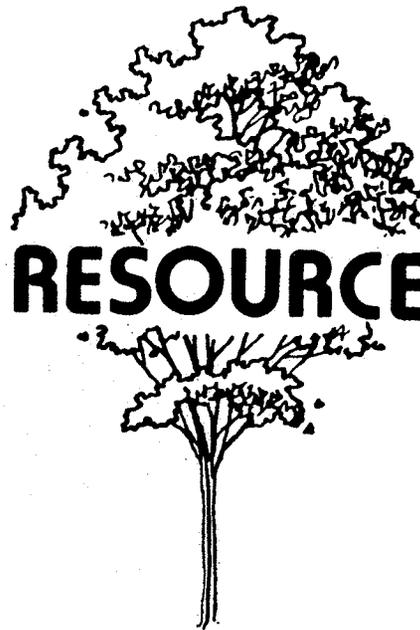


Oklahoma's

FOREST RESOURCE ISSUES



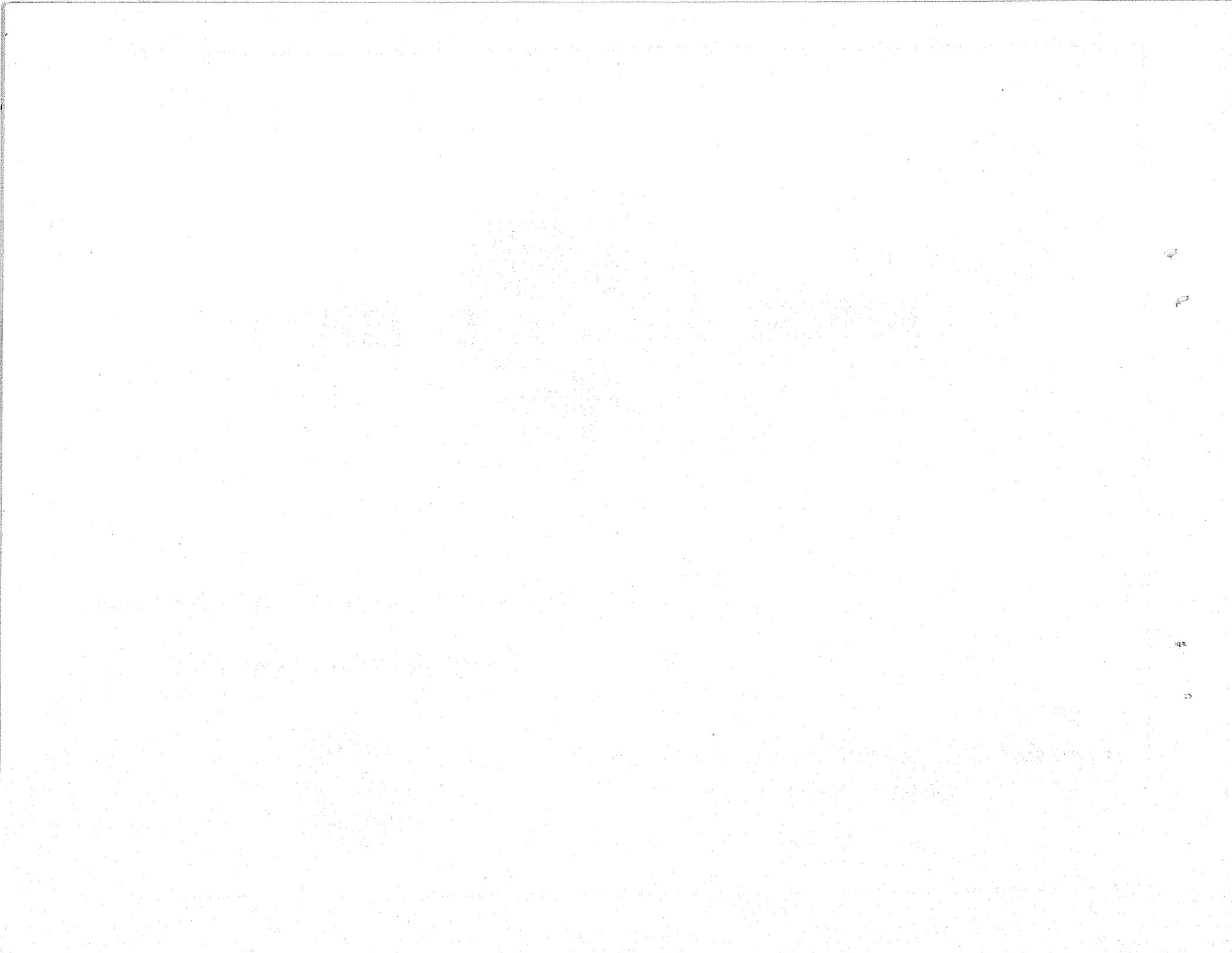
*an assessment of concerns and opportunities
facing forestry in the '80's*

Prepared by:

OKLAHOMA STATE DEPARTMENT OF AGRICULTURE
FORESTRY DIVISION

SFRP - May 1982





OKLAHOMA'S FOREST RESOURCE ISSUES

AN ASSESSMENT OF THE CONCERNS AND OPPORTUNITIES FACING FORESTRY IN THE 80'S

**OKLAHOMA STATE DEPARTMENT OF AGRICULTURE
FORESTRY DIVISION**

MAY 1982

**A PRODUCT OF THE STATE FOREST
RESOURCE PLANNING PROCESS**

ACKNOWLEDGEMENTS

The efforts of a great many people have contributed to putting this copy of "Oklahoma's Forest Resource Issues" in your hands. In 1979, Jim Leach, then Staff Forester with the Department of Agriculture, Forestry Division, began the entire planning process. He is largely responsible for insuring that this document reflects the "public interests," and for this I am most gratified.

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To all these people and more, thank you!



John Burwell, Staff Forester
Oklahoma Forestry Division

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Preface

THE PURPOSE

Senate Bill No. 143, Article III, Section 314, passed by the Oklahoma Legislature in 1971, states: "All state forests, all programs in management, nursery production, reforestation, urban forestry, educational activities and other forestry endeavors of the Division (of Forestry) shall be managed and administered by the Board (of Agriculture) in the interest of the public. If the public interests are not already safe-guarded and clearly defined by law and by regulations adopted by the state agencies authorized by law to administer such lands, or in the papers formally transferring said projects to the Board for administration, then, and in that event, the Board may promulgate rules and regulations defining the purpose of said project."

"Oklahoma's Forest Resource Issues" is the end product of the Oklahoma Forestry Division's attempt to determine the "public's interests," and to explore the Division's own role and those of others in each interest area. Its ultimate goal is to lay a foundation for assessment and redirection, if needed, in its major program areas. Thus, it is a companion document to the Division's long-range comprehensive plan, entitled "Program Direction through 1995."

THE PROCESS

The "Issues" contained in this document were derived through a public participation process begun in 1979. Five public workshops and numerous mailings generated over 150 topics of interest or concern. Some of these applied to only specific areas of the state, while others were of interest statewide. Through analysis of the many responses, the initial list of issues was consolidated into thirteen key "issue areas." Broad "issue

statements" which typified what seemed to be the predominate concerns of the public were drawn and are listed in the Table of Contents of this document. A standard format was utilized to expand upon each. This format is:

1. Title, or statement of the Issue Area
2. Statement of the Major Issue
3. Background and Current Situation - including Related Issues
4. Oklahoma Forestry Division's Role in the Issue
5. Related Programs and Activities

It should be noted that "Oklahoma's Forest Resource Issues" is not intended to be a total and comprehensive assessment of forestry in Oklahoma. It does, however, give an overview of the concerns currently faced by the "Forestry Community," and in particular, those by the Forestry Division. It is the intent of the Forestry Division to assess, update, and/or modify the information in this document at five year intervals, or periodically as circumstances warrant. For that reason it should be used as a working "draft" rather than a document possessing historic finality.

Any comments or questions concerning information contained in the document should be directed to the Oklahoma State Department of Agriculture, Forestry Division, 122 State Capitol, Oklahoma City, OK. 73105.

Foreword

THE FOREST RESOURCE

The forests of Oklahoma are diverse. They range from natural loblolly pine stands and cypress swamps in the southeastern corner, to oak-pine and oak-hickory types in east-central Oklahoma, to ozark hardwood types in northeastern Oklahoma. From there through central Oklahoma are dense stands of post oak and blackjack oak-- a region known as the "cross-timbers." Further west into the plains, trees occur mostly along streams and canyons and in "windbreaks" and "shelterbelts" planted by man to protect himself and his land against the elements of weather. Finally, the plains end at the foothills of the Rocky Mountains, where pinyon pine, junipers and scrub oaks are prevalent. This diversity of landforms and forest types presents a wide realm of issues on which to focus attention.

Approximately 19% of Oklahoma's total land area is forested. This 8.5 million acres of forestland can be divided into two classes:

Commercial - that land capable of producing in excess of 20 cubic feet per acre per year of useable wood, and not formally withdrawn from production.

Non-Commercial - land incapable of producing 20 cubic feet per acre per year of useable wood, or land formally withdrawn from commercial timber production.

The actual acreage of forestland, and that portion designated "commercial," is an issue in itself, as the 4.3 million acres of commercial forestland commonly referred to in this, and most other government documents, includes only that commercial forestland occurring in Oklahoma's eighteen easternmost counties (those inventoried by the USDA, Forest Survey in 1976).

It is convenient to describe Oklahoma's forest resource by breaking it into three regions--Ouachita Highlands, Ozark, and Crosstimbers (see diagram A).

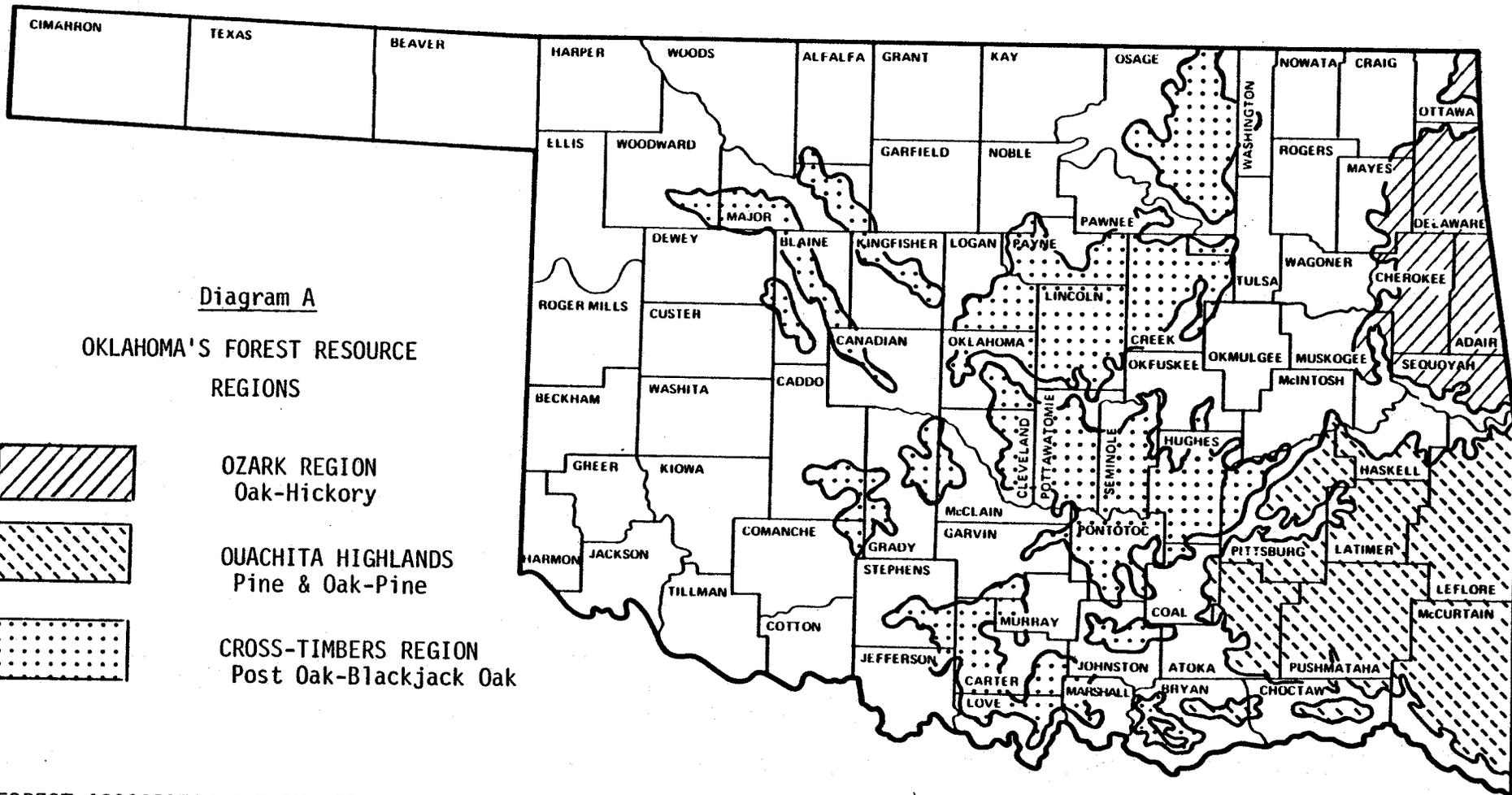
Ouachita Highlands - Located in southeastern Oklahoma, this region is by far the most productive forested region in the state in terms of wood products. It contains approximately 3.5 million acres of commercial forestland, or 80% of eastern Oklahoma's total. Over 90% of the volume harvested annually in Oklahoma comes from the Ouachita Highlands region.

Non-industrial private owners hold 58.6% of the region's forested acreage, while forest industries own approximately 28%. The rest is in various public ownerships, including the 218,800 acre Ouachita National Forest.

Major forest types in the Ouachita Highlands are bottomland hardwoods, pure stands of loblolly and shortleaf pine, oak-pine and oak-hickory. Topography varies from flat Gulf Coastal Plain on the south, with an elevation of only 300 feet above sea level, to rolling hills and ridges in the north with elevations in excess of 2,800 feet above sea level.

Ozark Region - The Ozark Region encompasses approximately 853,600 acres of commercial forestland, 86% of which is held in non-industrial private ownership. Neither forest industry nor the U.S. Forest Service owns any land within the region. Instead, the remaining 14% of the commercial forest land-base belongs to various government agencies and Indian tribes.

Forest industries within the region are relatively small and have less impact on the total economy than those in the Ouachita Highland region. Yet, in many areas the potential for growing high quality hardwoods such as walnut, pecan, ash, white oak and red oaks, is evident.



FOREST ASSOCIATIONS VARY WITHIN EACH REGION. THOSE NOTED ABOVE ARE THE PREDOMINANT ASSOCIATIONS OCCURRING IN EACH. MANY SMALLER AREAS OF FORESTLAND, AND THE CLEARINGS IN THE FORESTED PORTION HAVE NOT BEEN SHOWN.

The predominate forest cover in the Ozark region is oak-hickory, although some associations of oak-pine occur in pockets. Much of the region's forestland has been "high-graded," over-grazed and burned for years and the quality of trees is often very poor.

Water is abundant within the region, with Corps of Engineers reservoirs running its entire length. Recreation is a major industry, as is agriculture. The region's topography is hilly, with steep, relatively short slopes predominating.

Crosstimbers Region - The crosstimbers is the largest in area of all the forested regions in Oklahoma, covering all or parts of more than 30 counties. The forest cover ranges from less than 15 percent to more than 65 percent throughout the area. It consists primarily of non-commercial trees (post oak-blackjack oak), although merchantable species, such as cottonwood, sycamore, bur oak, black walnut, pecan, elm and hackberry grow in narrow belts along the streams that traverse the region. Commercial forestry activities are limited to these species. The larger non-commercial areas are used for fuelwood, grazing, urban expansion and recreation.

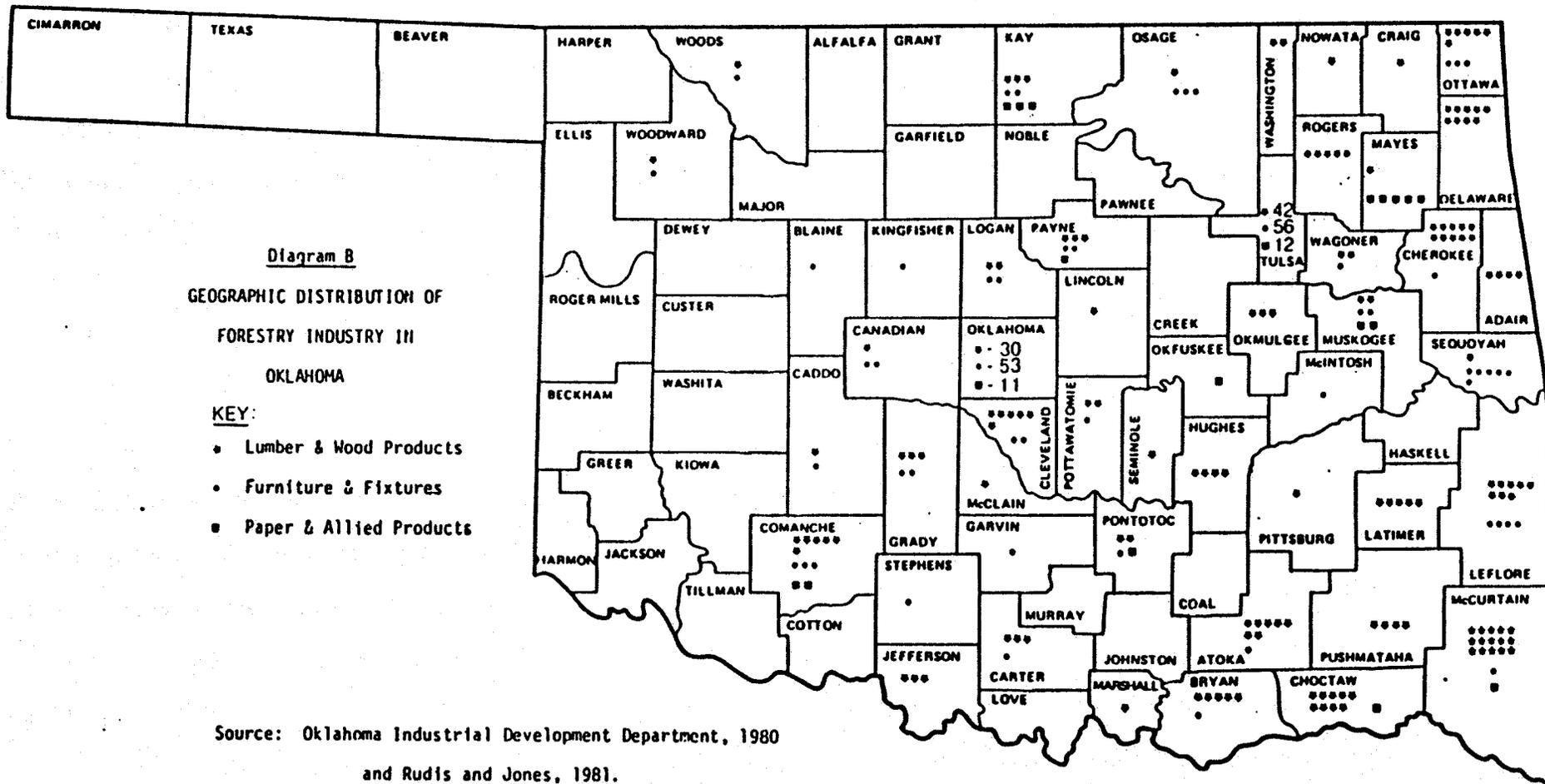
The forests in the crosstimbers region were generally "high-graded" by early settlers for their subsistence, and their present condition reflects a lack of management--and considerable abuse--since that time. There is currently no assessment of their potential productivity.

FORESTRY'S ECONOMIC CONTRIBUTION

The forest product industry makes a significant contribution to Oklahoma's economy. The industry can be categorized into three sectors: Lumber and Wood Products, Furniture and Fixtures, and Paper and Allied Products. In 1979, these three sectors employed 8,800 people, and paid a total of \$115 million in salaries and wages. The "value added" for the three sectors totalled \$193.4 million, about five percent of the value added for all manufacturing in the state. Using type 1 economic multipliers for each of the three sectors, the total employment and income supported directly and indirectly by Oklahoma's forest product industry in 1978 was 21,800 people and \$350.2 million. Diagram B shows the geographic distribution of the wood-based industries in Oklahoma.

SCOPE OF THE ISSUES

The diversity of landform and forest types, as well as the social and economic influences forests have in our daily lives, present a wide realm of opportunities and concerns on which to focus. It is hoped that through reading "Oklahoma's Forest Resource Issues," the reader might become more aware of the major opportunities and concerns which will be facing forestry in Oklahoma during the decade of the 1980's. It is a further purpose of this document to present the current role of the Oklahoma Forestry Division, and those of other agencies in those "issues."



Reforestation

ISSUE: Reforestation on non-industrial private land is inadequate to meet future demand for wood products.

BACKGROUND CURRENT SITUATION

Between 1956 and 1976, the area of commercial forestland in eastern Oklahoma decreased by 15.7%, from 5.1 million acres to 4.3 million acres. Predictions by the USDA, Forest Service are that within twenty years, an additional 200,000 acres of forestland will have been lost, while at the same time, improved technology and increasing population will boost demand for wood products by more than 30%. Considering these facts and projections, it becomes obvious that more wood must be produced on less land if future demand is to be met.

In Oklahoma, the vast majority of forestland is termed "second growth." In the early 1900's, timber companies, loggers and farmers began cutting over the virgin forests which at one time occupied as much as 15 million acres in the state. By the 1940's, virtually no "virgin forest" remained. More often than not, commercial species were either cleared or "high-graded," leaving non-commercial species and/or inferior quality trees of the stands to naturally regenerate themselves. The importance of modern forestry practices was not recognized then, and the consequences are apparent still.

Southern pine is the chief commercial tree species in Oklahoma, accounting for almost 80% of the saw-timber volume harvested annually. Its fast growth and physical characteristics, coupled with today's technology, make it more useful for most wood products than hardwoods growing on the same site. Yet, according to the 1976 Forest Survey, 1.8 million acres of commercial pine sites in eastern Oklahoma are predominately or solely occupied by hardwoods. Of this, approximately 500,000 acres have enough pine to naturally regen-

erate themselves, given some hardwood control, but the remaining 1.3 million acres need artificial regeneration--planting or seeding--if pine is to dominate.

Reforestation efforts in Oklahoma vary widely according to ownership. Forest industry, which owns 23% of the commercial forestland in eastern Oklahoma, has been reforesting its lands on a regular basis since the 1940's,¹ and during the 1979-80 planting season, established over 40,000 acres of pine plantation in the state. Reforestation on non-industrial private lands, however, was considerably less. Collectively holding 64% of eastern Oklahoma's commercial forestland, non-industrial private owners reforested only 5,270 acres during the 1979-80 season. In fact, latest estimates of the USDA, Forest Service indicate that only about 30% of the acres being harvested on these lands are adequately regenerated, either naturally or by planting.

Reasons for a lack of reforestation on private non-industrial lands are numerous, one of which is the time required to produce a merchantable stand of trees from planted seedlings. This, coupled with high initial establishment costs and subsequent risks from fire, theft, pests and weather, are seen as formidable economic obstructions to investment. Additionally, a large percentage of private landowners are absentees, with small holdings and few local contacts. This often makes it difficult to locate contract labor to do the work necessary to establish or improve forest stands. Further, much of the state has poorly developed markets for raw wood products, providing further disincentive to investment in forest improvement. This problem is particularly acute outside of extreme southeastern Oklahoma.

Marketing and harvesting standing forest products is a highly complex activity, and many private non-industrial forestland owners have neither the knowledge nor experience necessary to properly conduct such

¹Mostly by natural regeneration until 1973.

operations. Consequently, harvesting practices on these lands are often neither designed nor supervised so as to protect environmental quality and/or to ensure future regeneration of preferred species. Further, the average forest tract is decreasing in size, particularly in northeastern Oklahoma, complicating the economies of scale.

To offset the time requirements and high costs of forestry practices, the federal government has recently offered non-industrial forestland owners a tax incentive to invest in reforestation. Public law 96-451, signed by President Carter in October, 1980, allows a 10% investment tax credit and a seven year amortization to compute adjusted gross income for up to \$10,000 of qualifying expenses each year. Although the effects of this measure in Oklahoma are currently uncertain, it has spurred significant increases in investments on a national basis.

Another approach taken by the federal government to increase reforestation is to offer cost-share assistance to non-industrial private forestland owners who implement forestry practices on their lands. The cost-share funds are administered by the Agricultural Stabilization and Conservation Service (ASCS) in each county, with various state and federal agencies providing technical assistance to landowners wishing to take advantage of them. Two such programs offering reforestation incentives exist in Oklahoma.

The Forestry Incentives Program is offered in seven designated counties in eastern Oklahoma, and has been responsible for more than 7,500 acres of tree planting on non-industrial private land since its inception in 1974. Annual accomplishments and funds expended under the program are displayed in Table 1. The demand by private landowners for FIP funds exceeded their availability for the first time in FY 1981, and it is anticipated that the congressionally appropriated funds from this date forth will be insufficient to meet this demand,

TABLE 1 - TREE PLANTING UNDER "FIP" AND "ACP" IN OKLAHOMA (FED. FY 1976 - 1981)

REPORTING PERIOD	FIP			ACP		
	ACRES	# PARTICIPANTS	\$ in C/S	ACRES	# PARTICIPANTS	\$ in C/S
FY '76 (10/75 - 10/76)	1,094	32	48,141	3	2	40
FY '77 (10/76 - 10/77)	834	32	41,008	253	9	6,171
FY '78 (10/77 - 10/78)	1,214	31	55,316	293	11	6,722
FY '79 (10/78 - 10/79)	1,759	42	74,288	198	10	6,991
FY '80 (10/79 - 10/80)	1,205	29	67,835	145	9	5,543
FY '81 (10/80 - 10/81)	1,465	44	97,129	184	8	8,245
TOTALS	7,571	210	\$ 383,717	1,076	49	\$ 33,712

SOURCE: Agricultural Stabilization and Conservation Service, Stillwater, OK.

creating a further backlog of reforestation to be done. Similar situations exist in other southern states, prompting some to initiate state and/or industry supported cost-share programs to supplement FIP.

The Agricultural Conservation Program (ACP) was initiated in 1936 and is offered to private landowners statewide. In most counties, forestry practices are offered as components of the program. Unlike FIP whose purpose is to increase wood production from private lands, ACP is a soil conservation program aimed at reducing soil loss and maintaining fertility.

OKLAHOMA FORESTRY DIVISION'S ROLE IN THE ISSUE

Professional foresters and technicians employed by the Oklahoma Forestry Division provide technical assistance to private non-industrial landowners in reforesting their lands. Over the past four years, the Forestry Division has provided technical assistance in the establishment of over 11,000 acres of tree planting throughout the state. This technical assistance ranged from developing management plans, to assistance in securing qualified labor, to inspection of completed work to assure its quality.

The Forestry Division is designated the technical wing of the federally funded Forestry Incentives Program (FIP), and forestry components of the Agricultural Conservation Program (ACP). Its foresters work closely with county ASCS committees in program development and distribution of cost-share funds under these two programs.

Of primary importance to the reforestation issue is the availability of quality planting stock, and the Forestry Division's Nursery Program has, since 1928, been a source of forest trees for planting for conservation and timber production on non-industrial private lands within the state. The Forestry Division has, for the past three years, distributed more than five million tree seedlings annually. Of this total, about four-fifths is

pine, with the remaining production consisting of approximately 25 different species of hardwood trees and shrubs.

The State Tree Nursery, located near Goldsby, produces approximately 2 million trees annually--mostly hardwoods--while the Division contracts the bulk of its southern pine production to the Weyerhaeuser Company Nursery near Fort Towson in southeastern Oklahoma.

A key to reducing the time required to grow merchantable timber from seedlings is to plant genetically superior seedlings. The Forestry Division's tree improvement program, though limited to southern pine, is striving to meet the increasing demand of private landowners for genetically improved growing stock. Through contract with Oklahoma State University's Forestry Department, the Division provides funds and some manpower for the operation of a first generation seed orchard at Idabel. Genetically improved growing stock comprised about 56% of the southern pine seedlings produced in 1980, and projections are that by 1988, virtually all of the southern pine seedlings produced by OFD's nursery program will be genetically improved.

RELATED PROGRAMS AND ACTIVITIES

Forestry Consultants - Private consultants in Oklahoma offer a variety of commercial services for reforestation, including contractor services and management planning. At least two maintain tree planting crews during the planting season.

Oklahoma State University, Forestry Department - Since the late 1960's, the Oklahoma Forestry Division has contracted with OSU to produce genetically-improved southern pine seed. OSU's first generation seed orchard, located near Idabel, in southeastern Oklahoma, produces loblolly, lowland shortleaf and upland shortleaf pine seeds for production of genetically improved pine seedlings through the Forestry Division's Nursery Program.

Progeny testing is being conducted on various sites throughout the state.

OSU is also in the initial stages of developing tree improvement programs for walnut and pecan, and has conducted research in cottonwood improvement for several years.

Conservation Districts - Some Conservation Districts strongly encourage reforestation efforts on private lands through publications such as newsletters, brochures and magazine articles. In addition, special projects have been undertaken in the past to promote reforestation. Many SCD have tree planting equipment and tools available to small private landowners at little or no cost, and at least one has a full-time forester on staff to assist landowners in forestry practices.

OSU Extension Service - Extension encourages private non-industrial landowners to reforest their lands through public contacts and publications. County agents actively participate in the development of ASCS programs designed to help private forestland owners. Extension currently employs two field foresters in the eastern part of the state, directed by the State Extension Forester in Stillwater.

USDA, Soil Conservation Service - SCS provides assistance to private non-industrial landowners in the form of recommendations and planning. SCS publishes brochures on proper planting methods and species selection. District conservationists, some of which are professional foresters, assist in development of ASCS cost-sharing programs.

USDA, Forest Service, State and Private Forestry - The Forest Service, State and Private Forestry acts in a support role for State Forestry programs and provides technical and financial assistance in order to encourage activities which will avert a national wood products shortage in the future.

Forest Fires

ISSUE: The risk of loss or damage caused by forest fires is a major deterrent to investment in Oklahoma's forestland.

BACKGROUND CURRENT SITUATION

Fire in the forest is a tradition in eastern Oklahoma's commercially timbered region. Each year, approximately 56,000 acres of forest, pasture and rangeland burn as a result of over 1,500 man-caused fires. This accounts for more than one percent of the 5.08 million acres currently under fire protection by the State. (see appendix, Map 1) It does not account for the thousands of acres burned outside of protection boundaries, some of which is also commercial forestland. The State's five-year average fire size is 28.8 acres.

Analysis of fire causes in the protected region indicate that over 98% are man-caused. Deliberately set fires (incendiary) account for 55.1% of all fire starts, while improper debris burning causes 26.5%. All other fire causes account for less than five percent each, as shown in Table 2.

As a general rule, fire occurrence in Oklahoma is highest during the winter and early spring, as shown in Table 3. However, records indicate a high variability in occurrence during any given month--influenced by weather patterns and a variety of local, social and economic factors.

Damage caused by forest fires over the years has had significant effect on the state's hardwood resource. Due to the nature of their bark, hardwoods sustain cambium damage from relatively low-intensity fires. And, repetitive burning has rendered much of the resource unsuitable for sawtimber now or in the future. Conservative estimates show approximately 1.1 million acres of Oklahoma's hardwood forest in this condition, and the cost to

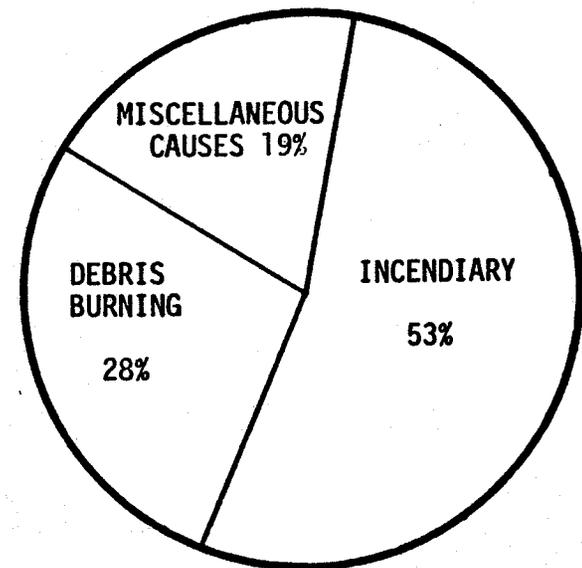
re-establish commercial productivity to these lands would be in excess of \$100 per acre.

Wildfire in the state's pine forests has long been a problem to resource managers. Wildfire reduces the quantity and quality of natural pine regeneration, increases soil erosion, and lowers aesthetic qualities. Its effects on artificially regenerated forest stands is devastating.

Since 1970, many acres of industrial forestland in southeast Oklahoma have been converted from uneven-aged, mixed pine-hardwood stands to even-aged softwood plantations. In turn, these intensive forestry practices have created a change in fuel types and fine fuel volumes over thousands of acres, with highly volatile fuels causing fire behavior problems and subsequent safety hazards never before encountered in Oklahoma. The damage caused

TABLE 2 - SEVEN YEAR AVERAGE FIRE OCCURRENCE BY CAUSE CATEGORY (1975-80)

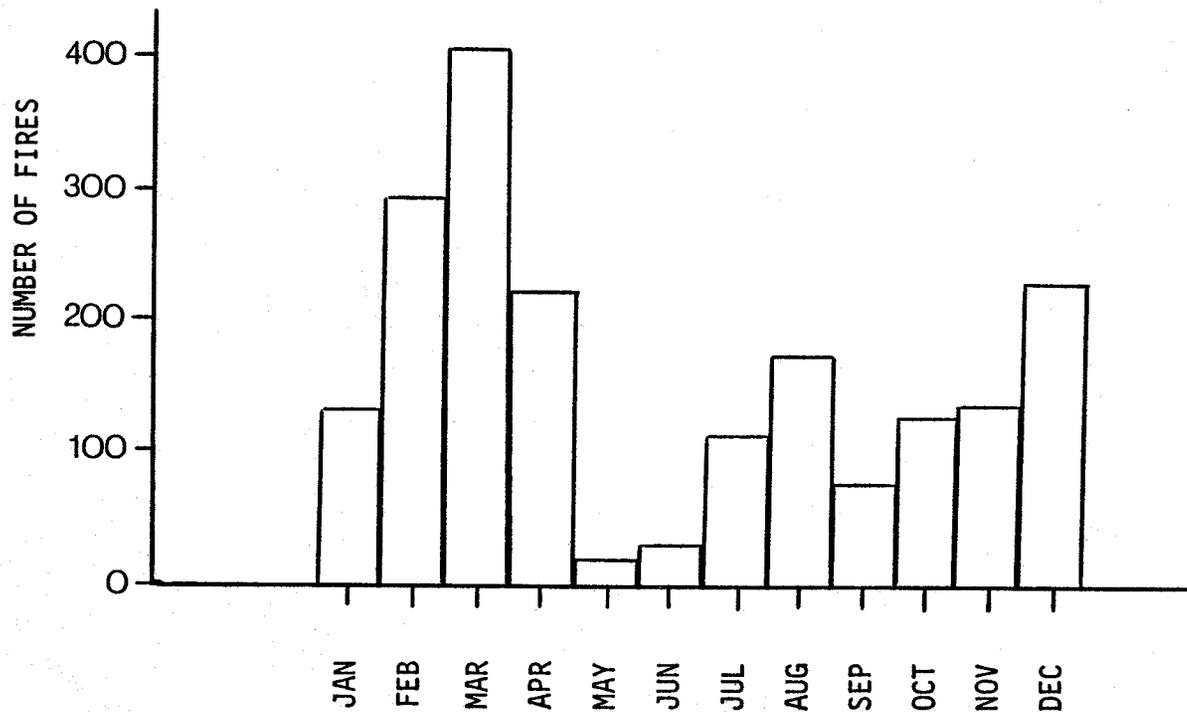
<u>Cause Category</u>	<u>Average Number</u>	<u>Percent</u>
Lightning	25.8	1.7
Campfires	15.3	1.0
Smoking	59.3	3.9
Equipment	47.3	3.1
Railroads	43.6	2.8
Children Playing	20.6	1.3
Debris Burning	420.8	27.5
Incendiary	815.6	53.3
Other	82.4	5.4
TOTAL	1,530.7	100.0



and the costs to suppress these fires often reaches into thousands of dollars.

Outside the state's protected region, landowners must rely on rural community fire departments and volunteers to suppress fires on their holdings. Often these organizations lack the necessary equipment and/or training to accomplish the suppression of major wildland fires. Consequently, many fires go unchecked once they reach the "woods," frequently burning until they either run out of fuel, or are rained out.

TABLE 3 - AVERAGE FIRE OCCURRENCE IN THE PROTECTED REGION (1976 - 1980)



OKLAHOMA FORESTRY DIVISION'S ROLE IN THE ISSUE

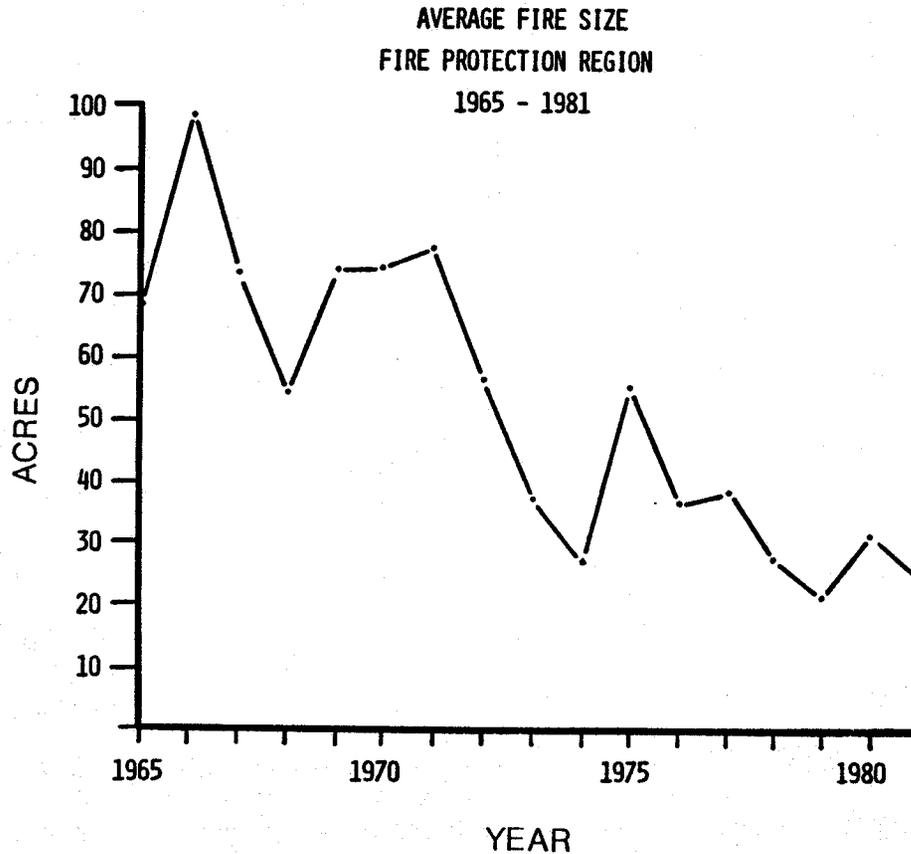
The State Department of Agriculture's Forestry Division is charged by statute with the responsibility to prevent and suppress wildfires on forested lands within the state. During fiscal year 1981, the Division spent approximately 50% of its 3.2 million dollar budget to provide fire protection on 5.08 million acres in the state's 15 easternmost counties, where the majority of the state's commercial forestland is located. This region is divided into eight fire protection districts, each reporting to one of three administrative Area head-quarter offices (see appendix, Map 1). Each district is further divided into three to six geographic units. A complete initial attack crew--consisting of two forest rangers, with a 100 to 150 gallon pumper truck, a small crawler-tractor with plow, a transport truck and miscellaneous tools--is assigned to each geographic unit. Currently, OFD has 38 such units with an average size of 133,950 acres.

Fire planning is carried out to varying degrees to determine the specific actions to meet goals and objectives developed at the state and regional level. This planning, done on an Area level by professional foresters and fire control specialists, analyzes fire numbers, causes, intensity zones, weather factors, equipment production rates, reaction times, fuel types, alternative costs and other factors. The current emphasis in fire planning is to reduce the average size fire which occurs.

Fire detection is provided by a combination of fixed point towers and aerial surveillance. The Division maintains sixteen lookout towers, twelve of which are located in the southeastern one-third of the region. Without aerial surveillance, the remaining 3.35 million acres of protected land would receive less than 30% coverage. Increased aerial detection, coupled with better equipped suppression units, has much to do with recent overall trends toward faster response and more effective suppression effects. This trend is readily

apparent through graphic presentation of fire statistics.

One obstacle to further reducing average fire size is access. Fire Plans identify thousands of acres in eastern Oklahoma in which fire reaction time is in excess of two hours. To many of these remote areas, access is either by four-wheel drive vehicle or by foot. Crawler-tractors are frequently "walked" into fires from up to three miles. Although such remote areas exist throughout the eastern region, the problem is particularly



acute in the mountainous East Central Area, where the land is predominately held in private non-industrial ownerships. To improve access, thereby reducing reaction time, Forestry Division Rangers have performed maintenance on woods roads and trails for several years. But, because of severe equipment limitations and little or no funding, maintenance has been minimal and, in many cases, ineffective.

Several thousand acres of forestland have been harvested and replanted to southern pine in southeastern Oklahoma over the past ten years, and these large pine plantations have created some radical changes in the volume and type of fuel occurring over much of the area. When fires occur in extremely dense vegetation, rough terrain and tremendous amounts of "flash" fuels, as over 400 did during 1980, applying water is the most effective, and sometimes the only means to control them. But, the Forestry Division currently has little water-handling capability, outside its 100 and 150 gallon pumpers carried in 3/4-ton pickup trucks. To help fill the void, federal excess property is being used at an increasing rate.

Using its authority--granted through an arrangement with USDA, Forest Service--to acquire federal excess property, the Forestry Division is currently attempting to develop its capability of delivering large amounts of water to the fireline by truck. Some progress has been made, but at considerable cost in repairs to equipment. Further, preliminary resistance by some firefighters to using water-handling equipment points to a need for training in its proper applications.

To enhance firefighting capabilities, formal training, provided to OFD personnel in the past in a rather fragmented way, has been improved. Recently established training standards have been instituted in a new training program during fiscal year 1982, and training records are being kept on each employee at an Area level.

Firefighting can be dangerous work, and the personal safety of employees engaged in firefighting is of

primary concern to the Forestry Division. District safety meetings are conducted monthly and employees are encouraged to provide input into decisions affecting their well-being. Fire-resistant clothing and, as hazards warrant, emergency "fire shelters" for firefighters were procured during fiscal year 1982.

Fire prevention efforts vary over a wide range of activities. The Division has a Fire Prevention Officer assigned to each of its three administrative Areas in the Eastern Region. These officers, as members of the Areas' staff, have as primary responsibilities the investigation of fire causes, enforcement of forestry laws, and the coordination of the Areas' fire prevention efforts. In addition, Forest Rangers, by law, are responsible to promote fire prevention to the public within their own geographic units. A relatively new approach to fire prevention was begun in 1977 with the formation of two multi-county, multi-agency fire prevention associations in eastern Oklahoma. The Oklahoma Forestry Division had a major role in their formation and continue to participate in their activities.

RELATED PROGRAMS AND ACTIVITIES

Rural Volunteer Fire Departments - Actively participate in wildfire prevention and suppression activities, particularly when fires occur within a reasonably close proximity of their communities. Over 180 volunteer fire departments maintain Cooperative Fire Equipment Lease Agreements with OFD, which has provided them with some wildland fire suppression equipment.

Forest Industry - Actively supports and engages in both fire prevention and suppression efforts. Provides men, equipment, detection, and supplies for suppression activities on their lands, or on those lands adjacent to theirs. Conducts and participates in fire suppression training programs.

Oklahoma State University Extension Service - Disseminates information and educational materials aimed at fire prevention. In addition, OSU Extension takes an active role in the activities of fire prevention associations, both on the local and regional level.

Soil Conservation Service and Soil Conservation Districts - Advocate forest fire prevention in their dealings with private non-industrial landowners.

USDA-Forest Service-State and Private Forestry - Provide OFD with assistance in training, weather, prevention, funding and other functions of fire management and control through the Cooperative Fire Control program.

USDA-Forest Service-Ouachita National Forest - Conducts fire prevention and suppression activities on or near the National Forest. Maintains Cooperative Fire Control Agreement with OFD, providing mutual aid when needed. Coordinates fire prevention efforts with Forestry Division personnel. Participating member of Southeast Oklahoma Fire Prevention Association.

Productivity

ISSUE: There is low productivity on private non-industrial forestlands in Oklahoma.

BACKGROUND CURRENT SITUATION

The majority of eastern Oklahoma's 4.3 million acres of commercial forestland is held by private non-industrial owners, including farmers, ranchers, and miscellaneous landowners. Together, their ownership totals almost 2.8 million acres, or 64% of the commercial forest land-base.

OWNERSHIP OF EASTERN OKLAHOMA'S COMMERCIAL FORESTLAND

	<u>Thousand Acres</u>
National Forest	218.8
Other Public (Fed. & State)	343.8
Forest Industry	991.3
Farmers	1,095.5
Miscellaneous Private	1,674.0
TOTAL	<u>4,323.4</u>

In spite of owning more than twice the acreage forest industry owns in the state, non-industrial private forest landholders produce only about 41% of the sawtimber volume harvested annually, and 48% of the pulpwood, posts and poles. There are good reasons for the low harvest levels, one being the relatively low volumes per

acre on non-industrial private lands, which make harvesting costs high and profits low. And, little is being done, on the whole, to increase merchant ble volumes to levels economically compatible to harvesting costs. An indication of this is the poor growth rates on non-industrial private lands, in contrast to public and industrial forestlands of the region.

AVERAGE NET ANNUAL GROWTH PER ACRE PER YEAR

	GROWING STOCK (Cu. Ft.) (5" - 9" Diam)	SAWTIMBER (Bd. Ft.) (9" + Diam)
Public & Industrial Forestland	37.5	143.2
Non-industrial Private Forestland	21.1	63.0

There is no compatible assessment of growing stock, sawtimber volumes, growth or forested acreages in 59 of Oklahoma's 77 counties, and because of this, an adequate evaluation of the situation on a statewide basis is difficult. However, bottomland hardwoods and some upland forest types throughout the state have potential for production of forest products

In most areas of central and western Oklahoma, commercial species such as pecan, walnut, cottonwood, oaks, maples and ash may be found along major drainages, while post oak-blackjack oak dominate tree occurrence on the upland. The post oak-blackjack forest is a poor quality timber type at best, and is generally considered of little value for products other than fuelwood or charcoal. Instead, soil stabilization, wildlife habitat and other values are considered their primary benefits. On the other hand, bottomland forests in this region are

capable of, and, to a limited extent, are producing trees of commercial quality. But, far too often, these stands are "high-graded" (harvesting best trees while leaving inferior quality trees to dominate and regenerate) for ties, pallets, firewood and other submarginal products. The result is thousands of acres of residual stands requiring substantial investments of time and money if they are to regain even a modicum of productivity.

In eastern Oklahoma's commercially forested region productivity is lowest in the east-central and northeastern areas, where private non-industrial ownership dominates over industrial lands. It is in these areas that the potential for raising production is greatest, not only in the pine forest types, but in the upland and bottomland hardwood forest types as well. Many of the north-facing slopes in northeastern Oklahoma are capable of growing fine quality hardwoods--including red oak, white oak and ash--while such high-valued species as walnut and pecan frequent the bottomlands and coves. Yet, owing to past and continuing misuse imposed by man, much of the area's forest resource is in deplorable condition. In fact, about one of every two hardwoods in these stands, five inches and larger in diameter, contain defects which render it unsuitable for sawtimber now or in the future. Due to fire and overgrazing by livestock, many of these stands have little desirable reproduction in their "understories," making their futures bleak.

A key to improving productivity of forested lands is "timber stand improvement" (TSI). Included under this umbrella are such activities as prescribed burning, deadening or removing cull trees, fertilization, thinning or weeding, and selective harvesting. According to the 1976 Forest Survey, 1.8 million acres of forestland in eastern Oklahoma need some type of TSI. In addition, thousands of acres of riparian and upland forests throughout central and western Oklahoma would benefit greatly from one or more timber stand improvement practices.

One influence over the level of investment and subsequent intensity of management practiced on private non-industrial forestland is the market for raw wood products. A lack of good markets and poor marketing practices have been deterrents in many areas of the state for years. This situation is most evident in central and western Oklahoma, yet is apparent in some areas of eastern Oklahoma as well. The relationship of forest management intensity, which influences the amount of standing timber available, and the availability of good market situations is a reciprocal arrangement, which further complicates the problem.

It is unrealistic to assume that private non-industrial forestlands will ever reach their full productive capacity, even if the needed work were offered to them at no cost and no obligation. Their objectives for their lands are not always, nor should they necessarily be, to produce the maximum amount of wood they are capable of producing. On the other hand, many landowners are unaware of their woodland's potential to produce multiple products, including wood, wildlife, recreation and forage, and this often results in a total lack of management for any purpose.

OKLAHOMA FORESTRY DIVISION'S ROLE IN THE ISSUE

The Oklahoma Forestry Division provides technical and professional forestry assistance upon the request of private non-industrial landowners. The Division employs twenty-five professional foresters, twelve of which carry out the bulk of the on-the-ground landowner assistance. Geographically, seven of these foresters are assigned to the 29 easternmost counties, where most of the state's commercial forestland is located, and the 48 remaining counties are distributed among five foresters (see appendix). In addition, OFD employs six forest technicians who assist landowners in carrying out forest management practices on their holdings.

The majority of the assistance provided to private woodland owners is carried out under one of three

federal/state programs. These are the Rural Forestry Assistance program (RFA), the Forestry Incentives program (FIP), and the Agricultural Conservation Program (ACP). In addition, federal/state funding for accelerated technical assistance is provided by the Resource Conservation and Development program (RC&D) and the PL-534 Watershed program.

The level of technical assistance provided by OFD foresters varies widely, depending on program requirements and the landowner's own objectives. A typical assist involves:

- * Examination and evaluation of the property's management potential
- * Discussion with the landowner concerning his objectives
- * Writing of a management plan giving assessments and recommendations
- * Arrangement for accomplishment of recommendations
- * Evaluation and reporting of accomplishments

Other examples of technical assistance rendered by the Division include timber marking (on a limited basis), damage appraisals, volume estimation, growth projection, and dissemination of market information. The majority of these types of assistance are carried out under the RFA program. The Forestry Division has a policy of limiting activities under this program to five man-days, and landowners are encouraged to use the services of consulting foresters for such activities whenever possible.

One program in particular which has had some success in raising the productivity of private non-industrial forestlands in Oklahoma is the federally-funded Forestry Incentives Program (FIP). Offered in seven eastern counties, FIP reimburses 65% of the costs incurred by the landowner for specified forestry practices, including timber stand improvement (TSI). Payments are processed by the counties' Agricultural Stabilization

and Conservation Service offices, with the Oklahoma Forestry Division providing technical and program development assistance. Since its inception in 1974 through mid-1981, over 26,200 acres of timber stand improvement have been completed on private non-industrial forestland under the program.

But much of the TSI accomplished by the Forestry Division was done prior to the demise of the herbicide, 2,4,5-T by the Federal Environmental Protection Agency in 1979. This action resulted in a substantial reduction in the acreage being treated in Oklahoma, and the higher costs of alternative methods caused the average cost per acre for TSI to increase by almost 60% within a year. The effects of the ban on accomplishments under FIP are as follows:

TIMBER STAND IMPROVEMENT ACCOMPLISHED UNDER FIP (1976-81)

<u>YEAR</u>	<u>ACRES TSI</u>	<u>AVERAGE COST/AC</u>	<u>% COST INCREASE</u>
1975-76	10,209	15.56	
1977	6,680	17.93	- - - - - +15.2%
1978	5,661	19.31	- - - - - + 7.7%
- - - - -	EPA Ban of 2,4,5-T(Feb '79)	- - - - -	+59.7%
1979	967	30.84	- - - - - +16.5%
1980	1,108	35.93	- - - - - - 2.4%
1981	1,589	35.08	
TOTAL	<u>26,214</u> Acres		

RELATED PROGRAMS AND ACTIVITIES

Forestry Consultants - There are currently eight consulting foresters practicing in Oklahoma. Consulting foresters in adjacent states, however, frequently practice in Oklahoma. These foresters assume a large role in the productivity issue as it relates to non-industrial private forestland owners, as they depend on these owners for a portion of their livelihood. Services offered by consultants include appraisals, management planning, marketing assistance, timber stand improvement, tree planting, prescribed burning, timber inventory, and logging supervision. Fees for their services are generally based on a percentage of landowner receipts and/or the magnitude of the services rendered.

Forest Industry - There are three major forest industries in Oklahoma having organized landowner assistance programs. The Weyerhaeuser Company, Nekoosa Papers and Arkansas Kraft Corporation all offer basic services, including management planning and marketing assistance. In addition, all are actively involved, on a national and local basis, with the American Forest Institute's Tree Farm Program.

Oklahoma Conservation Commission and Conservation Districts - Promotes forest management activities on private non-industrial lands for conservation purposes. Some Conservation Districts have tools available to loan or rent to landowners wishing to do their own forestry work. In addition, Districts provide soil surveys and site productivity information. One Conservation District employs a field forester.

Oklahoma State University Extension Service - OSU extension currently has three professional foresters assigned to the state. Two of these have field offices in eastern Oklahoma and deal directly with the public. Extension's role in the issue has been one of providing education and developing and disseminating information concerning all aspects of forestry in Oklahoma. Extension conducts short courses, seminars, the Oklahoma

Youth Forestry Camp and a variety of other projects, all aimed at educating private forestland owners of the financial and environmental benefits derived from forest management.

Soil Conservation Service - Field offices provide technical and professional advice through conservation planning. The SCS promotes forest management through their publications and makes numerous referrals to OFD. In Oklahoma, the SCS employs several professional foresters in both technical and administrative positions. Additionally, SCS is designated the technical wing of federal cost-share programs offered to landowners which encourage the planting of trees for windbreaks and erosion control.

USDA Forest Service, State and Private Forestry - Provides training, expertise and funding to the Oklahoma Forestry Division in carrying out activities to increase productivity of the state's non-industrial private forestland owners.

Wildlife

Issue: There is concern regarding the effect of forestry practices on Oklahoma's wildlife.

BACKGROUND CURRENT SITUATION

The population and health of wildlife are functions of habitat. Intensive forest management practices, particularly harvesting, artificial regeneration and timber stand improvement practices, have considerable effect on wildlife habitat. Indeed, any practice which substantially modifies vegetation and forest species associations has a direct influence on wildlife species utilizing the land. Over the past decade, these effects have come under close scrutiny and have caused substantial controversy among forestry and wildlife interests.

Hunting generates substantial income for the state's economy, as evidenced by the licensing of 290,144 hunters in 1979. The primary game species in Oklahoma's forested region include white-tail deer, wild turkey, squirrel, and quail. It is concern over the effect intensive forestry practices have on these species, particularly deer and turkey, that underlies much of the issue.

Wildlife interests have focused much attention on clearcutting and regeneration practices being implemented on industrial lands in southeastern Oklahoma. It is generally accepted by both forestry and wildlife interests that clearcutting itself is beneficial to deer because it creates "edge" and promotes browse on which deer feed. The size, shape and subsequent grazing of clearcuts, and the regeneration of single species following harvest are underlying factors in this controversy.

Economically, large clearcuts are usually more desirable than small. However, wildlife specialists

promote small, irregularly shaped clearings to provide "edge" and diversity. A roadblock to resolving this issue has been in defining what is "large" and what is "small."

A related factor is that throughout Oklahoma's commercial forestland, open range livestock grazing is traditional. The livestock "carrying capacity" of forestlands being intensively managed is greater than that of land with moderate or no management. In 1970, when forest industry began clearcutting their forestland and establishing pine plantations in eastern Oklahoma, cattle grazing increased sharply. Many newly established plantations were severely damaged as a result of the trampling and browsing of young seedlings. Some control has been gained at considerable cost in fenced leases, but overgrazing continues to be a problem in some areas.

Additionally, livestock are direct competitors with some species of wildlife, particularly browsing species such as deer. Owing to their domestic nature and less selective feeding habits, livestock generally prevail. A recent decline in the health and vigor of whitetail deer in heavily grazed areas of southeastern Oklahoma's commercial forestland is largely attributable to this situation.

Of singular concern to wildlife interests, however, is the establishment of monocultures (single species) over vast acreages on both forest and agricultural lands throughout the state, with an attendant decrease in the diversity of wildlife habitat. In western Oklahoma, concern has been focused on the removal of original windbreaks and shelterbelts to create more farmland. This practice was common during the 1960's and 1970's, and its effects on local wildlife populations were significant. In the eastern part of the state, this concern was partially mollified by the banning of the herbicide 2,4,5-T in February of 1979, which indirectly resulted in maintaining diversity of tree species in some recently established pine plantations, although in shrub and

small tree form.

Game habits illustrate the concern over maintaining diversity. Wild turkey, for example, prefer old growth hardwood stands with relatively open "understories" and scattered clearings over pure stands of pine. They utilize large hardwood trees for food and roosting. Forest management practices over most of Oklahoma's commercially forested region, on the other hand, favor pine over hardwood.

There is also concern for timber practices being carried out in Oklahoma's bottomland hardwood forest types. Harvests on these lands, for example, are frequently made with little regard for "mast" production and roosting sites. This situation is particularly critical in western Oklahoma due to the relative scarcity of forested land available to wildlife.

Attitudes of landowners play a key role in the quantity and quality of wildlife habitat. Private non-industrial forestland owners, who hold between 60% and 70% of the commercial forestland in the state, generally place high values on wildlife. However, many lack knowledge of land management practices which improve wildlife habitat, and some presume that wildlife populations flourish when left undisturbed, a presumption wildlife biologists refute. Many forestry practices, when applied properly, are beneficial to both wood production and wildlife populations.

Although owning only 23% of eastern Oklahoma's commercial forestland, forest industry's holdings are generally concentrated into large continuous blocks. Due to this ownership pattern, forest industry's impact on wildlife habitat in a geographic region is substantial. Three forest industries with major land holdings of 50,000 acres or more are located in southeastern Oklahoma and each has differing policies concerning the management of wildlife habitat on its holdings.

Another factor influencing wildlife habitat is the loss of forested lands to other uses. Some 585,800 acres of forestland was converted to farm and pastureland between 1966 and 1976. Coupled with smaller losses to urbanization, water impoundments and other uses, significant amounts of wildlife habitat have been altered or destroyed.

Increased concern for rare and endangered species is a result of recent environmental movements in Oklahoma as well as throughout the nation. Alteration of habitat is considered to be the primary reason for species becoming rare or extinct. Presently, eleven species of wildlife occurring in Oklahoma are "officially" listed as being in danger of extinction. The range of many of these endangered species is now and has always been extremely limited in the state. Some endangered species, such as the red-cockaded woodpecker, rely heavily on old-growth forest stands, most of which have been harvested. Some progress toward maintaining habitat for endangered species has been made, however, most concerted efforts have been confined to public lands.

OKLAHOMA FORESTRY DIVISION'S ROLE IN THE ISSUE

The Forestry Division maintains a policy of promoting multiple-use of the state's forest resource, including wildlife. Recommendations on the maintenance and improvement of wildlife habitat are included in most forest management plans written by Division foresters for private non-industrial landowners.

In addition, the Forestry Division has, for several years, assisted the Oklahoma Department of Wildlife Conservation in modifications and improvements of habitat on their lands. This assistance has consisted of supplying trees and shrubs for planting and the development of timber sales in Wildlife Management Areas located in the commercially forested region.

The Oklahoma Forestry Division has no formal role in the issues involving wildlife habitat on industrial forestland.

RELATED PROGRAMS AND ACTIVITIES

Forest Industry - The three major forest industries located in Oklahoma have varying policies concerning wildlife habitat. The largest, Weyerhaeuser Company, has recently made concessions to wildlife habitat improvement by developing a rather comprehensive policy of management on some of its holdings. This action was described as "significant" by officials of the Oklahoma Department of Wildlife Conservation and Governor George Nigh. Industry allows free hunting and fishing on its ownership.

Oklahoma Department of Wildlife Conservation - While recognizing the importance of wood production in the state's commercially forested region, the Department of Wildlife Conservation takes an active role in protection of wildlife habitat and the issues related to intensive forest management. The Department maintains a staff of wildlife biologists who monitor the health, vigor and population of wildlife species in the state. In addition, field biologists and rangers are available to assist private non-industrial landowners in development of habitat improvement practices through their "Acres for Wildlife" and other technical assistance programs.

Oklahoma State University Extension Service - OSU Extension encourages private landowners to manage their lands for multiple-use benefits, including wildlife. Extension publishes "Fact Sheets" dealing with management practices beneficial to wildlife populations.

Oklahoma Conservation Commission, Conservation Districts & Soil Conservation Service - The SCS and Conservation Districts provide technical assistance to private landowners in planning and implementation of management

and soil and water conservation practices. Conservation plans, based on the landowners' own objectives, usually include practices beneficial to wildlife.

United States Forest Service, Ouachita National Forest - Wildlife habitat improvement is a high priority in the multiple-use concept applied to the Ouachita National Forest. In cooperation with the Oklahoma Department of Wildlife Conservation, the USFS has set aside areas to be managed with primary emphasis on wildlife. Emphasis is placed on non-game as well as game species.

Others - Many organizations, agencies and special interests are involved in issues pertaining to Oklahoma's wildlife. Among them are the Wildlife Federation, Sierra Club, Oklahoma Forestry Association, Oklahoma Conservation Commission, Oklahoma Department of Tourism and Recreation, U. S. Army Corp of Engineers, Oklahoma Chapter Wildlife Society, Bureau of Indian Affairs, Nature Conservancy, Audobon Society, The Noble Foundation, and various other hunting, fishing and/or environment associations.

Urban Forests

ISSUE: Lack of management has diminished the health and value of Oklahoma's urban forests.

BACKGROUND CURRENT SITUATION

Trees in Oklahoma's urban areas provide a number of economic and social benefits. The presence of healthy trees contributes to the urban "quality of life" by improving appearance of surroundings, increasing privacy, aiding in noise control and providing habitat for birds, squirrels and other urban wildlife. In addition, studies have shown trees to contribute to energy savings through their summer cooling and winter insulating effects. Real estate values of tree covered lots are substantially greater than values of barren homesites, and a city's attractiveness to new business is greatly enhanced by a healthy urban forest. Despite these benefits, the forests in urban areas of the state have steadily declined over the years as a result of man's activities and neglect.

More than half of Oklahoma's population resides in towns and cities of greater than 10,000 people, with approximately 40% living in the metropolitan complexes of and immediately surrounding Oklahoma City, Tulsa and Ft. Smith, Arkansas. The metropolitan population continues to increase and this growth, with its related construction, greatly influences the number and health of trees, as few construction companies and city planners have the professional knowledge required to take precautionary measures against stress and damage.

Additionally, most municipal governments in Oklahoma have no forestry programs, and planting and replacement programs have largely been haphazard. Urban forestry, for the most part, is left to Chamber of Commerce committees and other civic organizations. In some instances, these groups have done commendable

jobs in developing new plantings and maintaining existing flora, but a lack of professional expertise has often resulted in many good efforts ending in vain. Owing also to the temporary nature of the organizations, and to their inconsistent funding, maintenance of the work accomplished is often lacking.

Homeowners in the state's smaller cities and towns, meanwhile, frequently find difficulty in obtaining professional assistance in caring for shade trees in their yards. Often, lacking knowledge of such things as plant physiology, homeowners become their trees' own worst enemies. Improper pruning and bark damage due to carelessness, as examples, put trees under enormous stress and are frequent causes of decay and premature tree deaths in the urban forest. When trees die their replacements are expensive and newly planted trees take many years to reach the size and utility of their predecessors.

OKLAHOMA FORESTRY DIVISION'S ROLE IN THE ISSUE

In 1972, Public Law 92-288 gave the U. S. Forest Service the responsibility to assist the states in establishing urban forestry programs. Since 1978, the Oklahoma Forestry Division has maintained an urban program with 50% federal matching funds.

The Forestry Division has two urban foresters stationed across the state who provide professional assistance to municipalities and homeowners alike. During the past four years, they have assisted 20 cities in developing comprehensive forestry programs to improve the quality of their resources, and 75 other communities with a variety of assists. In addition, over 7200 homeowners have been assisted with various ornamental and shade tree problems, and more than 300 educational programs have been presented to schools, civic clubs and other groups, with over 11,300 attendees.

Examples of the work urban foresters perform include street tree inventories, analysis of suitable

species, assessment of insect and disease problems, development of tree maintenance programs and providing input into city policies and ordinances concerning urban forests. Educational and training programs have been used for citizens to become more aware of urban trees and their care, as well as forest management in general.

Information and education directed toward the public is vitally important if degradation of Oklahoma's urban forest is to be checked. The Forestry Division puts forth great effort to obtain publicity for its urban efforts and to inform urban dwellers of the benefits they receive from their trees, as well as their proper care and maintenance.

RELATED PROGRAMS AND ACTIVITIES

Municipalities - Some municipalities, including Oklahoma City, Tulsa, Ada and Norman, have urban foresters and/or horticulturists currently employed or in a consulting capacity. Interest groups in some of these cities, such as OKC Beautiful and Up With Trees (Tulsa), have organized to improve their urban environment. Many community chambers of commerce have Environmental Committees and Tree Boards as part of their organization. Some city parks are active in maintenance and development of urban forests.

OSU Extension Service - Consulting services and homeowner assists as well as information and education services are provided by professional foresters, horticulturists and county agents employed by OSU Extension.

Soil Conservation Service - In cooperation with the Oklahoma Conservation Commission and its Conservation Districts, provides planning and technical assistance to individuals, schools, municipalities and other groups to improve their urban forestry situations.

Others - Organizations such as utility companies, the Department of Transportation, and the Oklahoma Home-builder's Association are also involved to some extent in urban forestry, and each has significant influence in the issue.

Recreation

ISSUE: Oklahomans desire a diversity of wildland recreational opportunities and have high standards of aesthetic qualities.

BACKGROUND CURRENT SITUATION

Demand placed on Oklahoma's forestlands to supply abundant and diverse recreational opportunities has increased substantially over the past ten years, creating both problems and opportunities for public and private forestland owners in the state.

Primitive wildland recreational opportunities in eastern Oklahoma, particularly, are readily available on several million acres of both managed and unmanaged forestland. While most private landowners do not deliberately invite public recreation on their lands, uncontrolled access has made this use both expected and generally accepted for such activities as trailbike riding, "four-wheel" driving, primitive camping, hunting and fishing.

The seasonal nature of tourism and wildland recreation has provided little incentive to private landowners to invest in development of recreational facilities on their holdings. Yet, exceptions have become more frequent in the last ten years as public demands continue to rise. Private developments have centered primarily around the state's thirty-five large water impoundments and have largely been aimed at the increasing demands for recreational vehicle campgrounds and cabins. But other opportunities also exist.

Hunting and fishing, for example, are favorite recreational pastimes for many Oklahomans, and private landowners can take advantage of the rising demand for places in which to participate in the sports. Acti-

vities in leased hunting and/or fishing privileges on private lands have increased throughout the state and indications are that they will continue to do so.

Many public landowners already provide diverse and well-developed facilities for both traditional and non-traditional recreation, but the constantly changing desires of recreationists can cause perplexing problems for public landowners striving to provide the opportunities expected of them.

One example of response to public demand is the development of trail systems throughout Oklahoma. Spurred by increased public interest in backpacking and hiking, public landowners have developed over 43 trails extending more than 200 miles on state and federal lands within the past ten years.

Coupled with most issues concerning recreation are the high values Oklahomans place on the aesthetic attractiveness of the landscape. It is because of these values that environmental and recreation interests are deeply concerned with the effects some forestry practices have on visual impact.

Most recreational and forestry interests agree that newly harvested forest tracts are visually unattractive and efforts to reduce the adverse visual impact have been made by some public forestland managers. Such practices as modification of harvesting methods and "greenbelting" major highways are implemented on some public forestland, usually at some expense in production.

On the other hand, forest industries, which are faced with supplying over 60% of the state's timber harvest from less than 23% of its commercial forestland, place production priorities over aesthetic considerations. In fairness, industry has made some concessions to aesthetic considerations, though most were made in politically and/or environmentally "sensitive" areas.

Overall, the aesthetic qualities of Oklahoma's forestland are high, owing largely to the vast majority

held in private non-industrial ownership. Most of these owners hold the visual attractiveness of their woodlands in high regard and this presents some obstacle to attaining maximum forest production from these lands.

OKLAHOMA FORESTRY DIVISION'S ROLE IN THE ISSUE

The Oklahoma Forestry Division provides technical forestry assistance to private non-industrial landowners. Forest management plans prepared for these owners reflect the landowners' own objectives regarding recreation and aesthetics.

The Forestry Division owns very little forestland and consequently no recreational facilities have been developed by the agency. Fire lookout towers, however, are open to the public for observation of their surrounding countrysides. Visitor information booths at these lookout sites were constructed in years past, but are currently not well maintained.

Limited maintenance on existing mountain roads is performed by OFD for fire access. These roads are also frequently used by recreationists and cabin owners. New construction and major maintenance are restricted by existing equipment capabilities.

Through past contracts with the U.S. Army Corps of Engineers, the Forestry Division was responsible for vegetative management in recreation areas surrounding twelve large Corps reservoirs in Oklahoma. The activities involved included site preparation, tree planting, stand maintenance and transplanting. The Division's involvement in these activities ended during fiscal year 1982, after twelve years.

RELATED PROGRAMS AND ACTIVITIES

Oklahoma Tourism and Recreation Department - Lead recreation agency in Oklahoma. The Department maintains

77 parks and recreation facilities in the state, located both in forested and non-forested regions. Development of these facilities has progressed greatly over the past 10 years. Currently the Department operates seven state lodges and sixteen parks with assigned camping. In 1980, 20 million people utilized the Department's park and recreational facilities. Trails, interpretive programs, planned camping facilities and other improvements have vastly increased the utility of the State Park System.

USDA Forest Service, Ouachita National Forest - Recreation and aesthetics take a high priority in the multiple-use concepts being implemented on the National Forest in Oklahoma. In addition to its "open land" policies, the USFS maintains numerous developed recreation areas. Among the recreational opportunities available are hiking, backpacking, camping, fishing, hunting, and swimming.

U. S. Army Corps of Engineers - The twenty-six Corps water impoundments draw tremendous recreational use in Oklahoma. Developed and primitive campgrounds, marinas, and hiking trails are among the facilities developed for recreationists. Greatest concentration of reservoirs is in eastern Oklahoma where a series of seven upstream and two mainstem lakes make up the McClellan-Kerr Arkansas River Navigation System, linking Tulsa to the Mississippi River. There are another five Corps reservoirs currently authorized within the state.

Oklahoma Department of Transportation - Opportunities for recreational development along the State highway system abound. The Department of Transportation has made significant contributions to public recreation by establishing scenic turnouts and roadside parks. The Department, in cooperation with the Ouachita National Forest, built the Talimena Drive, a highway traversing the Winding Stair Mountain range, exclusively for its visual attractiveness.

Forest Industry - Three major forest industries with holdings of more than 50,000 acres are located in eastern Oklahoma. All maintain "open land" policies, cumulatively providing over one million acres of wildland for recreational use. Although little or no development of recreational facilities has been undertaken, an extensive road system has been established during the last 10 years, providing access to previously inaccessible areas.

Municipalities - Many cities and towns own lands open for public recreation. Municipal lakes are often developed for camping, picnicking, fishing and swimming.

Others - Many other forestland owners, both public and private, have important roles in wildland recreation. Recreational opportunities are provided as secondary benefits to a variety of activities ranging from the building of livestock ponds to forest road construction. Among the many agencies and organizations involved with various aspects of recreation in Oklahoma are the Soil Conservation Service, State Department of Wildlife Conservation, Sub-state planning districts, Bureau of Indian Affairs, U. S. Department of Defense, U. S. Department of Interior, Resource Conservation and Development Districts, and many local tourism promotional groups such as Kiamichi Country and Green Country.