State about $100,000 a day in timber losses (Mena Weekly Star 1957).

In 1930, Congress passed the Knutson-Vandenberg Act that authorized funds for reforestation of national forests and also created a revolving fund for reforestation or timber stand improvement (Steen 1977). The Forest Service was allowed to calculate reforestation costs and deduct these from the receipts of each sale. These funds could be used to reforest the site; to improve the quality of remaining stands through thinning, pruning, fertilizing, or release cutting; and to produce seedlings in Forest Service nurseries (Frome 1984).

Ouachita National Forest Extended into Oklahoma

On December 3, 1930, President Hoover fulfilled the proposal of President Coolidge and extended the Ouachita NF into Le Flore County, Oklahoma. This became possible when the National Forest Reservation Commission approved for purchase more than 53,000 acres of cutover and burned timberland from the Buschow Lumber Company (Stuart 1931). Ranger Wally Prater predicted that it would take 60 years before the forests would ever produce marketable pines. In 1931, additional acreage was secured to protect watersheds on the Canadian and Poteau Rivers. Forest Service officials believed that governmental protection was needed more than immediate exploitation. Certainly this was the case on the Ouachita NF because land being acquired was from lumber companies that already had harvested all merchantable shortleaf pine timber. Of the 113 commercial sales of timber in the national forest in 1939, only 5 transactions were for more than $500 (USDA FS 1939).

Arkansas Forestry Commission Established

Interest in timber as a crop was increasing in southern pine areas of Arkansas, and, in 1929, a bill proposing the establishment of a State forestry department was introduced in the State legislature but failed to pass. In 1931, the legislature passed an act authorizing the Arkansas State Forestry Commission, but no funds were voted for its operation (Lang 1965). The Forestry Commission did start operating in 1933 after the governor appealed to the public for donations. This request was necessary because the legislature again failed to provide any funds (Lang 1965).

THE GREAT DEPRESSION AND THE NEW DEAL: 1930–1942

Between 1922 and 1929, there was feverish economic activity in the United States. The prosperity of the 1920's was accompanied by a stock market boom until the crash in the fall of 1929. With the coming of the Great Depression of the 1930's, business stagnated, labor was unemployed, and politics was in a state of confusion. This economic depression was at its worst when Franklin Delano Roosevelt became President on March 4, 1933. Under his "New Deal," 30 emergency agencies were set up within a few months for the purpose of coping with the Depression. Under authority of an emergency employment act of March 31, 1933, President Roosevelt established the Office of Emergency Conservation Work (ECW) by Executive order on April 5, 1933. The Civilian Conservation Corps (CCC) was actually created by an act of Congress on June 28, 1937, as successor to the ECW. However, the name Civilian Conservation Corps or CCC was used during the entire period from 1933 until the authority expired on June 30, 1948 (Helms 1980). The EWC and, later, the CCC were established to provide relief for young, unemployed men.

Forest Service, CCC, and Land Utilization Projects

The CCC presented an unforeseen opportunity for the Forest Service to employ some of the out-of-work

[10] See footnote 3, p. 9.

Figure 12.—*Forest stand killed by Crane's Nest fire, Ouachita National Forest.*

labor force to perform desperately needed labor-intensive activities on the Ouachita and Ozark NF's. The Forest Service initially set up 16 camps on the Ouachita NF (13 in Arkansas and 3 in Oklahoma) and 9 on the Ozark NF, each with 200 men. One forester recalled that most of these men had never seen the woods. They had been idle and undernourished as a result of previous conditions and were incapable of normal, sustained, physical effort. They were discouraged, and morale was low (McCarty 1977). However, the Forest Service provided a healthy work ethic for these victims of the Depression by directing their labors toward rehabilitation of lands acquired under the Weeks Law (fig. 13). And, for the first time, the national forests had ample fire protection. At first, corpsmen from all over Missouri were brought to the Arkansas camps. John Black, forest engineer, recounted that enrollees "fresh from St. Louis" didn't know a mattock from a potato fork.[11] They complained about ticks, chiggers, and the hard work. However, resentment toward outsiders resulted in many fires being deliberately set by the local folks, "just to keep the Yankees busy."[12] After 1934, enrollment preference was given to Arkansas natives. At one time there were 37 CCC camps in Arkansas, and, eventually, 69,038 youths served in Arkansas (McCarty 1977).

By 1935, the USDA Soil Conservation Service (SCS) also administered CCC camps. "Boys working on soil conservation projects hauled and planted sod, built check dams on small creeks, filled gullies, crushed and hauled limestone for fields, and planted trees" (McCarty 1977). Many of these projects were on Soil Conservation Districts that had been created from submarginal farm land. In addition, the Works Progress Administration (WPA), established in 1935, was involved on national forest lands. Dee Thomas, a bulldozer operator, told of the progression of WPA roadwork: "The first event was clearing the right of way. They were dragging every log, every piece of brush and every bit of rock completely outright. The second event was sloping banks with picks, shovels, and other hand tools" (McCarty 1977).

As existing roads were improved and new ones built, recreational opportunities on the national forests were

[11] See footnote 6, p. 12.

[12] See footnote 3, p. 9.

Figure 13.—*Planting a tree with a dibble-bar in an old field on the Ozark National Forest.*

greatly expanded (fig. 14). The public could enjoy Shady Lake, Lake Sylvia, Bard Springs, Jack Creek, and the Charlton and Ouachita campgrounds on the Ouachita NF. Long Pool, Bayou Bluff, White Rock Mountain, Devil's Den, Barkshed, and Gunner Pool were some of the recreation developments on the Ozark NF.

The large contributions of money and manpower made available by these Depression era programs provided administrative improvements such as building roads and bridges, permanent recreation facilities, equipment depots, lookout towers, and ranger stations (Bass 1981).

In 1937, Congress passed the Bankhead-Jones Farm Tenant Act to provide for the relocation of poor farmers from submarginal lands. The program was managed by the SCS. One of the options under this act was reforestation of the lands. The Forest Service, working with the SCS, established the Magazine Mountain, Boston Mountain, and Lake Wedington Land Utilization Projects and transformed them from poor farmlands to forest cover. In 1938 and 1940, lands in the Magazine Mountain Project were transferred to the Ouachita NF by President Franklin Roosevelt. A short time later, in 1941, the project was transferred to the Ozark NF, making it the only unit of this forest south of the Arkansas River. Also in 1937 and 1940, President Roosevelt transferred the Boston Mountain Land Utilization Project to the Ozark National Forest (USDA FS 1966). Eventually, in 1954, the Lake Wedington and four other land utilization projects were transferred from the SCS to the Ozark NF to administer until the Secretary of Agriculture could dispose of these lands (Bass 1981). That same year, the Tiak Project was transferred to the Ouachita NF for administrative purposes until the lands could be sold.

The Ouachita and Ozark NF's recovery efforts involving the CCC, SCS, and WPA were considered long-term projects. Some of the accomplishments of the CCC program in Arkansas are shown in table 2.

Public Attitudes

Montgomery County continued to be a center of strong feelings for and against control of the land by the Forest Service. Several events occurred in 1934 and 1935 in the county that were reminiscent of activities back in 1910. On March 23, 1934, the Ouachita NF received numerous petitions, signed by a relatively large number of county residents, requesting that the Forest Service resume the purchase of lands in their county. They felt it was unfair to owners of poor land to pay taxes when the land was only good for growing trees (USDA FS 1934a). However, a conflicting view was presented on April 12, 1934, when U.S. Senator Hattie W. Caraway sent the forest supervisor a resolution, adopted on April 3 by the Montgomery County Quorum Court, against any extension of the present boundaries of the Ouachita NF (USDA FS 1934b). And, finally, on August 15, 1935, several Montgomery County officials sent a signed document sanctioning the Forest Service to purchase all non-agricultural

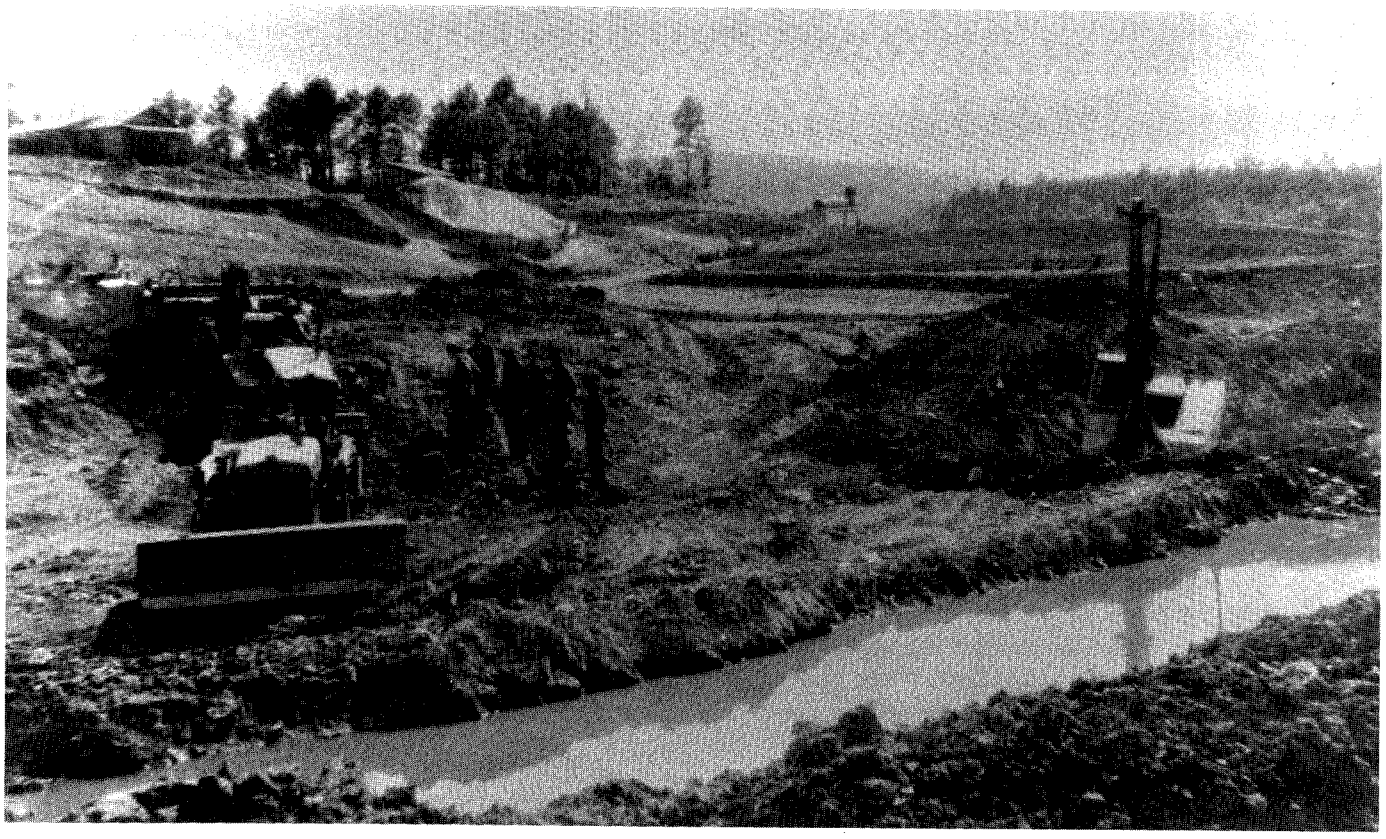

Figure 14.—*Civilian Conservation Corps construction work on Cedar Creek Dam near Stapp, Ouachita National Forest.*

lands in the county that were offered for sale by the owners (USDA FS 1935). During this period of conflicting public views, some lands were purchased in Montgomery County.

Game Sanctuaries Established on Ouachita National Forest

On March 8, 1935, President Franklin D. Roosevelt issued a proclamation (U.S. Government Printing Office 1935) establishing four game sanctuaries and refuges on the Ouachita NF. They were the Pigeon Creek Refuge on 8,440 acres, the Oak Mountain Refuge on 8,500 acres, the Muddy Creek Refuge on 10,030 acres, and the Caney Creek Refuge on 8,300 acres.

THE FOREST SERVICE'S ROLE DURING AND AFTER WORLD WAR II: 1942–1963

End of CCC; War Production Demands

The outbreak of World War II reversed some of the progress that the Forest Service, with the help of the CCC, had achieved. An appropriation act of July 2, 1942, provided for the total liquidation of the CCC by June 30, 1943 (Helms 1980). The CCC camps in Arkansas were gradually abolished in 1940 and 1941.[13] Many State and Federal nurseries had shut down, and replanting had practically ended. State and Federal

[13] See footnote 1, p. 1.

Table 2.— *Civilian Conservation Corps accomplishments by activities between 1933 and 1942 (adapted from McCarty 1977)*

Activity	Unit	Accomplishment
Fighting forest fires	Man days	167,227
Watchtowers and other buildings	Number	133
Telephone lines	Miles	6,205
Truck trails and other roads	Miles	2,713
Vehicle bridges	Number	4,956
Planting tree seedlings	Number	19,463,745
Other emergency work	Man days	20,900

fire protection had been drastically reduced, and recreational areas and other improvements constructed by the CCC deteriorated during the war years.[14]

The Federal government demanded increased timber production to support the war effort. Hickory was used for skis and white oak, for ship beams and barrels (Bass 1981). The military draft and the lack of skilled foresters caused production to decline by 1942. In 1943, the War Manpower Commission mandated a 48-hour work week for the lumber industry, as well as allowing German prisoners of war to supplement the labor force. War priorities placed an intense demand on the national forests for timber resources. Managing other resources took a back seat to logging activities (Bass 1981).

The end of the CCC program left Arkansas' forests extremely vulnerable to fire. Until 1943, Arkansas escaped major fire incidents. Lang[15] said that the draft had removed the men who usually "set the woods on fire." In the summer of 1943, carelessness and arson combined to cause the burning of over 93,000 acres of private forest lands in south Arkansas in only 35 days. At the same time, in the Malvern and Fordyce areas, sparks from trains fell on parched grass and exploded into raging fires. Not even five tractors, moving abreast to plow firebreaks, could stop the conflagration.[16]

Need to Restore Forest Productivity

By the conclusion of World War II, Arkansas' national forests had a large backlog of work, including the need for major replanting. The Ouachita NF had experienced a 60-percent decline in inventory of shortleaf pine. The Forest Service estimated that only 17 percent of the timber in the Ozark NF was commercially valuable and one-third of the trees could be considered "cull" (USDA FS 1947).

To restore the commercial value of the forests, Forest Service Research, in cooperation with Crossett Lumber Company and the Arkansas Agricultural Experiment Station, experimented with planting loblolly and shortleaf pines. These species were prolific seed-producers, vigorous, and disease resistant (USDA FS 1947). The concept was to remove "cull" trees from existing natural stands to make the stand more valuable for the timber market and to plant cutover areas with pines to create new stands as quickly as possible. This research was conducted on the Ouachita NF and at the Crossett Experimental Forest (CEF). The CEF was established on cutover land leased from the Crossett Lumber Company in 1934 by the Southern Forest Experiment Station. Researchers, especially Russ Reynolds, had studied ways of improving and rebuilding second-growth pine stands since 1934 (Reynolds 1980). The CEF lands became Federal property at the end of the 50-year lease and are now under the administration of the Ouachita NF (Baker and Bishop 1986). The Koen Experimental Forest, created for research purposes in 1948, was placed under the administration of the Ozark NF in 1950 (Bass 1981). Other Southern Forest Experiment Station experimental forests in Arkansas include: Sylamore, established in 1934 and administered by the Ozark NF; and Alum Creek, established in 1959 and administered by the Ouachita NF.

The Forest Service realized that much work had to be done in the Ouachita NF. State cooperation was not seen as "producing much value" (USDA FS 1947). For example, Arkansas did not maintain a game warden system due to local opposition. And there had been serious and widespread vandalism in recreation areas, as well as total abandonment of some areas developed by the CCC (USDA FS 1947).

Despite the deteriorated nature of the forests, the post-war building boom created additional pressure for more logging (Steen 1977). In order to limit erosion, as well as to improve commercial timber quality of the forests, the Forest Service resisted increased cutting. Instead, the thrust of timber management was to eliminate "inferior" trees with the realization that the maturation of the CCC plantings, fire protection, and improved silviculture would result in eventual recovery.

Watershed Protection

Congress passed the Watershed Protection and Flood Prevention Act in 1954 with a mandate that the Forest Service cooperate with State and other Federal agencies on flood control. The Forest Service worked on water systems, flood control, and municipal and recreational water management (Steen 1977). In western Arkansas, the Forest Service played a critical role in the maintenance of high-quality water. Eventually, the Forest Service would protect the quality of Little Rock's water supply. These new demands further promoted the doctrine that would later emerge as the multiple-use concept of the national forests (Frome 1984).

Land Utilization Projects Become Part of the National Forests

In 1954 during the Eisenhower administration, the SCS transferred administrative control of its remain-

[14] See footnote 1, p. 1.

[15] See footnote 3, p. 9.

[16] See footnote 3, p. 9.

ing land utilization projects to other Federal agencies, the Forest Service, or the States. The Secretary of Agriculture proposed to dispose of these lands, and the Forest Service adopted the same practice. After no other Federal agency made a request for any of the projects, the State of Arkansas was advised that these lands were available for purchase. Several of the projects were obtained by various State agencies (Bass 1981). The remaining projects became part of the National Forest System. On November 27, 1959, the Tiak Project in southeastern Oklahoma, an area with broad, nearly level, upland flats and low, gently rolling hills in the Gulf Coastal Plain, was added to the Ouachita NF. This area outside of Idabel, Oklahoma, has both shortleaf-loblolly pine and bottomland hardwoods forest types. On November 8, 1960, the Lake Wedington Project in northwest Arkansas was added to the Ozark NF. The Mariana-Helena Project in the hilly Crowley's Ridge section of Arkansas, also became national forest lands at this time and was designated the St. Francis NF. This forest is made up of white and red oaks, hickories, beech, and yellow-poplar growing on loess bluffs and with some low and flat lands along the rivers (Bass 1981). The St. Francis NF was placed under the administration of the Ozark NF, and the name of the entire administrative unit was changed to Ozark-St. Francis NF's on January 15, 1961.[17]

Multiple Use-Sustained Yield Act

In 1960, Congress enacted the Multiple Use-Sustained Yield Act under the leadership of Senator Hubert Humphrey. The purpose of this legislation was to direct the Forest Service to give equal consideration to outdoor recreation, range, timber, water, and wildlife and fish (Frome 1984, Steen 1977). The concept of multiple use was already incorporated into practice in most Forest Service actions, both nationally and locally. On both the Ouachita and Ozark NF's, the numerous user groups could, at least in theory, embrace this overall concept. Nevertheless, attempts to deal with a multitude of interest groups proved to be increasingly difficult and litigious. Ironically, the Forest Service was perceived by many native Arkansans as being too stringent in its application of the Multiple Use-Sustained Yield Act, especially as related to the control of grazing.

Following passage of the Multiple Use-Sustained Yield Act, the Forest Service began to employ various specialists to assist with multiple-use planning on each forest. The first soil scientists began work on the Ozark NF in 1961, and the first hydrologists were hired in 1963. At about the same time, an expanded use of specialists also occurred on the Ouachita NF.

THE GREAT SOCIETY YEARS: 1960's

After the assassination of President John F. Kennedy on November 22, 1963, Vice President Lyndon B. Johnson was sworn in as President. He was able to get Congress to pass much of the legislation that had been proposed by President Kennedy. In May 1964, President Johnson first talked about building a "Great Society" and foresaw the United States as a place where there would be ". . . abundance and liberty for all. . . ." He was elected President in his own right and took office in January 1965. He immediately pushed forward with his Great Society programs, the most ambitious and far-reaching since the days of Franklin Roosevelt's New Deal. Congress passed into law a variety of his proposals dealing with social and economic problems.

Outdoor Recreation

In 1962, President Kennedy initiated an accelerated public works program to assist in promoting economic growth. The new program allowed the Forest Service to construct work centers and offices on ranger districts and to expand or develop recreational opportunities (Bass 1981). One major Forest Service activity in Arkansas was the development of the cave complex at Blanchard Springs. The caves had been first entered by Forest Service personnel in 1934. In 1963, Blanchard Springs Caverns was classified as a unique natural area and set aside specifically for recreational use. In 1966, the Forest Service received an appropriation for construction and land acquisition at the caverns. Over a period of time, 1,771 acres of the surrounding area were acquired to preserve the caverns. Part of this land came from willing sellers, but some came through condemnation proceedings. Blanchard Springs Caverns was dedicated July 7, 1973, with the opening of one underground trail (fig. 15). Another trail opened in 1977 to provide the public with a glimpse of these underground wonders (Bass 1981).

The public's interest in upgrading access to the national forests resulted in Congress passing the National Forest Roads and Trails Systems Act in 1964. As part of this program, the Federal government began work on the Talimena Scenic Drive through the Ouachita NF and Queen Wilhelmina State Park. One end of the drive is located near Mena, Arkansas, and the other near Talihina, Oklahoma. This breathtaking scenic drive, envisioned as a tourist attraction as early as the 1920's, was opened in 1970 by Luci Johnson Nugent.

[17] See footnote 1, p. 1.

Figure 15.—*Ozark-St. Francis National Forests guide takes tour group through Blanchard Springs Caverns.*

Wilderness Act

In response to the national interest in preserving undisturbed and wild areas for their natural beauty, President Lyndon Johnson signed the Wilderness Act on September 3, 1964. This act created the National Wilderness Preservation System (Steen 1977). The Federal government land management agencies, in coordination with the public, were to nominate areas as wildernesses, and then these nominations were to be acted on by Congress. The goal of the Wilderness Act was much more restrictive than the Multiple Use-Sustained Yield Act since it called for preservation, not use, of resources on the land.

In order to identify and nominate appropriate areas as wildernesses, the Forest Service started a process known as the Roadless Area Review and Evaluation or "RARE-I." This led to the designation of Wilderness Areas with the single purpose of preservation, which frightened some residents dependent upon logging. Other landowners were concerned about possible restrictions on the use of their lands and met with Forest Service representatives to convey their unhappiness over the possibility of creating the Caney Creek Wilderness Area in the Ouachita NF. The dispute in Arkansas was similar to controversies in other States (Frome 1984). On January 3, 1975, Congress passed the Eastern Wilderness Act that designated 16 areas as wildernesses and 17 other areas as wilderness study areas. The Upper Buffalo Wilderness Area was established on 10,542 acres of the Ozark-St. Francis NF's, as was the Richland Creek Wilderness Study Area (Bass 1981). On the Ouachita NF, 14,433 acres were designated as the Caney Creek Wilderness Area.

During the period from 1974 to 1980, the Forest Service initiated a review of "RARE-I" findings in an effort to complete the Wilderness System. The process included public meetings and was called "RARE-II." By 1978, the proposed areas within the Ozark-St. Francis NF's totaled 13 and covered more than 125,000 acres (Bass 1981). Five areas were proposed on the Ouachita NF, and several other areas were listed as being worthy of further study.

The wilderness issue was largely resolved on the Ouachita NF by passage of the Arkansas Wilderness Act of 1984 and the Winding Stair Mountain National Recreation Area and Wilderness Act of October 1988. The 1984 act designated Dry Creek (6,310 acres), Poteau Mountain (10,884 acres), Black Fork Mountain (7,568 acres), and Flatside (10,105 acres) as wilderness areas. The 1988 act designated Black Fork Mountain (4,583 acres) and Upper Kiamichi River (9,371 acres) as wilderness areas in Oklahoma (USDA FS 1990a). The Arkansas Wilderness Act also established four new wilderness areas on the Ozark-St. Francis NF's and added 1,500 acres to the Upper Buffalo Wilderness Area. The newly established wilderness areas were Hurricane Creek (15,200 acres), Richland Creek (11,800 acres), East Fork (10,800

acres), and Leatherwood (17,000 acres) (USDA FS 1986a).

Job Corps

As part of the effort to develop the Great Society, the Johnson administration tried to replicate some of the successes of the CCC by establishing a Job Corps program in 1965. The goal of the program was to develop the work skills of disadvantaged youths. The Forest Service maintained Job Corps Centers on the Ouachita and Ozark NF's to provide job training and help promote a work ethic. Although at a much lower level than the CCC program, some needed work on national forests was completed.

Even-Aged Timber Management Practices Initiated

In a continuing effort to increase the commercial viability of the Ozark-St. Francis NF's, the Forest Service started to experiment with even-aged management of pine stands on the Magazine Ranger District in 1962. In 1965, the Forest Service amended the existing timber management plans and placed the Ozark portion of the forest on an even-aged management system (Bass 1981). The St. Francis part of the forest began even-aged management in 1968. At first, the size of regeneration areas was not restricted, but in the late 1960's, a 200-acre limit was applied (Bass 1981). The Forest Service was also determined to upgrade the commercial timber value of the Ouachita NF and, in the mid-1960's, converted from uneven-aged selection cutting to an even-aged management plan using clearcutting and planting of improved shortleaf pine seedlings. This approach was based upon research by the Southern Forest Experiment Station and others on genetic improvement of planting stock; ways to optimize establishment of improved stock through use of intensive site preparation, including herbicides; and even-aged pine silviculture.

The Forest Service made these changes in part because of national economic forecasts of timber shortfalls by the turn of the century. For example, supply limitations were seen as more likely to be a barrier to meeting projected demand for forest products than for any other major category of resource materials (Landsberg and others 1963). Because it was felt that additional acres could not be shifted to forest production, the solution to increasing supply would have to be through improvements on existing forest lands. One scenario proposed a greater concentration of cutting the mature stands in the West along with efforts to improve and upgrade the more rapidly growing stands in the East. This would be in combination with reducing losses to insects, diseases, fires, and other causes (Landsberg and others 1963).

A review of the Forest Service publication, "Timber Trends in the United States," also indicates that consumption of all sources of roundwood were projected to increase 81 percent by the year 2000. By 2000, softwood supply and hardwood growth were expected to fall short of the projected cut by 10 to 20 percent. These projections were based on the continuation of current levels of forest management. One of the report's suggestions for meeting the projected deficits was to raise forest management practices on all forest lands to the level used on the best managed lands (Sullivan 1965).

After several years of negative feedback from the public on the use of intensive forest management practices, the Forest Service initiated a policy of gradually reducing the size of clearcuts to make them less obtrusive, eventually ranging from 10 acres for hardwoods to 40 acres for pine types (fig. 16) in the Ouachita NF (USDA FS 1978a) and from 10 to 70 acres on the Ozark-St. Francis NF's (USDA FS 1978b).

By the mid-to-late 1960's, the Multiple Use-Sustained Yield Act had become a target for court battles over the management of the national forests. The demand for softwoods for building material increased, coinciding with a decline in hardwood demand. Consequently, the economic logic was to continue the practice of planting and harvesting softwoods (Frome 1984). By the late 1960's, logging techniques had improved, and specially equipped trucks, improved loading equipment, and articulated skidders were being used. The heavier logging equipment meant that logging roads had to be broadened and strengthened to carry more weight. More attention had to be focused on preventing soil erosion, road damage, and tree root damage (Bass 1981). It was thought to be more efficient to concentrate harvesting by clearcutting a tract than to build many additional roads and selectively cut mature trees throughout the forest. However, clearcuts, initially those in western national forests, were seen by the public as esthetically displeasing. Consequently, the entire practice of even-aged management as practiced by the Forest Service was to come under increasing public scrutiny and protest.

Control of Open Grazing

In 1965, the Forest Service started to restrict grazing of free-ranging cattle and hogs in the national forests. In the Ouachita NF, district rangers complained about cattle grazing on wildlife food plots installed by the State Game and Fish Commission. These food plots had been planted to furnish winter forage for deer and turkeys. The Forest Service tried to initiate a discussion between cattlemen and the Arkansas Game and Fish Commission, but to no avail. Hunters also complained that livestock were carriers of parasites that could cause diseases in wildlife. The final solution was

Figure 16.—*A clearcut in 1971 on Oden Ranger District, Ouachita National Forest; new pine plantation to follow site preparation.*

to shorten the grazing time permitted on national forest lands so that cattle and hogs would not interfere with wildlife.

The restriction of grazing also led to a confrontation on the Ozark NF. The Forest Service estimated that some 6,000 hogs and 8,000 head of cattle were grazing illegally (Bass 1981). For centuries, southerners had regarded allowing domestic animals to graze in the forests as a birthright (fig. 17). With private farmsteads intermixed with Forest Service holdings, southern farmers had always allowed their cattle and hogs to range freely, even if they destroyed pine seedlings. In 1966, the Forest Service started to trap hogs and sell them at public auction. The offending farmers were very upset and threatened physical retaliation. It was no surprise when the number of incendiary fires increased. After this extremely tense period, the Forest Service eventually got the range situation under control (Bass 1981).

Wild and Scenic Rivers Act

Consonant with increasing interest in maintaining America's natural heritage, Congress enacted the Wild and Scenic Rivers Act in 1968. The act provides for the preservation of selected rivers in their natural state. These rivers are to be kept natural and free-flowing, without dams or other obstructions, and with water quality maintained. Certain rivers that flowed at least partly through national forests were to be classified as "wild, scenic, or recreation" rivers. The "wild" segments would be kept nearly primitive, restricted to nonmotorized craft; the "scenic" sections would be developed modestly at most; and the "recreation" sections would provide somewhat more intensive use (Frome 1984).

Since passage of the act, many segments of creeks, streams, and rivers on national forest lands have been added to the National Wild and Scenic Rivers System. There are two on the Ouachita NF—the Cossatot River and the Little Missouri River (USDA FS 1990a). Congress amended the National Wild and Scenic Rivers Act of 1968 on April 23, 1992, and designated six streams on the Ozark-St. Francis NF's—Hurricane Creek, Richland Creek, North Sylamore Creek, Buffalo River, Mulberry River, and Big Piney Creek (USDA FS 1993).

Although not part of the Wild and Scenic Rivers System, the Buffalo National River in northern Ar-

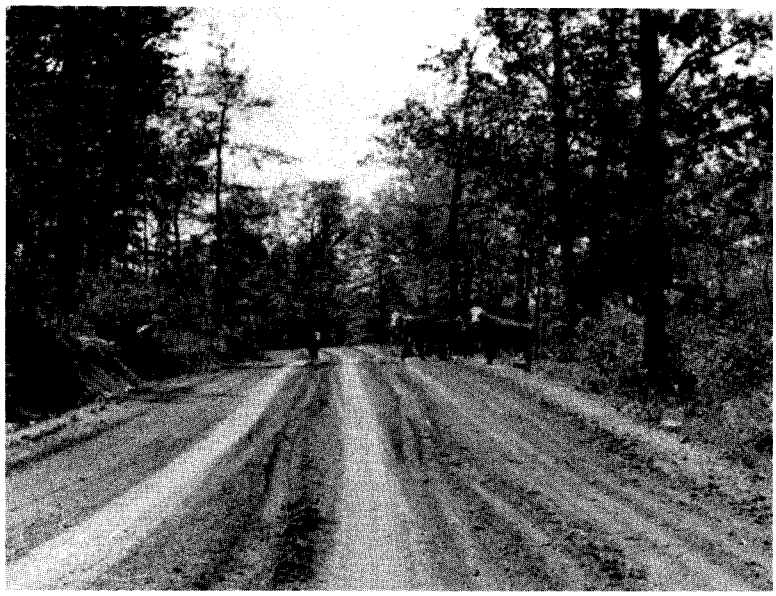

Figure 17.—*Landowners considered the Ozark-St. Francis National Forests "open range" for their cattle.*

kansas was established by Congress in 1968. Before the classification of the Buffalo River as a National River, the Ozark Society, a group of concerned citizens, had managed a successful legislative lobbying effort to block the Army Corps of Engineers from damming the river. Ozark Society members remained active in environmental issues and became involved in questions touching on the management of national forests in Arkansas. They worked closely with the Ozark-St. Francis NF's to obtain the Wild and Scenic Rivers legislation passed by Congress in 1968.

THE ENVIRONMENTAL MOVEMENT STRENGTHENS: 1970's

National Environmental Policy Act

In January 1970, President Richard M. Nixon signed into law a major new policy initiated by Congress in 1969 with passage of the National Environmental Policy Act (NEPA). This act established a Council on Environmental Quality, which laid out utopian goals of creating "harmony between man and his environment," promoting efforts that "prevent or eliminate damage to the environment," and enriching the "understanding of the ecological systems and natural resources important to the nation." With NEPA, public participation was mandated as part of all public agency decision-making processes. Agencies were required to issue an "Environmental Impact Statement" (EIS) before taking actions that would significantly impact the environment (Frome 1984).

Following passage of NEPA, the Forest Service increased the employment of soil scientists and hydrologists to strengthen its use of scientific and professional knowledge in land and water management planning and design such as for site preparation and stand rehabilitation projects. The Forest Service also employed other resource specialists to provide additional input into planning, inventory, and monitoring efforts throughout the forests. These specialists served on interdisciplinary teams that might include foresters, wildlife biologists, landscape architects, soil scientists, archaeologists, hydrologists, engineers, recreation specialists, geologists, and others. In addition, wildlife biologists worked with the Arkansas Game and Fish Commission to develop and manage wildlife resources.

Threatened and Endangered Species Act

The Threatened and Endangered Species Act of 1973 was passed by Congress to establish a national policy to protect species of native fish and wildlife threatened by extinction and to protect their habitat as well. The USDI Fish and Wildlife Service was charged with the responsibility of protecting any threatened or endangered species (Frome 1984). The national forests have a major role in this area because many threatened or endangered species are found on land managed by the Forest Service.

Forest and Rangeland Renewable Resources Planning Act

Congressional direction governing the use of the national forests was to undergo a major modification in 1974 with the passage of the Forest and Rangeland Renewable Resources Planning Act or RPA. The RPA

originated in an ongoing debate over timber sales on the Tongass National Forest in southeastern Alaska. The Sierra Club sued the Forest Service in 1970 and maintained that wildlife, rather than timber harvesting, was the optimal use of Alaska's national forests. The argument was expanded in 1973 when the Natural Resources Defense Council and the Sierra Club went to court on behalf of the Izaak Walton League of West Virginia against clearcutting by the Forest Service on the Monongehela National Forest. The litigants not only won this case, but also got the courts to question the authority of the Forest Service to engage in clearcutting under the 1897 Organic Act (Frome 1984).

In an effort to satisfy hunters, conservationists, and timber interests, Congress passed the RPA and directed the Secretary of Agriculture to assess the renewable resources on all the nation's forests and rangelands every 10 years. This assessment was to include an analysis of present and future demand-and-supply situations and would provide basic data for the Forest Service to develop both 10-year plans and long-range programs for the next 50 years (Steen 1977). The first RPA assessment was used to prepare a plan based on six "resource" systems: outdoor recreation, wilderness, human and community development, wildlife and fish, timber and range, and land and water.

National Forest Management Act

While the first RPA assessment was being assembled, Congress plunged into a new debate between those who favored restrictions on clearcutting and those who favored greater latitude on actual practices in the national forests. The result was additional Congressional direction to the Forest Service through the National Forest Management Act of 1976. This act made each national forest the basis for regulating harvest practices and called for public input in the RPA planning process. Moreover, the management policy would embrace an analysis based on "costs and returns" that was most easily calculated for the resources of timber and range (Steen 1977).

OTHER ISSUES AFFECTING FOREST SERVICE MANAGEMENT

Minerals Exploration and Development

The Forest Service has had to grapple with a very liberal Federal policy on mining operations on public lands. The General Mining Act of 1872 and Mineral Leasing Act of 1920 provide easy access to those who desire to search for hard rock minerals, gas, and oil. Arkansas has been a gas- and oil-producing State since the 1920's. However, the first well drilled on the Ozark NF in 1954 was dry. Between 1954 and 1970, 22 wells were drilled, but only 2 were producers. After the energy crisis of 1973, Arkansas Western Gas Company stepped up its exploratory operations on the Ozark-St.Francis NF's and had drilled 22 more wells by 1977 (Bass 1981). In June 1982, there were 27 producing gas wells located on the Ozark-St. Francis NF's (USDA FS 1986a). On the Ouachita NF, five oil and gas wells have been drilled, but none was productive (USDA FS 1990a).

Quartz crystal mining is the most prevalent mining operation on the Ouachita NF. In addition, the Forest Service permits limited digging of shale used for fieldstone and sand and gravel used for road surfacing. In the late 1980's, a craze for crystal collecting resulted in unauthorized mineral searches in the Ouachita Mountains.

The mining industry has been operating for a long time in the Ouachita and Ozark Mountains, predating the creation of the national forests. Some environmentalists charge that many of these activities result in the degradation of water quality and the contamination of ground water. In 1989, Senator Dale Bumpers proposed legislation to overhaul the 117-year-old law governing mining on Federal lands and said: "Obviously, the reasons for the 1872 mining law no longer exist. People have begun to take advantage of this law" (Henson 1989).

Revenues Returned to Counties

The Forest Service returns 25 percent of the annual revenues derived from timber harvests and rental receipts to the States and counties in which the national forests are located. These funds are allocated for schools and roads. Counties that are sparsely populated and have a low tax base have long counted on this 25-percent turnback. Local people have a vested interest in both a sustained level of timber production and local lumber mills that provide jobs in processing the timber. The loss of timber production would result in revenue and job losses, thereby reinforcing the local residents' propensity to support the Forest Service policy of providing sustained yields of timber.

Also, 50 percent of any receipts received by the Forest Service from mineral resource activities on public domain lands and 25 percent of receipts from these activities on acquired lands are returned to the States. These funds are not required to go toward support of county schools and roads but are allocated by the State. In October 1976, the Payment in Lieu of Taxes Act was passed by Congress to dampen the effects of market fluctuations on local governments. This act guaranteed a minimum payment of 75 cents per acre to counties.

In the 1980's, the Forest Service returned about $5 million a year to Arkansas counties. During that decade, the lowest annual payment was $2.4 million in 1982, and the highest was $8.3 million in 1989 (appendix, table 2). A similar trend occurred in Oklahoma with a low of $280 thousand in 1982, a high of $1.2 million in 1989, and an annual average of $680 thousand during the decade (appendix, table 2). However, in 1991, payments to Arkansas counties had dropped to $4.4 million, in 1992 to $2.1 million, and then increased to $3.4 million dollars in 1993. This trend also occurred in Oklahoma (USDA FS 1994).

CONFLICT BETWEEN INTEREST GROUPS AND THE FOREST SERVICE

The plethora of congressional mandates was to have unanticipated consequences on the operation of the Forest Service, both nationally and in Arkansas and Oklahoma. The original Forest Service challenge in Arkansas had been to protect and nurture the forests back to productivity. To accomplish this task, Forest Service employees had been prodigious in their expenditure of time and effort while making decisions based on their own knowledge, training, and experience (Frome 1984). But in the 1970's, the Forest Service's image as a protector of the forests against predators, both natural and human, was to be increasingly challenged. Saddled with a multiplicity of legislative mandates and public demands, the Forest Service, once perceived as the model agency of the Federal bureaucracy, found itself embroiled in controversy.

Aerial Application of Herbicides

The first major conflict in Arkansas between the new environmentalism and the national forest practices began in 1975 over the question of aerial applications of herbicides (Frome 1984). As an integral part of even-aged management, the Forest Service began using the herbicide 2,4,5-T in 1971. The herbicide contained the impurity dioxin, which was later suspected of being a carcinogen. An organization of "back-to-the-landers" living in Newton County formed the Newton County Wildlife Association and filed a lawsuit to stop the use of the herbicide in the Ozark-St. Francis NF's (Bass 1981). The Forest Service considered the use of herbicides essential for site preparation and for the elimination of poor-quality hardwoods competing with planted pines. The Forest Service preferred the use of herbicides to the use of hand tools and heavy equipment for site preparation and stand improvement; it was much cheaper, more effective, and improved the cost/benefit ratio of even-aged management.

In deference to the lawsuit, the Forest Service halted the use of herbicides on the Ouachita NF until the Ozark-St. Francis case was decided. The Forest Service held public meetings to hear comments on the policy (Little Rock Arkansas Gazette 1977). In 1978, the Forest Service issued its 10-year timber management plans that forbade the use of any herbicides containing dioxin, as well as the use of aerial spraying, until the safety of using specific herbicides was assessed in a separate EIS (USDA FS 1978a, 1978b). Consequently, Federal Judge Thomas Eisele dismissed the civil action against the Forest Service because it had met the criteria set by the Newton County Wildlife Association (Bass 1981). Nevertheless, the struggle over the use of herbicides and clearcutting was merely the prelude to increasingly harsh disagreements by the public with both policies and philosophies of the Forest Service (Frome 1984).

In January 1986, the Newton County Wildlife Association and the Arkansas Chapter of the Sierra Club alleged that the Ozark-St. Francis NF's had illegally designated diverse hardwood stands for conversion to pine timber production. These groups filed an injunction to stop the conversion based on the alleged willful violation of the 1979 Federal court agreement (Little Rock Arkansas Gazette 1986b). The court sent the case back to the plaintiffs, but it was never refiled.

Land and Resource Management Plans

In 1986, the Ouachita NF and Ozark-St. Francis NF's released their separate comprehensive 10-year land and resource management plans. Both plans were appealed by various citizen and interest groups (Little Rock Arkansas Gazette 1986a, 1986c, 1986d; Richards 1990) and went through various modifications and amendments.

The Ozark-St. Francis NF's Plan—The Ozark-St. Francis NF's plan (USDA FS 1986a) was approved by the regional forester in final form on July 29, 1986. This plan contained uneven-aged silvicultural systems of management in portions of the forest where hardwoods predominated. The plan was appealed by the Sierra Club, Newton County Wildlife Association, and others. Several appeals were resolved in a relatively short time, and the remaining were consolidated. The points of concern were many, but vegetation manipulation, herbicide use, roads, water quality, and wildlife management predominated. The Forest Service, appellants, and others negotiated for nearly 3 years on a wide range of concerns in considerable detail.

On June 7, 1990, an agreement was reached in Appeal 1748 (Little Rock Arkansas Gazette 1990b), and the terms of this agreement were incorporated into the forest plan through Amendment No. 5 (USDA FS 1991a). The agreement represented an amicable settle-

ment of issues about which appellants and other members of the general public had deep convictions. Changes to the plan included: a road program that would not increase total road miles; increased water quality monitoring of at least one harvest site each year; specified vegetative filter strips along streams; minimal use of herbicides; less intensive management techniques, including trial uneven-aged management in some pine stands and modified even-aged harvest cutting methods; reduced size of regeneration openings; reduced acres of clearcutting in pine and hardwood stands; and making public involvement an integral part of any planning program or project (USDA FS 1991a).

Since Congress amended the National Wild and Scenic Rivers Act in 1992, and included six streams on the Ozark-St. Francis NF's, the forest plan was modified again by establishing Management Area 9—Wild and Scenic Rivers. Forest management direction for Management Area 9 was spelled out in Amendment No. 7 to the plan (USDA FS 1993). Also in 1992, the Arkansas Attorney General and several Newton County individuals sued the Forest Service, alleging excessive clearcutting of the Ozark-St. Francis NF's (Rhodes 1992). In late 1995, at the plaintiff's request, the court dismissed the suit and ruled that the plaintiffs could not bring the issue before the court again unless they paid the Forest Service attorney fees.

Even though the amended Ozark-St. Francis NF's Land and Resource Management Plan allowed some clearcutting, by 1995 there was no clearcutting occurring on the forest. Although considerable change had occurred in the management of the forest, the public's view of how to manage the forest remained polarized. There is now growing pressure to stop all harvesting on public land, as well as counter pressure to increase harvesting by opening areas that are closed to harvesting.

The disagreement continues as the Newton County Wildlife Association, Arkansas Attorney General, and the Sierra Club filed suit in 1995 against the Ozark-St. Francis NF's to stop seven timber sales in Newton County.

The Ouachita NF Plan—The 1986 Ouachita NF document (USDA FS 1986b) called for continuation of the emphasis on timber production and the use of clearcutting as the predominant method of harvesting (Wilson and Guldin 1991). It also proposed the use of even-aged management on some 900,000 of the 1.6 million acres in the forest (USDA FS 1986b). On August 5, 1986, the Arkansas Conservation Coalition—more than 20 conservation and environmental organizations—appealed the Ouachita NF Land and Resource Management Plan in an attempt to stop clearcutting (Little Rock Arkansas Gazette 1986a, 1986c). A different approach was taken in 1987 when the Oklahoma Congressional delegation, led by U.S. Representative Wes Watkins, engineered the passage of a bill declaring 98,000 acres of the Ouachita NF in Oklahoma a National Recreation Area (NRA). Regulations covering this NRA preclude clearcutting as a forest management option (Wilson and Guldin 1991).

In consideration of the criticism, the Forest Service conducted a supplemental analysis of the environmental impacts of the forest management practices in the plan and developed a number of alternatives (Wilson and Guldin 1991). Nevertheless, Chief Dale Robertson made it clear that, on a national basis, the Forest Service would continue to use clearcutting in a responsible manner when conditions were favorable. On March 15, 1989, the Ouachita NF announced to the media that "clearcutting was on the way out, and selection logging was on the way in" (Curran 1994). The Forest Service would increase the use of shelterwood and seed tree methods of harvesting that were considered to have less visual impact to the forest visitor than clearcutting while allowing the employment of large-scale logging equipment in order to add to the efficiency of timber harvesting. On the heels of this announcement, the Forest Service increased its efforts on the Ouachita NF that began about 1975 to protect the habitat of the endangered red-cockaded woodpecker—a small bird that nests in mature southern pines with heart rot. This was done by establishing an area around each woodpecker colony where all types of timber harvesting except thinning would be prohibited.

A draft of the amended Ouachita NF management plan was released on May 1, 1989. This amended plan reduced the projected acreage where clearcutting would be used annually from 15,000 acres to 5,280 acres. The amended plan included the implementation of even-aged natural regeneration methods using seed tree systems (fig. 18) and shelterwood systems on 2,600 acres annually. These systems left between 15 and 40 pine trees per acre. The plan also projected the use of uneven-aged reproduction cutting methods, such as single-tree selection and group selection, on 14,063 acres per year (USDA FS 1990a).

The amended plan unleashed a wave of responses, numbering over 7,000, that were split among those supporting a total shift to uneven-aged management with no herbicides, those advocating only even-aged management, and those who supported immediate implementation of the recommended alternative and its proposed harvest schedule (Little Rock Arkansas Gazette 1989b, Wilson and Guldin 1991). The Ouachita Watch League opposed the amended plan, and the organization or its individual members began the appeals process for every proposed timber sale (Little Rock Arkansas Gazette 1989a). They labeled the alternative methods of timber harvesting, seed tree, and shelterwood as "two-step clearcutting and three-step clearcutting." On March 10, 1990, five tribes calling themselves the Revived Ouachita Indians,

joined the Ouachita Watch League in opposing clearcutting in Arkansas (Little Rock Arkansas Gazette 1990c). The appeals process dramatically slowed timber harvesting in the Ouachita NF from about 200 million board feet in 1985 to less than 100 million board feet in 1989 (Wilson and Guldin 1991). However, oil and gas lease sales held in 1989 raised more than $28 million from bonus bids and prevented payments that were turned back to counties from plummeting in 1990 (USDA FS 1990a). Payments did drop drastically in 1992 to a third of what they were in 1989, as mentioned earlier.

Pressure from loggers and timber interests within Arkansas mounted, and, in August 1989, Governor Bill Clinton switched his position on the Ouachita NF management plan. Although originally critical of the 1986 plan, he now praised the draft 1989 amended plan for achieving a better balance between environmental and economic benefits since timber harvesting created jobs and helped pay for schools (Little Rock Arkansas Democrat 1990). However, environmentalists still perceived clearcutting and logging road construction as degrading water quality and causing forest fragmentation. They also felt forest ecosystems and the value of the wilderness experience were being endangered.

On March 14, 1990, the Forest Service released its "final" Ouachita NF Amended Land and Resource Management Plan. The Forest Service proposed to continue, albeit on a reduced basis, clearcutting on 5,280 acres each year (Rafinski 1990a, USDA FS 1990a). The Ouachita Watch League and the Sierra Club indicated they probably would appeal the approved plan. The thrust of their complaint was against the continuation of clearcutting. The plan also came under attack from members of the timber industry who wanted to see more of the forest used for timber production (Rafinski 1990a).

The polarization of the clearcutting controversy resulted in a widened discussion and involvement of politicians who became associated with constituencies for various reasons. On April 23, 1990, U.S. Representative Tommy Robinson formally announced that he would introduce into Congress the following day legislation forcing the Forest Service to stop clearcutting in the Ouachita NF by designating the entire

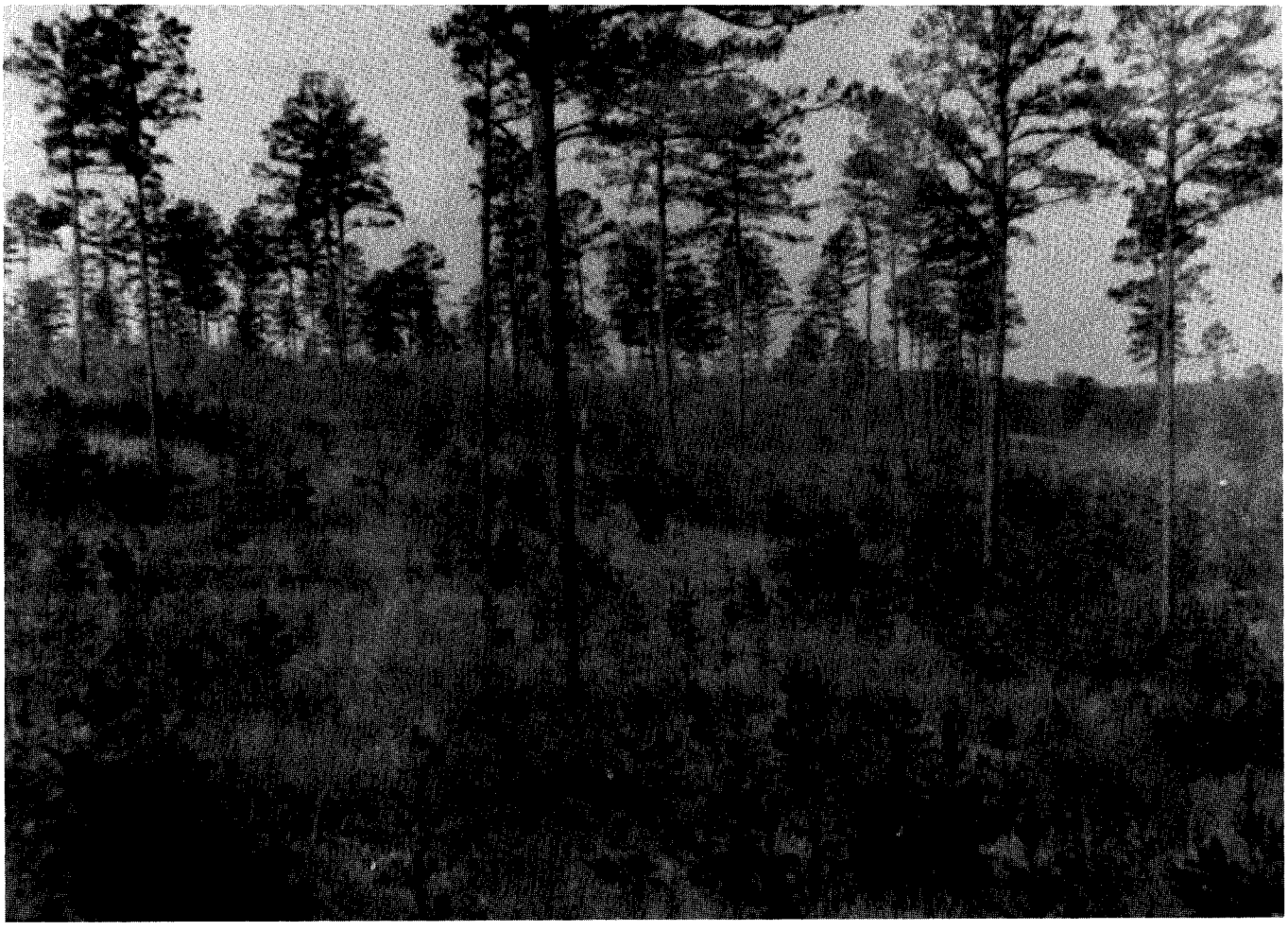

Figure 18.—*A seed tree cut in April 1989 on Winona Ranger District, Ouachita National Forest; reproduction cutting methods that leave residual trees and rely on natural regeneration have replaced clearcutting.*

national forest in Arkansas as a National Recreation Area (Little Rock Arkansas Gazette 1990a).

The Ouachita Watch League, on June 9, 1990, also filed an appeal to stop the Forest Service from using herbicides for hardwood control in the Ouachita and Ozark-St. Francis NF's. The appeal was based on the claim that the EIS covering use of herbicides, required under the National Environmental Policy Act, was inadequate. The strategy was that banning the use of herbicides would make it very difficult for the Forest Service to carry out site preparation and hardwood control on timber sales areas. Thus, blocking herbicide use would also block implementation of even-aged management as called for in both forest plans (Richards 1990).

Both sides employed heightened rhetoric. On June 27, 1990, the Sierra Club protested that the Forest Service was not cutting enough trees on the Ouachita NF. They argued that the Forest Service had used the individual project appeals to prevent thousands of acres from being cut using selection logging (Rafinski 1990b). Finally, on July 14, 1990, the Sierra Club filed a Federal lawsuit to stop the Forest Service from clearcutting on the Ouachita NF. They contended that only over-mature trees should be harvested by single-tree selection cutting (Hill and Wells 1990). In addition to the Sierra Club lawsuit, over 80 appeals of cutting practices were registered by concerned individuals.

Senatorial Involvement—The Walk in the Woods—In an effort to expedite an equitable agreement of the impasse between the Forest Service and conservationists, U.S. Senator David Pryor and Forest Service Chief Dale Robertson met on the Ouachita NF on August 9, 1990. After reviewing past and current harvesting activities on the forest during their "walk in the woods," they jointly announced a tentative agreement that would virtually eliminate clearcutting in the Ouachita NF (Ridlehoover 1990). Senator Dale Bumpers said, "Anything that will do away with clear cutting will meet with my approval," and Representative Tommy Robinson extended partial support for the new plan by saying, "The Forest Service appears to have made a move in the right direction. Hopefully, Congressional and public pressure is about to end the rape of the Ouachita Mountains" (Barton and Parker 1990).

On August 24, 1990, Regional Forester John Alcock formalized the agreement as Amendment No. 7 of the Ouachita NF Land and Resource Management Plan. The Forest Service advocated environmentally acceptable management practices that included eliminating clearcutting, experimenting with uneven-aged harvesting systems, and enhancing biological diversity. The final wording of the document was that clearcutting could only be used where needed to rehabilitate lands with insect or disease infestations, or after natural disasters such as fire and tornadoes, to rehabilitate newly acquired lands, or when required as a habitat management tool to aid in the recovery of threatened or endangered species (USDA FS 1990b).

However, Forest Plan Amendment No. 7 did not satisfy either the environmental groups or the timber industry. The Ouachita Watch League was unalterably opposed to any techniques associated with even-aged management. To the timber interests, the Forest Service was now adopting a position that was unduly restrictive and would result in a massive reduction in future timber supplies (Ridlehoover 1990). Also, many local operators had bought expensive equipment used for clearcutting timber. Most large skidders were not necessarily conducive to skidding through a forest to remove single trees (Thompson 1990). The "Yell County Record" reported that Chris Barneycastle, executive vice president of the Arkansas Forestry Association, said, "We are extremely disappointed in the agreement between the Chief and Senator Pryor primarily because they have abandoned the Ouachita forest plan developed over 14 years at a cost of $20 million to the taxpayers" (Yell County Record 1990). The effect of the clearcutting ban on Federal funds to counties was also a concern, and some felt it would be up to the State to provide the missing funds, not the schools (Thompson 1990).

In reply to the efforts of various individuals and groups to block the implementation of this amended plan, James Bibler, president of Bibler Bros. Lumber Co. in Russellville, maintained that because of the Sierra Club's appeals, Ouachita NF timber was snared in legalities and could not be sold. The lack of supply was what would put Dale Rogers Lumber Co. of Mena out of business and threatened the continued operations of other sawmills and their adjacent communities (Powers and Gotlieb 1991).

The Arkansas Forestry Association, Ouachita National Forest Timber Purchaser's Group, and Region 8 Forest Service Timber Purchaser's Council appealed Amendment No. 7 and claimed that the amendment violated the Forest Service's own guidelines because it had not been subject to the necessary EIS and public comment period (Rafinski 1991). To some timber companies, clearcutting was the most efficient and profitable method of logging. Chris Barneycastle, again representing the Arkansas Forestry Association, saw a very troubling aspect to the agreement between Senator Pryor and the Forest Service: ". . . But we've prevented this sort of thing happening on other national forests where two people can take a walk in the woods and shake hands and change the plan overnight" (Rafinski 1991).

Chief Robertson's February 12, 1991, decision on the appeal of Amendment No. 7 affirmed the regional forester's decision in all the issues raised. However, on March 26, 1991, Amendment No. 7 was vacated by U.S. Department of Agriculture Deputy Assistant Sec-

retary John H. Beuter on the grounds that the plan was already flexible enough to accommodate the changes contained in the amendment. He also stated that the Forest Service had not provided sufficient information to determine if the change was significant or not (Rafinski 1991; USDA, Office of the Secretary 1991). Even though the ruling overturned the ban on clearcutting, the Chief of the Forest Service felt that there would be little or no future clearcutting on the Ouachita NF (Barton and Rafinski 1991).

The decision by the deputy assistant secretary sparked activity at the State level. On April 30, 1991, Arkansas Attorney General Winston Bryant made an attempt to intervene in the lawsuit by the Sierra Club and others to block the 1986 Ouachita NF management plan from being implemented. The Federal court barred the action but allowed the State to request that it participate as a "friend of the court" (Little Rock Arkansas Democrat 1991). The attorney general even filed an administrative appeal in June to block an individual timber sale in the Ouachita NF. The Forest Service expressed surprise since there had been no involvement by the attorney general's office prior to the appeal (Decker 1991). Also at the State level, Governor Bill Clinton claimed that he had been criticized by the timber industry and environmentalists for his stand on clearcutting (Thompson 1991).

On October 22, 1992, U.S. District Judge Morris Arnold in Fort Smith dismissed all counts in the lawsuit challenging the use of clearcutting in the Ouachita NF (Little Rock Arkansas Democrat-Gazette 1992). The Sierra Club appealed this decision to the 8th U.S. Circuit Court of Appeals in St. Louis, Missouri, on November 11. Arguments by the Sierra Club, the State of Arkansas, the Arkansas Forestry Association, and the Justice Department were presented to the Court of Appeals in May 1993 (Little Rock Arkansas Democrat-Gazette 1993a).

The Ouachita NF began operating under the amended plan and even made additional modifications to some of the harvesting practices. It was proposed that a mixed overstory be retained indefinitely to maintain structural diversity in stands to be logged using seed tree and shelterwood methods. This would leave 5 to 10 mature hardwood trees and 15 to 25 mature pines per acre (Thompson 1993).

In January 1995, the 8th Circuit Court of Appeals upheld Judge Arnold's decision. The Appeals Court went even further, ruling that the Sierra Club, Ouachita Watch League, and the Arkansas Attorney General had no standing to sue in this case. This decision differs from the ruling in the Pacific Northwest where the 9th Circuit Court of Appeals found that appellants do have standing to sue. Thus, two of the Nation's Circuit Courts have rulings that are in opposition to each other. The Sierra Club, at the national level, made the decision not to appeal the Arkansas case to the Supreme Court because of concern that an unfavorable legal precedent might be established.

A major part of the national forest planning effort during the period from 1986 to the present concerned public involvement. A survey was conducted by Gregory Holthoff (1993) on this subject in 1991–92 to see if increased efforts by the Forest Service to inform and involve the public had made any difference in the planning process. He collected information from people who had been involved in both the initial and supplemental plan for the Ouachita NF. Additional analyses of these data were made by the University of Arkansas, College of Agriculture, Department of Agriculture Economics and Rural Sociology (Voth and others 1994) to look at determinants of satisfaction/dissatisfaction with public involvement programs and the resulting plans in the Ouachita NF. Their preliminary findings showed: (1) environmental interests were, generally, more dissatisfied, but (2) there was a minor overall reduction in dissatisfaction during the period, (3) there was a slight narrowing of the difference in the level of dissatisfaction between the selected interest groups, and, finally, (4) there was a balancing of differences between the selected interest groups. This meant that as the apparent dissatisfaction of those affiliated with environmental interests decreased, the dissatisfaction of those affiliated with timber interests tended to increase, resulting in an almost equal level of satisfaction/dissatisfaction for the two groups (Voth and others 1994).

NEW APPROACH BY THE FOREST SERVICE: 1990's

New Perspectives/Ecosystem Management

As the legal confrontation between the Forest Service and preservation or environmental groups continued, a new approach towards forest management was being proposed. The concept was based on a fundamental reexamination of silvicultural practices and the application of holistic or ecosystem approaches. This would include adaptive management using new scientific knowledge garnered from test sites and experiments. This program was first named "New Perspectives" because of the need to look at national forest management with new ideas and a new perspective. The effort is currently known as "Ecosystem Management" and makes use of public advisory committees, enhanced research partnerships, ecological classification, and other tools.

In August 1990, as part of the agreement between Senator Pryor and Chief Robertson, the Ouachita NF was designated a "New Perspectives Lead Forest" for extensive experiments and monitoring of these modified and new approaches to forest management. Hal Salwasser, Staff Director of the New Perspectives Pro-

gram in Washington, D.C., defined New Perspectives as a "pathway for dealing with natural resource issues such as biological diversity, sensitive species, stream protection, old growth forests, ecological restoration, long-term productivity, and timber harvesting practices" (Gregory 1990). The Forest Service sought to improve harmony between land and people by taking into consideration a wide range of social, biological, political, and physical sciences factors. The views and input of the public were considered essential for ecosystem management to work, and one way public input was obtained was through the New Perspectives Advisory Committee—later renamed the Ecosystem Management Advisory Committee (Little Rock Arkansas Democrat-Gazette 1993b).

Earlier in 1990, a symposium, "Restoration of Old Growth Forests in the Interior Highlands of Arkansas and Oklahoma," was cosponsored by the Ouachita and Ozark-St. Francis NF's. As a follow-up to this symposium, Ouachita NF personnel engaged in an ongoing dialogue about old growth forests with ecologists, conservationists, and other scientists and interested parties. In 1993, a policy paper on "Old Growth Restoration on the Ouachita National Forest" was disseminated widely. The following year, the Ouachita NF Land and Resource Management Plan was amended to clarify direction for old growth reestablishment within most management areas on the forest and to establish a new (fire-maintained) management area for old growth pine.[18]

The Forest Service also began work on the Ouachita NF under New Perspectives to establish a landscape-scale restoration of shortleaf pine-bluestem communities and the long-term recovery of the red-cockaded woodpecker in the Ouachita Mountains. These efforts continue under ecosystem management.

As part of the research partnership on the Ouachita and Ozark-St. Francis NF's, scientists from the Forest Service, other Federal agencies, universities, and industry, headed by Research Forester James Baker of the USDA Forest Service's Southern Forest Experiment Station, made up the New Perspectives research team. The team of researchers and land managers established 22 demonstration stands on the Ouachita NF to study various harvesting techniques. In 1992, the Ozark-St. Francis NF's also initiated several demonstration projects to explore alternative silvicultural techniques, including single-tree and group selection practices, in upland hardwoods on the Bayou, Buffalo, and Pleasant Hill Ranger Districts. This work was done in cooperation with researchers from the Southern Forest Experiment Station.[19] An even larger scale project initiated by the Ozark-St. Francis NF's was the 29,000-acre Sandy Springs Project in the Buffalo Ranger District. As described by Thomas Foti, chief of research for the Arkansas Natural Heritage Commission, "Sandy Springs came along before ecosystem management. It is not a full-blown ecosystem management plan. . . . I would say they're doing a very good job. They've made substantial progress in changing business as usual" (Kern 1993a).

The environmental groups remained unconvinced that changes would take place. Sherry Balkenhol, co-chair of the Ouachita Watch League, told the "Arkansas Democrat-Gazette":

> "If the Forest Service is actually going to modify its daily operations based on this new information and research, then the researchers definitely deserve an award. Whether the Forest Service actually makes a good-faith effort to change based on the research remains to be seen. If they don't change, then we'll know it was all just a public relations trick. We sincerely hope the research project will someday help change their business-as-usual, clearcut, poison and burn methods around the rest of the Ouachita" (Kern 1993b).

Expanded Research

While public controversies swirled around past and present harvesting techniques, the Forest Service was expanding its research studies of ecosystems and how they function. Even before the present debate, as early as 1927, the Forest Service began to establish Research Natural Areas (RNA's) to protect lands that represented a wide range of native ecosystems and species. In 1969, an RNA was established on 330 acres in the Roaring Branch portion of the Caddo Ranger District of the Ouachita NF. In 1977, 240 acres near Lake Winona were designated as the Lake Winona RNA. The Turkey Ridge RNA was established on 400 acres of the Ozark-St. Francis NF's in 1988. In 1990, several RNA'S were established including Gap Creek (1,125 acres) and Tiak (199 acres) on the Ouachita National Forest and Dismal Hollow (2,077 acres) on the Ozark-St. Francis NF's (Devall and Ramp 1992). There are two other proposed RNA's on each forest, and establishment records are being reviewed (Devall 1992).

As part of the increased interest in old growth forests in 1990, the Southern Region and Southern and Southeastern Forest Experiment Stations of the Forest Service formed a committee on old growth forests. Members of this committee, other Forest Service sci-

[18] Personal communication, William F. Pell, USDA Forest Service, Ouachita National Forest, Hot Springs National Park, AR 71902.

[19] Personal communication, David Graney, USDA Forest Service, Southern Forest Experiment Station, Fayetteville, AR 72701.

entists, and employees of The Nature Conservancy were working to define the characteristics of old growth stands for 27 southern forest community types (Devall and Ramp 1992). The ultimate goal of this effort was to develop methods to manage existing old growth stands and to reestablish such stands. The Lake Winona RNA contains shortleaf pines that are 200 to 300 years old and shows little evidence of human disturbance. Scientific examination of this and other RNA's will help provide a baseline from which it may be possible to reveal how human intervention has shaped the forest ecosystem.

On the Ouachita and Ozark-St. Francis NF's, the ecosystem management research program now consists of three phases: Phase I—an unreplicated, stand-level, demonstration project; Phase II—a scientifically based, replicated, stand-level study; and Phase III—a large-scale, watershed or landscape-level study. The objective of Phase II research is to impose traditional and nontraditional reproduction cutting methods on 52 operational stands, each with a minimum of 35 acres, in a fully randomized and replicated research study on both the Ouachita and Ozark-St. Francis NF's. Nontraditional cutting methods include leaving both pines and hardwoods for extended periods of time in the stand overstory. Treatments all consist of even-aged and uneven-aged partial cuttings, with varying levels and patterns of pine and hardwood retention in the overstory after harvesting. Controls are at the two extremes of management intensity: one is an unmanaged control and the other is a clearcut control. These last clearcuts on the Ouachita NF were included in the experiment to allow comparison of innovative methods with past systems, linking where the forest has been with where it is going.

After the Phase II stands were selected in 1990, pretreatment monitoring of ecosystem variables was begun by a research team of more than 50 scientists and resource managers from several Federal and State agencies and universities. Research groups measured plant diversity, wildlife habitat and populations, silvicultural factors, water, soils, cultural resources, visual quality, arthropod and microbial communities, and harvesting and management economics. This is one of the most comprehensive reproduction cutting method studies in the Nation. A symposium was held in Hot Springs, Arkansas, on October 26–27, 1993, to present the pretreatment data and preliminary findings (Baker 1994). Harvesting treatments assigned to Phase II stands were installed during the summer of 1993.

Outlook for the Future

The quandary in which the U.S. Forest Service finds itself was highlighted by the Forest Conference in Portland, Oregon, hosted by President Bill Clinton in April 1993. Meeting participants struggled with different views of how to manage the national forests. The President sought to balance ecological concerns, centered on an endangered species, with economic and social issues. This is the same balance the Forest Service has been seeking in the Ouachita and Ozark-St. Francis NF's. This is obviously not a new issue. When the Forest Service was still in its formative years, Chief Gifford Pinchot and his utilitarian philosophy of "the greatest good for greatest number in the long run" clashed with the views of John Muir, founder of the Sierra Club, who saw the preservation of natural wildernesses as essential for the perpetuation of the soul of man.

Today the Forest Service and its critics are trying to frame the resolution of this conflict in ways that better satisfy a vociferous public who demands that its views be followed. The Forest Service, in managing the Ouachita and Ozark-St. Francis NF's, is attempting to achieve the standard of excellence expected by the citizens of Arkansas—whose motto is "The Natural State." Management standards will continue to change in light of increasing population pressures and other societal needs for which the national forests exist. The land base is finite, and the area available for consumptive as well as nonconsumptive activities associated with forest lands continues to decrease because of population growth and urban expansion. There is no free lunch!

Perhaps the public does not know or has forgotten that the cutover, devastated lands purchased by the Federal government and managed as national forests in Arkansas and Oklahoma were restored to health by the efforts of the Forest Service starting in the early 1900's. It remains to be seen if "ecosystem management," now in the initial stages of development and application, can satisfy all interested constituents and users of the national forests.

TIMELINE

In order to give the reader a clear idea of important dates and activities associated with the history of the Ouachita and Ozark-St. Francis NF's, the following timeline is presented:

Date	Activity
B.C. 10,000	First native Americans inhabited western Arkansas.
A.D. 500	Some forest clearing in small patches by native Americans.
1542	Hernando de Soto expedition crossed Arkansas from east to west and may have passed through the Ouachita Mountains.
1680	French trappers in western Arkansas.
1686	First permanent settlement by French at Arkansas Post.

1803 Louisiana Territory purchased from France—including Arkansas.
1804 Dunbar and Hunter traveled through Arkansas, described the forests.
1819 Arkansas Territory created by Congress—including Oklahoma; Naturalist Thomas Nuttall traveled through Arkansas and Oklahoma and described forests.
1836 Arkansas became 25th State of the Union.
1879 Commercial logging began in Arkansas.
1881 Division of Forestry established in U.S. Department of Agriculture.
1891 Forest Reserve Act passed by Congress.
1897 Amendment to Sundry Civil Appropriations Act specified purposes for forest reserves, now referred to as Organic Act.
1901 Division of Forestry expanded and named Bureau of Forestry.
1905 Bureau of Forestry became Forest Service; existing forest reserves transferred from Department of the Interior to Department of Agriculture.
1906 Forest Homestead Act passed by Congress; also an act that required 10 percent of receipts from forest reserves be returned to States for public roads and schools passed by Congress.
1907 Forest reserves renamed "national forests"; President Theodore Roosevelt created the Arkansas NF from public domain lands south of the Arkansas River.
1908 Ozark NF designated on public domain lands north of the Arkansas River; payments to States for roads and schools increased to 25 percent of national forest receipts.
1909 Arkansas Legislature endorsed a resolution to abolish the national forests; logging peaked and began to decline.
1910 President Taft used the Forest Homestead Act to reduce Ozark NF lands by 562,981 acres; fired Chief Pinchot.
1911 Weeks Law passed by Congress.
1919 First lands purchased under Weeks Law added to national forests in Arkansas.
1924 Congress passed Clarke-McNary Act allowing the purchase of forest lands for purposes other than protection of watersheds of navigable streams.
1926 Mena Chamber of Commerce asked Congress to transfer Arkansas NF to Department of the Interior, National Park Service; Congress passed transfer bill, but it was pocket-vetoed by President Coolidge who established four hunting refuges on the Ozark NF and changed the name of the Arkansas NF to the Ouachita NF.
1930 Ouachita NF extended into Oklahoma by purchase of 50,000 acres of cutover and burned land; Knutson-Vandenberg Act passed by Congress.
1931 Arkansas Forestry Commission established by State Legislature.
1933 Civilian Conservation Corps created by President Franklin Roosevelt (originally established as Office of Emergency Conservation Work).
1934 Crossett Experimental Forest established.
1935 President Roosevelt established four game refuges on Ouachita NF.
1937 Bankhead-Jones Farm Tenant Act passed by Congress.
1940 Boston Mountain Land Use Project added to the Ozark NF; Magazine Mountain Project added to Ouachita NF.
1941 Magazine District transferred from Ouachita NF to Ozark NF.
1943 War Manpower Commission mandated a 48-hour work week for lumber industry; German prisoners of war allowed to work on national forests.
1948 Koen Experimental Forest established.
1954 Watershed Protection and Flood Prevention Act passed by Congress; SCS transferred remaining land use projects to the Forest Service for administration and disposal.
1959 Tiak Land Use Project added to Ouachita NF.
1960 Multiple Use-Sustained Yield Act passed by Congress; Lake Wedington Land Use Project added to Ozark NF; Mariana-Helena Land Use Project designated St. Francis NF and placed under Ozark NF administration.
1961 Ozark NF renamed Ozark-St. Francis NF's.
1964 Wilderness Act and National Forest Roads and Trails Act passed by Congress; work on Talimena Scenic Drive began.
1965 Even-aged management using clearcutting initiated on both forests; grazing of cattle and hogs restricted on forests.
1968 Wild and Scenic Rivers Act passed by Congress.
1970 National Environmental Policy Act passed by Congress in 1969 and signed into law by President Nixon.
1973 Threatened and Endangered Species Act passed by Congress.
1974 Forest and Rangeland Renewable Resources Planning Act passed by Congress.
1975 Congress established Upper Buffalo Wilderness Area on the Ozark-St. Francis NF's and Caney Creek Wilderness Area on the Ouachita NF; Newton County Wildlife Association appealed use of aerial application of herbicides on Ozark-St. Francis NF's.
1976 National Forest Management Act; Payment in Lieu of Taxes Act passed by Congress.
1978 Ozark-St. Francis NF's Timber Management

Plan issued that forbade use of herbicides containing dioxin and use of aerial spraying.

1984 Arkansas Wilderness Act passed by Congress; designated four new wilderness areas on the Ouachita NF and four on the Ozark-St. Francis NF's.

1986 Ouachita NF and Ozark-St. Francis NF's Land and Resource Management Plans released; both plans appealed by various interest groups and individuals.

1987 Congress passed bill making 98,000 acres of Ouachita NF in Oklahoma a national recreation area.

1989 Ouachita NF released draft amended management plan that reduced clearcutting and increased uneven-aged cutting methods; Ouachita Watch League appealed every timber sale.

1990 Ozark-St. Francis NF's reached an agreement with appellants by modifying their management practices and amending the forest management plan; Ouachita NF released "final" amended management plan; Ouachita Watch League and Sierra Club appealed it and also filed a lawsuit to stop clearcutting and use of herbicides; Senator Pryor and Chief Robertson toured Ouachita NF and agreed to virtually eliminate clearcutting; Ouachita NF designated New Perspectives Lead Forest, and research on the forest was greatly expanded.

1992 Forest Service recommended and Congress established eight wild and scenic rivers in Arkansas; Federal District Judge Morris Arnold ruled in favor of implementation of the Ouachita NF's amended management plan; Ouachita Watch League and Sierra Club appealed the decision; Arkansas Attorney General and Newton County Wildlife Association filed suit against the Ozark-St. Francis NF's management plan; New Perspectives efforts incorporated in ecosystem management approach to forest management on all national forests.

1993 Ecosystem Management Research Symposium held to present pretreatment data and preliminary findings.

1995 Eighth Circuit Court of Appeals upheld Judge Arnold's decision; also ruled the Sierra Club, Ouachita Watch League, and the Arkansas Attorney General had no standing to sue; district court dismissed 1992 suit against the Ozark-St. Francis NF's; Newton County Wildlife Association, Arkansas Attorney General, and Sierra Club filed suit against the Ozark-St. Francis NF's to stop seven timber sales in Newton County.

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APPENDIX

Table 1.— *Trees of commercial value found in the "Ozark Region" in 1905 (information taken from Record 1910)*

Common name	Scientific name
Ash	*
Basswood	*Tilia americana*
Beech	*
Blackjack oak	*Quercus marilandica*
Black gum	*Nyssa sylvatica*
Black locust	*Robinia pseudoacacia* [sic]
Black walnut	*Juglans nigra*
Bur oak	*Q. macrocarpa*
Butternut	*
Cherry	*
Chinquapin chestnut	*
Chinquapin oak	*Q. acuminata*
Coffeetree	*
Elm	*
Hackberry	*Celtis occidentalis*
Hickory	*Hicoria*†
Holly	*
Mulberry	*
Post oak	*Q. minor*
Red cedar	*
Red gum	*Liquidambar styraciflua*
Red maple	*
Red oak	*Q. rubra*
Shortleaf pine	*Pinus echinata*
Silver birch	*
Sycamore	*Platanus occidentalis*
White oak	*Q. alba*
Willow oak	*Q. phellos*

*No scientific name given in publication.
†No species names listed for "Ozark Region."

Table 2.— *National Forest payments in lieu of taxes in 1980's**

Year	Payments to Arkansas	Payments to Oklahoma
1980	$4,271,838	$ 605,037
1981	$3,727,691	$ 506,463
1982	$2,413,838	$ 280,025
1983	$5,302,970	$ 700,137
1984	$5,782,480	$ 775,175
1985	$5,233,490	$ 716,942
1986	$5,607,905	$ 754,539
1987	$5,316,158	$ 745,444
1988	$3,888,444	$ 516,554
1989	$8,330,793	$1,200,795

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A brief history of the Ouachita and Ozark-St. Francis National Forests shows that many factors influenced the land, vegetation, wildlife, and other resources that have been under USDA Forest Service administration for almost 90 years. This history indicates that laws, acts, and regulations not only created the national forests in Arkansas and Oklahoma but continue to give more specific direction for their use and management. The effects of political and judicial decisions on these forests have been tremendous.

Keywords: History, Ouachita National Forest, Ozark-St. Francis National Forest, land management, public lands.

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