

HISTORICAL AND SOCIAL FACTORS AFFECTING PINE MANAGEMENT IN THE OZARKS DURING THE LATE 1800s THROUGH 1940

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ABSTRACT.—During the latter part of the 19th century, European descendents migrated to the Ozarks seeking employment with large pine-producing sawmills. Within a 30-year period, most of the pine resources across six million acres had been exploited and were largely replaced by oak-hickory forests. The era ended with residents struggling with economic challenges and limited natural resources. Differing values and management philosophies toward the forest, and attempts to restore pine communities by creating a system of forest management and recovery in Missouri, have been a legacy of conflict among people.

INTRODUCTION

Shortleaf pine (*Pinus echinata* Mill.) in the Missouri Ozarks has direct ties to the region's settlement, industrial exploitation, and the development of forest management in Missouri. Use of the forest resources have often resulted in struggles between the local citizens, wood industries, and politicians that benefited from the short-term exploitation, and citizen groups and agencies seeking long-term policies for maintaining the pine resource. Local economic conditions will continue to influence the extent of shortleaf pine and the acceptance of management schemes on both public and private lands.

MODEL FOR FORESTRY DEVELOPMENT

Throughout the world, the concepts of silviculture and forest management have been around for approximately 400 years. The development of modern forest management in the Missouri Ozarks is tied to activities throughout the past century and in particular to the industrial and political activities prior to 1940. Kimmins (1997) indicates that wherever and whenever forestry is developed, there has been a similar sequence of developmental stages:

- Stage 1: Unregulated exploitation of local forests.
- Stage 2: Regulation of forest exploitation through legal and political mechanisms or religious taboos.
- Stage 3: Development of an ecological approach to silviculture and timber management.
- Stage 4: Progression toward social forestry to be environmentally and ecologically sound but also responsive to diverse demands of society and local communities.

The history of forestry in the Ozarks and ultimately the history of forest management in Missouri largely follow the Kimmins model. The stages are not only continuous but are fluid, overlapping, and often repeating. Historic periods of the Ozarks have recorded progress towards the later stages of development only to be succeeded by a reversion to the primary stages as changes in economic conditions and emerging industries challenge the values that society places on the forest.

THE PINE RESOURCE

Even though forests covered 70 percent of Missouri prior to settlement, perhaps the most celebrated forest cover was the pine-covered hills of the southeastern Ozarks. Known as the Courtois Hills, this rugged area has steep-sided hills and chert-covered ridges (Fig. 1). The name Courtois Hills is derived from the Courtois Creek in Crawford County. Courtis Hills extend over all of Carter, Reynolds, and Shannon Counties, and parts of Crawford, Dent, Iron, Wayne, Oregon, Butler, Ripley, and Madison Counties (Hill 1949).

Presettlement pine was estimated to have occurred across 6.6 million acres in the Missouri Ozarks (Liming 1946). Not all of its range was limited to the Courtois Hills as pine was also found in some of Missouri's south-central and southwestern counties. The vast pine forests were distributed unevenly – some areas being heavily timbered with pine and some mixed with hardwoods, such as white oak (*Quercus alba* L.), post oaks (*Q. stellata* Wangenh.), black oak (*Q. velutina* Lam.), and blackjack oak (*Q. marilandica* Muenchh.). Pine occupied most of the sandy land, and part of the flint ridges. In the southern counties, pine grew profusely on the flat, clay uplands. White and black oak grew commonly on the ridges while post oak and blackjack grew on the dry, stony hillsides (Hill 1949).

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Figure 1.—Southeastern Missouri Ozark counties geographically known as the Courtois Hills.

Pine occurred mostly in clumps or groups, and occasionally formed pure stands. One of the most extensive areas was the Irish Wilderness in northeastern Oregon County. In general pine lands were fairly open, with little or no underbrush growing beneath the pines except for little bluestem grass (*Schizachyrium scoparium*) and an occasional oak sprout (Martin and Presley 1958). Pine volumes averaged 4,000 board feet per acre with occasional stands containing 25,000 board feet per acre (Hill 1949). Rare accounts of huge trees, some as large as 7 feet in diameter at the stump, have been collected through oral histories (Smith 1959).

THE PEOPLE

European descendents essentially poured into Missouri's agriculturally rich areas during the early 1800s. The hilly sections of the Ozarks were the state's last physical frontier and were largely bypassed due to poor transportation routes leading into the region and a general lack of fertile farm ground (Galloway 1961).

The first arrivals trickled into the Ozarks during the first half of the 19th century. Three-fourths of the early residents

had migrated from Tennessee and Kentucky. For the most part, they were Scots-Irish descendents and possessed a true frontier spirit (Rafferty 1980).

Hammar (1935) typifies four aspects of frontier development that had an enduring effect on the Ozarks: (1) the dominance of agriculture in the conquest for the Middle West, and the corollary assumption that what was good for a rich agricultural section was equally good for the sections neither agricultural nor rich; (2) the race for acquisition based on the idea that he serves (and serves well) who merely acquires; (3) a fierce impatience with any government interference in "private" affairs and an almost complete disdain for public aspects of conservation; and (4) a faith in competition as a sufficient regulator of business, and a great willingness to give free rein to private initiative. Nearly 200 years later, these attitudes still embody the Ozark spirit.

The early settlers brought an outlook that all land was essentially agricultural land. Their primary occupation was subsistence farming; they were poor but nearly self-sufficient. The rugged and stony nature of the soils fought back against cultivation. When plowed, they were quickly worn out and vulnerable to erosion (Hammar 1935).

Most of the inhabitants were engaged in raising livestock on the open range. The pine forests were well suited to produce forage because they were naturally open with an understory of grasses. So long as the forest remained in its frontier or pristine condition, it could continue to support this form of agriculture and provide the basic needs for the people—but with limitations. As Hammar (1935) suggested, the region's thin and infertile soils were threatened with oversettlement.

A second phase of immigration started after the Civil War. Until this time, the Ozarks had been isolated from intensive settlement and commercial resource exploitation. The earliest pioneers had established small farms primarily in the valleys. It was during the second phase that persons employed by eastern capitalists penetrated and developed much of the region (Galloway 1961).

Since the demand for forest products was concentrated in the more populated eastern United States, Missouri's remote forests had remained uncut. Westward migration of people onto the treeless plains quickly drew attention to the Ozarks' forests. During the latter half of the 19th century, populations in the heavy pine-bearing counties increased from two to five times over the reported population of 1860 as lumber companies established large operations across the southeastern Ozarks (Shoemaker 1943). Carter, Oregon, Reynolds, Ripley, Shannon, and Wayne Counties best illustrates this since they were the center of the heaviest lumbering operations (Table 1).

Table 1.—Population trends in selected Missouri Ozarks counties.

County	1860*	1870	1880	1890	1900	1910	1920	1930	1940
Carter	1,215	1,455	2,168	4,659	6,706	5,505	7,482	5,503	6,226
Oregon	2,983	3,287	5,791	10,467	13,906	14,681	12,889	12,220	13,390
Reynolds	3,135	3,756	5,722	6,803	8,161	9,592	10,106	8,923	9,370
Ripley	3,669	3,175	5,377	8,512	13,186	13,099	12,061	11,176	12,606
Shannon	2,271	2,339	3,441	8,898	11,247	11,443	11,865	10,894	11,831
Wayne	5,368	6,068	9,096	11,927	15,309	15,181	13,012	12,243	12,794

*Figures reported for 1860 are listed as free men and do not include slave numbers.

THE EXPLOITATION

Even though the land in the Ozarks was characterized as rocky and unproductive, it had standing timber of both oaks and pine. Timber was a salable commodity, but it required a capital outlay that the ordinary farmer could not afford. As a result, much land became tax delinquent until it was picked up by speculators and lumbermen starting around the late 1860s (Hill 1949).

Missouri's pine lumber boom started in the late 1880s and ended in the 1920s. At its peak in 1899, lumber production in Missouri was 724 million board feet (Cunningham and Hauser 1989). The largest mills were the Missouri Lumber and Mining Company, first at Grandin and then later moved to West Eminence; the Holaday-Klotz Land and Lumber Company at Greenville; the Clarkson Sawmill at Leeper; the Cordz-Fisher Lumber Company at Birch Tree; the Ozark Land and Lumber Company at Winona; and the Bunker-Culler Lumber Company at Bunker (Fig. 2). Added to these larger mills were scores of smaller production sawmills.

Not all sawmills were engaged in the production of pine lumber. Between 1877 and 1898, Missouri had 184 stationary and 41 portable sawmills with a combined daily capacity that fluctuated between 2 million and 3.8 million board feet. Ten companies included logging railroads in their inventory (Fernow 1899).

The Missouri Lumber and Mining Company at Grandin, MO, was the first and largest company to begin large-scale lumbering in the Ozarks. Its operations were characteristic of the era and region with high-capacity milling facilities, huge labor forces and railroad logging. Its sawmilling operation began in 1887 and lasted until 1909 at Grandin. Operations moved to West Eminence in the fall of 1909 and continued until 1919. At its height of production, the Grandin-based sawmill consumed the timber resources from 70 acres per day. At the end of its fourteenth year of operation, it had cut more than 213,017 acres of forest land (Galloway 1961).

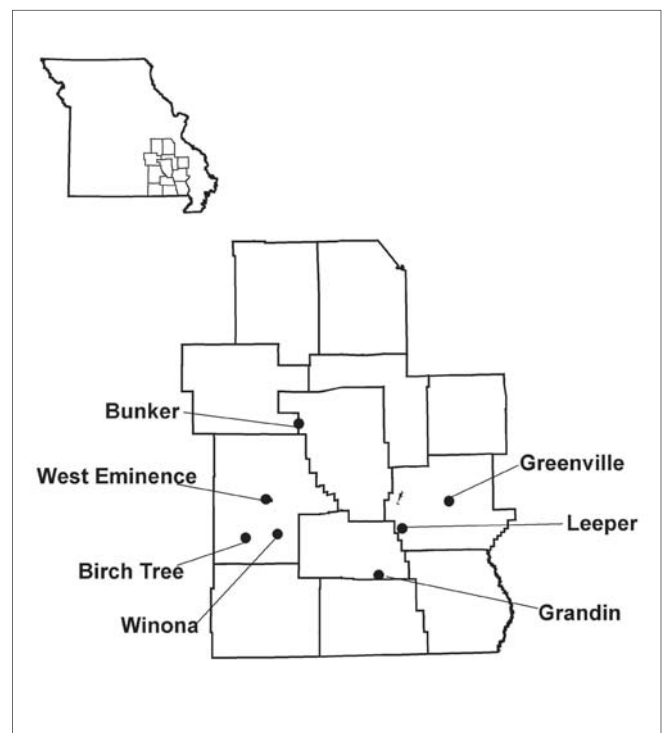


Figure 2.—Towns with large pine sawmilling operations between 1880 and 1920.

The turn-of-the-century lumber boom had a devastating effect on the pine resource. Lumber company policies and practices virtually eliminated pine trees large enough for reseeding the forest. The Missouri Lumber and Mining Company had required all pines cut to a 12-inch stump (Hill 1949). Though not as severe, its competitor, the Ozark Land and Lumber Company at Winona, cut all pines to a 14-inch stump (Martin and Presley 1958).

Uncontrolled burning and timber thieves' cutting of the remaining pine as soon as it reached a minimum merchantable diameter further destroyed any chances

of seed or seedlings to develop. As the timber resources diminished and the big mills closed, the remaining people returned to grazing the open range for an economic base. Hardwoods quickly replaced the pine and those trying to graze the cutover lands had to contend with regrowth. Without fire, the grass would dwindle. Fire killed pine seedlings and caused the hardwoods to vigorously resprout. Germinating pine seedlings were unable to survive under the prolific hardwood canopy (Cunningham and Hauser 1989). Prior to organized fire control in the 1930s, it was estimated that the total wooded area of the Ozarks burned over at least once every 3 years (Callison 1953).

The lumber companies were not interested in reforestation. Prior to purchase, much of their lands had been tax delinquent and was purchased with uncertain titles. Once the pine timber had been removed, the taxes would remain high. Cutover lands that could not be sold were abandoned and again auctioned at public tax sales (Cunningham and Hauser 1989).

The big mills had been an economic boon to the people living in the Ozarks. They had provided steady employment, improved transportation both into and away from the region, and enhanced the people's social connectivity. Without the benefits afforded by this extractive industry, the people remaining after the mills' closures were once again threatened with the prospects of impoverishment and the struggle for survival.

THE CALL FOR REGULATION

Long before Missouri's lumber boom, there were concerns from a few government and industry leaders expressed concern that the nation's timber supply was not inexhaustible and that there was a real threat of a timber famine (Galloway 1961). By the end of the 19th century, nation-wide attention was being drawn to a growing conservation movement in the United States.

The word "reforestation" appeared regularly in Missouri newspapers between 1910 and 1940. It was often used directly or indirectly in the context of the loss of the pine resource in the Ozarks stemming from the earlier lumber boom. Reforestation and forest fire control would become the rallying cause for the creation of both a state forestry program and establishment of a national forest in Missouri.

Citizen groups led the fight for reforestation in Missouri during the first third of the 1900s. This series of groundbreaking events was perhaps the most unrecognized yet important actions relating to Missouri's conservation movement in the 20th century. With each attempt however, the people of the Ozarks largely opposed the prospects of reforestation through government intervention, be it the institution of agencies, laws, or programs, because of the perceived threats they represented to their way of life.

By 1905, conservation leadership was coming from an unlikely source: John B. White, president and general manager of the Missouri Lumber and Mining Company. President Theodore Roosevelt had appointed White to investigate problems with lumbermen gaining control over valuable forest lands at Cass Lake, MN. White's ensuing recommendations quickly won favor with the President and the public. Two years later, the president appointed him to the forestry section of the National Conservation Commission (Galloway 1961).

During the May 1908 National Governors' Conference at Washington, D.C., Missouri Governor Joseph Folk addressed in his speech the issue of reforestation:

The forestry question is our problem, and it is a problem that we must settle, and settle soon.... We want to put our forests in proper condition to preserve those we have, and to adopt a scheme of reforestation. In Missouri we have no state forester, but as soon as I go back I am going to appoint a State Forestry Commission. I believe every Governor ought to do the same thing, and I am sure that his State Legislature when he meets will ratify his action.

We want to preserve our forests. Now, I hope I am not encroaching upon forbidden ground, but I have been wondering why, if it be so necessary to preserve our forests, it would not be a good idea to put lumber on the free list—make lumber free. I hope that is not heresy. It seems to me that for every foot of lumber brought here from another country we preserve a foot of lumber in our own forests. (Folk 1909).

Governor Folk appointed a four-man forestry commission in 1909. Since the rural-dominated General Assembly failed to appropriate funds, the members of the commission, which included John B. White, served without pay (Galloway 1961). A number of similar attempts by Folk's successors would fail as well (Flader 2004).

The U.S. Congress passed the Weeks Act in 1911 that authorized federal acquisition of lands for national forests in the eastern states. Suddenly Missouri was in line for a national forest, but the Missouri General Assembly would have to pass enabling legislation. In 1914, Clifford Hall, Forest Examiner for the U.S. Forest Service, completed his examination for the potential purchase of two national forest units around the St. Francis Mountains and the upper Current River drainage. The General Assembly voted against the legislation since its constituency was largely opposed to federal intervention and control of lands the residents were using to suit their needs (Flader 2004). The prospect of a "national forest reserve," or a "national park" as it was so often referred to at the time, would be delayed for several decades.

The Missouri Forestry Association (MFA) was formed in 1922. Its purpose as stated in its constitution was to advise the public of the importance of the timber crops in economic life so as to insure a supply of timber for future generations. Its leadership included President Dr. Hermann von Schrenck, timber engineer and plant pathologist for the Missouri Botanical Gardens; Vice-Presidents J. W. Fristoe, president of the Moss Tie and Timber Company of St. Louis; Marie Turner Harvey of the Porter School at Kirksville; and Secretary Frederick Dunlap, former head of the forestry department of the University of Missouri. The MFA also had an advisory council that included forest industry leaders such as John Himmelburger of Himmelberger-Harrison Lumber Company, Cape Girardeau; John B. White, former president of the Missouri Lumber and Mining Company, Grandin; and Mrs. W. W. Martin, president of the Missouri Federation of Women's Clubs (*Current Local*, 5 January 1922).

The MFA opposed regulation at any level but supported the formation of a state forestry board and encouraged the practice of forestry on private lands. Oddly, it opposed the creation of a national forest in Missouri and saw only a very limited role for state forests as demonstration areas (Flader 2004).

Forest restoration in Missouri would have to wait until 1924 when Congress passed the Clark-McNary Act. Matching federal funds were afforded to states with forestry programs and Missouri was ready for the opportunity. Due to a threatened veto by the Governor, the MFA agreed to provide the state's share of the matching funds (Flader 2004). After repeated attempts since 1909, the Missouri General Assembly finally created an office of state forester within the Department of Agriculture in 1925 (Keefe 1987).

Frederick Dunlap, former head of the forestry department of the University of Missouri and secretary of the MFA, was appointed State Forester and he in turn hired Paul Dunn to be his only district forester at Ellington. In 1926, Dunlap reported to the General Assembly that the bill for his office's services between Aug. 12, 1925 and Jan. 1, 1927, came to \$12,817.75, paid with the private funds of the MFA. Chapter 1 of his report dealt with the issues of wildfire and fire protection. Four subsequent sections dealt with forest plantings of 70,000 seedlings across several counties, the State Nursery on the prison farm at Cedar City, model plantings, and appreciation of forestry (*Ellington Press*, 3 March 1927).

From 1925 through 1931, Dunlap and Dunn focused on organizing fire control efforts and reforestation through public outreach and education activities. Regular features originating from Dunlap's office appeared in newspapers throughout Missouri. These articles discussed forestry issues and outlined Dunn's activities in Reynolds County.

With cooperative assistance from county extension agents, Dunn brought films entitled "Pines Will Come Back" and "What Forest Management Means to You" to local schools and communities (*Ellington Press*, 14 November 1929). Perhaps in an effort to heal the damage inflicted by the earlier timber boom, Dunlap promoted the collecting and marketing of shortleaf pine seed. The *Ellington Press* (11 September 1930) quoted Dunlap:

People living close to Nature stands of shortleaf yellow pine in southern and eastern Missouri have a splendid opportunity, at this time, to profit by the sale of the seed of the desirable evergreen....all they need to do is to gather, clean, store and market this seed....The price last year (1929) was from \$8.20 to \$10 per pound and collectors have sometimes been paid up to \$20...Such prices can be paid, because twenty-five acres of land can be seeded with one pound of seed.

There was no follow-up report to Dunlap's feature. One can only imagine this as another desperate and frustrating attempt to show the General Assembly the possibility for success—and all this done with only one field forester and a scant budget. Perhaps because of the Great Depression, the legislature neglected to appropriate funds for forestry in 1931 and the forestry division was abolished (Keefe 1987). As dejected as Frederick Dunlap and Paul Dunn may have felt with their dismissals, the venture was a success as it marked the true beginnings of reforestation and recovery in the Ozarks.

The public's interest in forestry in the 1920s was not limited to Dunlap's effort. By 1929, the General Assembly had finally passed an enabling act authorizing federal purchase of forest land in the state but had restricted acquisition to no more than 2,000 acres per county (Flader 2004). In 1930, the Missouri Ozarks Chamber of Commerce under the leadership of Lon Sanders passed a resolution "...pledging the continued agitation for a national park or a national forest reserve..." (*Ellington Press*, 1 May 1930). This Chamber of Commerce was an 11-county alliance dedicated to promoting the Ozark region (Fuchs 1978).

Throughout 1933, State Senator Carter M. Buford from Ellington campaigned on behalf of the national forest. At a gathering of 300 boosters at Howes Mill in Dent County, Buford was called upon to address the crowd. The *Ellington Press* (30 July 1933) recorded the moment:

The Senator from his widespread experience in dealing in lands and timber in this section said that he heartily endorsed the proposed plan. He urged those present to go home and tell their neighbors about it and help to build up sentiment for the movement. Senator Buford stated that the counties were facing bankruptcy because the owners of

so much of the cut-over lands were unwilling or unable to pay the taxes on this land, and were letting it sell for prices that will not even pay the cost of legal advertisement. He said that if the present conditions continue that taxes would be raised to an unbearable height on improved farms and on city and town property and that these would be finally sold for taxes.

(That same year, Senator Carter M. Buford's son, Wilbur C. Buford, became the last politically appointed director of the Missouri Game and Fish Commission. Wilbur Buford was named the first Commissioner of the newly formed Missouri Department of Conservation in 1937 [Keefe 1987].)

In August 1933, the National Forestry Commission announced plans to purchase 450,000 acres in four units that extended over 18 counties in the Missouri Ozarks (*Ellington Press*, 31 August 1933). Eventually the Missouri General Assembly removed all acreage limitations and "lands that nobody wanted" would become the Mark Twain National Forest (Flader 2004).

The final great act for securing both conservation and ultimately reforestation in the Ozarks would be the petition drive for Amendment 4, calling for the creation of the non-political Conservation Commission, as spearheaded by the Conservation Federation of Missouri. On Election Day, Nov. 3, 1936, Missouri voters passed the initiative by a margin of 897,213 for to 351,962 against. In March 1938, George O. White was hired as the state forester. Like his predecessor Frederick Dunlap, White saw fire control and landowner education as two of the most important needs (Keefe 1987).

Building citizen support for modern conservation in Missouri had taken nearly 40 years. Restoring the shortleaf pine component to the Ozarks would be a daunting task that continues into the 21st century.

Liming (1945) reported that the productivity of 5 to 6 million acres of Ozark forest land can be materially increased by raising the proportion of pine in the forest cover exclusive of about 1 million acres now adequately stocked with pine. He estimated that pine had been eliminated by misuse on approximately 3 to 4 million acres, and it would take 50 to 100 years to artificially reintroduce it. The age-old problems of the destruction of seed and seedlings by uncontrolled burning and the persistent cutting of pine at a minimum merchantable diameter were to blame. Fixing these problems would challenge both the Missouri Department of Conservation and the U.S. Forest Service for decades to come.

SOCIAL FORESTRY

Kimmins' (1997) developmental stages can be interpreted through psychologist Abraham Maslow's Hierarchy of Human Needs. Human beings are motivated by needs. Basic needs such as food, shelter, safety, and security must be satisfied first. Growth needs such as beauty, goodness, meaningfulness or perhaps an interest in natural resources conservation, and biodiversity are affordable only after the basic needs have been met (Kimmins 1997).

Limited resources, poor local economies, extractive industries and a historical trend of poverty have kept the Ozarks' inhabitants focused on their day-to-day existence. Since the people have depended on the lands that support forest resources, policies and regulations proposed or enacted by government agencies that invoke change are often perceived as threats to the satisfaction of their basic needs.

The Ozarks can no longer be regarded as the isolated frontier of the 1800s. Improved transportation and a higher standard of living are making the area more accessible for millions of people living well beyond its borders. As Missouri progresses toward the social forestry stage, public participation will play an increasingly important role in the development of forest policies.

CONCLUSION

The Ozarks' people were the primary benefactors of the lumber boom from 1880 to 1920. Nearly a century later, lumbering is still economically important to the region. Tourism and other forms of outdoor recreation, however, are poised to become the primary drivers of the local economies.

Today, Missouri's forests with pine and oak-pine stands cover approximately 600,000 acres (Hahn and Spencer 1991, Flader 2004). Perhaps the best and most extensive pine-bearing lands exist on state and federal ownerships, where management over the past 75 years has favored the re-establishment or protection of pine. These areas offer the best opportunities for creating pine woodlands on a landscape scale.

Pine on private lands in Missouri is often spotty or clumped into small, disconnected islands. Oaks and hickories have largely replaced most of the historically pine-bearing sites. Pine reforestation is critically limited by frequent changes in land ownership, lack of landowner knowledge about reforestation techniques, lack of pine timber markets, and a lack of financial resources available to landowners. Until these factors improve, the probability for developing landscape-scale pine woodlands on private lands is very remote.

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