Oklahoma's Forest Ecosystems: Their Current Condition and Potential Contribution

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In 1999, Oklahoma Governor Keating and Oklahoma Agriculture Commissioner Howard convened a conference to discuss the future of Oklahoma's forest ecosystems. This paper is based on a presentation prepared for that conference to (a) describe Oklahoma's forest ecosystems, (b) the environment in which they exist, and (c) their current and potential contributions to the lives of Oklahoma's people. Oklahoma's forest ecosystems exist in an environment of increasing global demand for forest products. They are part of a region of the United States that includes almost a third of the nations forest inventory and 2/3 of the primary processing capacity of the forest products industry. Oklahoma's timber resources are underutilized with annual removals and mortality equal to half of annual growth. Timber ranks third, behind winter wheat and hay, in value of agricultural crops produced in Oklahoma. Timber-based manufacturing contributes 2% of manufacturing's contribution to gross state product. Estimates of the value of forage products and recreational services produced by Oklahoma's forests are presented. The contributions of forest ecosystems to wildlife habitat and an array of environmental elements are noted. These environmental benefits include human habitats in urban environments. Opportunities to increase the contributions of the State's forest ecosystems are identified.

INTRODUCTION

In 1999 Oklahoma Governor Frank Keating and Oklahoma Agriculture Commissioner Dennis Howard convened a conference to discuss the future of Oklahoma's forest ecosystems (*1*). This paper is based on a presentation prepared for that conference to describe (a) Oklahoma's forest ecosystems, (b) the environment in which they exist, (c) their current and potential contributions to lives of Oklahoma's people. These objectives will be met by presenting information on (a) the context within which Oklahoma's forest ecosystems exist, (b) a description of Oklahoma's forest resources, (c) the estimated value of the timber harvest, (d) the contribution of timber-based manufacturing to Oklahoma's economy, (e) descriptions of non-timber outputs and services, and (f) potential contributions.

Context of Oklahoma's Forest Resource

Global: The forest and woodland resources of the world are not distributed equally. They range from a minimum of 0.2 ha per capita in Asia to a maximum of 6.8 ha/capita in Oceania (Table 1; *2*). The world average is 0.7 ha per capita. The United States average is 1.1 ha/capita. Oklahoma has slightly

TABLE 1. World inventory of forest and woodland 1994.

Region	Population[a] (no. x 10^3)	Land Area[b] (ha x 10^3)	Forest & Woodland[b] (ha x 10^3)	PerCapita Forest & Woodland (ha)
Africa	778,484	2,963,468	713,405	0.9
Europe	729,406	2,260,320	947,761	1.3
North America	304,078	1,838,009	749,290	2.5
United States	273,754	915,912	295,990	1.1
Oklahoma[c]	3,322	17,788	3,051	0.9
Central America	130,710	264,835	74,524	0.6
South America	331,889	1,752,925	934,860	2.8
Asia	3,588,877	3,085,414	556,996	0.2
Oceania[d]	29,460	849,135	200,252	6.8
WORLD	5,929,839	13,048,300	4,177,088	0.7
Developing	4,748,310	7,585,948	2,273,406	0.5
Developed	1,181,530	5,462,356	1,903,683	1.6

[a] From Data Table 7.1, pp. 244-245 (*3*).
[b] From Data Table 11.4, pp. 294-295 (*3*).
[c] Population from (*5*). Land, forest, and woodland area from Table 1, pp. 22-23 (*4*).
[d] Australia, New Zealand, and islands of the South Pacific.

less than the National average area of forest and woodland at 0.9 ha/capita (*3,4*).

The average annual consumption of roundwood forest products from the world's forest and woodland ecosystems for timber, fiber, and fuel also varies greatly. During the 1993-1995 period, per capita consumption of roundwood forest products ranged from 0.3 m^3/yr. in Asia to 2.3 m^3/yr. in North America (Table 2; *2*). The world average is 0.6 m^3/capita/year. Fifty six percent (1.9 x 10^3 m^3) of this consumption is used for fuel. During this period, the United States consumed an average of 1.9 m^3/capita/year.

The world's forest and woodland ecosystems are under increasing pressure as a result of economic development in addition to population growth. If developing countries achieve the current average annual per capita level of global consumption by the year 2025, the world's forests will have to increase their annual output by 55% (1.8 x 10^9 m^3).

National: Assessments of the United States forest resource conducted by the U. S. Forest Service place Oklahoma in the Southern Region (Fig. 1). Almost 1/3 of the growing stock inventory of the United States is in this region. The Southern Region is followed in order of importance by the Pacific Coast, North, and Rocky Mountain regions (Table 3; *3*).

During the period from 1991 to 1998 the United State's growing stock inventory was increasing at a rate of 612 million m^3/yr. (*3*).

Figure 1. U.S. Forest Service assessment regions.

TABLE 2. Average annual global roundwood consumption 1993-1995.

Region	Population[a] (no. x 10^3)	Average[b] Annual Roundwood[d] Production 1993-1995 (m^3 x 10^3)	Average[b,c] Annual Net Trade in Roundwood[d] 1993-1995 (m^3 x 10^3)	Average[b] Annual Roundwood[d] Consumption 1993-1995 (m^3 x 10^3)	Average Annual Per Capita Consumption 1993-1995 (m^3)
Africa	778,484	567,133	-5,717	572,850	0.7
Europe	729,406	484,169	4,096	480,073	0.7
North America	304,078	684,296	-14,397	698,693	2.3
United States	273,754	499,873	-18,059	517,932	1.9
Central America	130,710	69,766	-251	70,017	0.5
South America	331,889	382,557	-9,110	391,667	1.2
Asia	3,588,877	1,137,710	52,720	1,084,990	0.3
Oceania	29,460	48,468	-16,105	64,573	2.2
WORLD	5,929,839	3,374,100		3,374,100	0.6
Developing	4,748,310	2,060,995	-10,284	2,071,279	0.4
Developed	1,181,530	1,254,267	21,932	1,232,335	1.0

a From Data Table 7.1, pp. 244-245 (*3*).
b From Data Table 11.3, pp. 296-295 (*3*).
c Quantity of net trade is defined as the balance of exports minus imports.
d The measurement of round timber or equivalent that assesses the solid volume (i.e. total wood content) of a stem or log in cubic units.

TABLE 3. Net volume of growing stock inventory, growth, removals, and mortality by region in the United States 1991-1998.

Region	Inventory[a] ($m^3 \times 10^6$)	Growth[b] ($m^3 \times 10^6$)	Removals[b] ($m^3 \times 10^6$)	Mortality[b] ($m^3 \times 10^6$)	Net Change[c] ($m^3 \times 10^6$)	Drain as Percent Growth (%)
North	5,865	152	79	44	28	81.2
South	7,096	278	254	63	-38	113.5
Rocky Mountains	3,122	62	23	19	19	69.7
Pacific Coast	6,164	121	106	29	-14	111.7
United States	18,711	612	462	155	-5	100.8

[a] From Table 11, pp. 46-47 (*4*).
[b] From Table 35, pp. 108-109 (*4*).
[c] Net Change = Growth - (Removals + Mortality).

During the same period the drain (mortality + removals) on this inventory was 617 million m^3/yr.

During the same period the primary processing segment of the forest products industry in the United States had a capacity of 700 million m^3/yr. (Table 4) ((Personal communication from P. J. Ince, USDA, Forest Service, Forest Products Laboratory, Madison, WI, Oct. 1999; *5,6*). However, this estimate of capacity includes facilities whose raw material needs are met by residuals from other primary processing facilities.

For the decade of the 90's the U S Forest Service adopted a long-term strategic plan for the United States' forest and rangeland resources that identified four major goals to be pursued (*7*): (a) enhancing the production of outdoor recreation, wildlife and fisheries outputs, and the value of forest and range resources; (b) increasing the environmental sensitivity with which commodities are produced; (c) expanding the scientific knowledge that is the basis for management and protection of forest and range ecosystems; and (d) responding to global resource issues by expanding scientific exchange and technology transfer.

Regional: The forest inventory of the Southern Region is controlled by non-industrial private owners (Table 5; *3*). These owners control almost 3/4 of the regions growing stock inventory.

The Region's forests grew at an average rate of 278 million m^3/yr. during the period from 1991 to 1998 (*3*). During this same period the losses from mortality and removal of trees from the inventory averaged 317 m^3/yr.

TABLE 4. Industrial roundwood capacity in the United States by region 1997-1998.

Region	Lumber[a] ($m^3 \times 10^6$)	Oriented Strandboard[b] ($m^3 \times 10^6$)	Plywood[c] ($m^3 \times 10^6$)	Particleboard[d] ($m^3 \times 10^6$)	Fiberboard[e] ($m^3 \times 10^6$)	Pulp[f] ($m^3 \times 10^6$)	TOTAL ($m^3 \times 10^6$)
North	27.043	11.286		0.083	0.022		
South	104.803	3.798	24.672	0.378	0.107	314.390	448.148
Rocky Mtns	24.457	0.526	2.334	0.052	0.009		
Pacific Coast	50.387	0.479	10.301	0.224	0.021		
United States	206.690	16.089	37.307	0.737	0.159	440.068	701.050

a From Table 2 (*7*).
b From Table A1 (*8*).
c From Tables A2-A5 (*8*).
d From Table A9 (*8*).
e From Table A11 (*8*).
f Personal communication from P. J. Ince, USDA, Forest Service, Forest Products Laboratory, Madison WI., Oct. 1999.

TABLE 5. Net volume of growing stock inventory, growth, removals, and mortality by ownership class in the Southern Region 1991.

Ownership Class	Inventory[a,g] Softwood ($m^3 \times 10^6$)	Inventory[a,g] Hardwood ($m^3 \times 10^6$)	Inventory[a,g] Total ($m^3 \times 10^6$)	Average Annual Growth[b] ($m^3 \times 10^6$)	Average Annual Removals[c] ($m^3 \times 10^6$)	Average Annual Mortality[d] ($m^3 \times 10^6$)	Net Change[e] ($m^3 \times 10^6$)	Drain as Percent of Growth (%)
National Forest	250	298	548	14	11	6	-3	118.7
Other Public	160	224	384	11	6	3	2	80.3
Forest Industry	681	480	1,161	65	82	10	-27	141.7
Non-industrial Private[f]	1,823	3,179	5,003	188	155	44	-10	105.4
TOTAL	2,915	4,181	7,096	278	254	63	-38	113.5

[a] From Table 12 & 13, pp. 48-55 (*4*).
[b] From Table 33, pp. 102-103 (*4*).
[c] From Table 34, pp. 106-107 (*4*).
[d] From Table 32, pp. 98-99 (*4*).
[e] Net Change = Growth - (Removals + Mortality).
[f] Includes all private owners of forest land except corporations and individuals operating wood using plants (either primary or secondary).
g The volume of sound wood in growing-stock trees at least 127 mm in d.b.h. from a 0.3 m stump to a minimum 102 mm top d.o.b. of the central stem or to the point where the central stem breaks into limbs.

From 1992 to 1999 the annual roundwood capacity of the primary processing segment of the forest industry in the Region averaged 448 million m^3 (Table 4) (Personal communication from P. J. Ince, USDA, Forest Service, Forest Products Laboratory, Madison, WI, Oct. 1999; *5, 6*). This represents 64% of the national capacity of the primary processing segment of the forest products industry. As is the case for national statistics, some of the raw material needs for this capacity are being met by residuals from other primary processing facilities. The Region's industrial capacity is substantially in excess of the annual growth of its forests.

OKLAHOMA'S FOREST RESOURCE

Description

Land use: Forest ecosystems occupy 3.5 million ha, one ha in five of the land in Oklahoma. Three/fourths of this area is classified as timberland (Table 6; *8,11*). The remaining 870 thousand ha are classified as woodland.

TABLE 6. Oklahoma area by land class and region 1989-1993.

County	All Land[b] ($ha \times 10^3$)	Forest Land[d] Total ($ha \times 10^3$)	Timberland[e] ($ha \times 10^3$)	Woodland[f] ($ha \times 10^3$)	Reserved Timberland ($ha \times 10^3$)
Eastern Oklahoma[a]	4,088.9	2,192.5	1,981.1	193.2	18.2
Central and West Oklahoma[c]	13,663.6	1,259.1	583.2	675.9	0.0
TOTAL	17,752.5	3,451.6	2,564.3	869.1	18.2

a From Table 1, p. 5 (*10*).
b County areas from Table 2.07, p. 29 (*13*)
c For Alfalfa, Beaver, Cimarron, Custer, Ellis, Grant, Greer, Harmon, Harper, Jackson, Kiowa, Murray, Texas, Tillman, Woods, and Woodward Counties estimates of timberland and woodland are derived from (*12*).
d From Tables C1 and D1, pp. 13 and 26 (*11*).
e Forest land that is producing, or is capable of producing crops of industrial wood and is not withdrawn from timber utilization. Timberland is synonymous with commercial forest land and is capable of producing in excess of 1.4 m3/yr of industrial wood in natural stands. Areas that are currently inaccessible and inoperable are included.
f Forest land incapable of yielding crops of industrial wood because of adverse site conditions.

Figure 2. Oklahoma regions.

Two/thirds of Oklahoma's forest ecosystems are in the Eastern Region (Fig. 2). Two million ha of Oklahoma's timberlands are part of the Eastern Region's forest ecosystems (*8,11*).

Inventory: Two/thirds of Oklahoma's growing stock inventory is controlled by non-industrial private owners (Table 7; *8,9*). This landowner class controls a smaller portion of the forest inventory in Oklahoma than in the Southern Region as a whole. In the Eastern Region, almost half of the State's growing stock inventory is controlled by non-industrial private owners. An additional 20% of the State's growing stock inventory is controlled by forest industry. In total, private owners control 86% of Oklahoma's growing stock inventory, and 82% of this inventory is in the Eastern Region (*8,9*).

During the 1989-1998 period Oklahoma's forests grew at the rate of 5.5 million m^3/yr. During the same period drain (the sum of removals and mortality) averaged 2.8 million m^3/yr. As a result the forest inventory of the State increased at an average rate of 2.8 million m^3/yr. This resulted in an increase in Oklahoma's growing stock inventory of 28 million m^3 during the 10-yr. period (*8,9*).

During the 1997-1998 period the annual roundwood capacity of the primary processing segment of the forest products industry averaged 10 million m^3 (Table 8; Personal communication from P. J. Ince, USDA, Forest Service, Forest Products Laboratory, Madison, WI, Oct. 1999; *5,6*). As in the cases of the national and regional estimates of capacity, this capacity estimate includes facilities whose raw material needs are met by mill residuals. In this case, the capacity requirements that are being met by mill residuals are 8.6 million m^3, 86% of total capacity. The remaining annual capacity, 1.4 million m^3 is 25% of the average annual growth during the 1989-1998 period.

In summary, one ha in five in Oklahoma is occupied by forest ecosystems. Two/thirds of the State's forest inventory is controlled by non-industrial private landowners. The current levels of forest growth and drain are sustainable. Sustaining the raw material requirements of the existing industry requires the importation of the equivalent of 4.4 million m^3/yr. as mill residuals.

Value of Harvest

In 1998, Oklahoma's timber harvest had a delivered value of $187 million (Table 9; *12,13*). Sixty-six percent of this value was in sawlogs. Pulpwood was the second most

TABLE 7. Oklahoma timberland growing stock inventory by ownership class and region with annual changes by region 1989-1998.

	Inventory					Average	Annual	Change	
Region	National Forest ($m^3 \times 10^6$)	Other Public ($m^3 \times 10^6$)	Forest Industry ($m^3 \times 10^6$)	Non-Industrial Private ($m^3 \times 10^6$)	Total ($m^3 \times 10^6$)	Growth ($m^3 \times 10^6$)	Removals ($m^3 \times 10^6$)	Mortality ($m^3 \times 10^6$)	Net Change ($m^3 \times 10^6$)
East[a]	8.3	6.4	21.2	49.1	85.0	5.0	2.4	0.4	2.2
Central & West[b]				18.8	18.8	0.6		0.0	0.5
TOTAL	8.3	6.4	21.2	68.0	103.8	5.5	2.4	0.4	2.8

[a] From Tables 17-19, and 22 (*10*)..
[b] Based on Tables C1, C11, and 17 (*11*).

TABLE 8. Oklahoma annual industrial roundwood capacity 1997-1998.

	Capacity ($m^3 \times 10^6$)
Lumber[a]	1.08
Oriented Strandboard[b]	
Plywood[c]	0.29
Particleboard[d]	
Fiberboard[e]	0.01
Pulp[f]	8.57
TOTAL	9.95

[a] From Table 2 (*7*).
[b] From Table A1 (*8*).
[c] From Tables A2-A5 (*8*).
[d] From Table A9 (*8*).
[e] From Table A11 (*8*).
[f] Personal communication from P. J. Ince, USDA, Forest Service, Forest Products Laboratory, Madison, WI, Oct. 1999.

tribution to gross state product (Table 10; *15*). During the same period manufacturing based on agricultural crops contributed 3% to gross state product. Each dollar of agricultural crop harvested produces $0.43 of manufacturing value added while $1 of timber harvest produces $1.63 of manufacturing value added.

Non-Timber Uses and Services

Forage production: The area of forest land currently under grazing leases is not known. However, Lewis and Goodier (*16*) estimated the 1984 annual rental value of forage produced on forest land in Oklahoma at $29.9 million.

Recreation: A current estimate of the value of recreation produced by Oklahoma's forest ecosystems is also not available. However, Lewis and Goodier (*16*) reported a value for outdoor recreation in Oklahoma for 1985 at $1.5 million. They also reported that the potential revenue, at that time, to landowners for hunting leases at $26 million/yr.

TABLE 9. Oklahoma timber production and output value 1998.

	Sawlogs		Veneer and Other Industrial		Pulpwood		TOTAL
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	
Output ($m^3 \times 10^6$)a	1.297	0.228	0.521	0.004	0.815	0.331	3.196
Delivered Price ($/$m^3$)[b]	85.44	57.69	48.89	57.69	34.61	27.98	
Output Value ($ x 10^6)	110.8	13.2	25.5	0.2	28.2	9.3	187.1

[a] From Table 1, p. 9 (*14*).
[b] From (*15*).

important element of the timber harvest, accounting for 20% of the harvest value. At $187 million, timber ranked third, behind winter wheat and hay in value of agricultural crops grown in Oklahoma and accounted for 16% of the total value of agricultural crops (*14*).

In 1996 roundwood exports and imports for the State were almost equal (*12*). Roundwood equivalent exports totaled 0.6 million m^3 while imports totaled 0.5 million m^3.

Contribution of Timber-Based Manufacturing

In 1992 timber-based manufacturing was responsible for 2% of manufacturing's con-

Additional uses and services: In addition to the outputs and services that are used by individuals, there are a number of additional services provided by forests for all of society. These include the maintenance and improvement of water quality. The improvement in water quality is largely through the stabilization of soils and soil nutrients and the maintenance and enhancement of aquatic ecosystems.

Forest ecosystems are also major carbon sinks and play an important role in climate

TABLE 10. Oklahoma statistics for agricultural-crops and timber based manufacturing 1992.

SIC Code	Industry	Establishments (no.)	Employees (no. x 10^3)	Payroll ($ x 10^6)	Value Added ($ x 10^6)	Value of Shipments ($ x 10^6)
	All Industries	4,064	155.9	4,263.3	13,731.4	30,174.6
	Agriculture - Crops					
203	Preserved fruits and vegetables	18	1.5	28.2	114.3	272.8
204	Grain mill products	47	1.5	37.1	254.0	754.9
207	Fats and oils	9	0.5	13.7	63.0	205.3
	Total	74	3.5	79.0	431.3	1,233.0
	Percent of All Industries	1.8	2.2	1.9	3.1	4.1
	Timber					
241	Logging	27	0.3	8.7	34.7	109.3
242	Sawmills and planing mills	24	0.5	9.9	28.2	81.6
249	Miscellaneous wood products	28	0.3	5.9	16.1	29.2
2436	Softwood veneer and plywood	1	0.3	6.5	18.1	38.6
26	Paper and allied products					
2621	Paper mills	3				
2631	Paperboard mills	4				
	Paper and allied products Sub-total	7	0.7	37.2	207.9	472.4
	TOTAL	87	2.1	68.2	305.0	731.1
	Percent of All Industries	2.1	1.3	1.6	2.2	2.4

[a] From Table 5, pp. 9-15 (*17*).

regulation. In addition to their role in the global carbon cycle forest ecosystems play an important role sequestering a broad array of pollutants (*17*).

Potential Contributions

In 1982, an analysis of the potential of Oklahoma's forests was undertaken as part of an analysis of the potential of the forests in the Southern Region (*16,18*). One element of this analysis, which was based on Oklahoma's 1986 forest inventory, was the estimation of areas of timberland in Eastern Oklahoma that would benefit from investments in forest management. This analysis identified 1.2 million ha of timberland that would generate an economically attractive return to investments to improve timber growth (*16*).

Lewis and Goodier (*16*) also identified economically attractive opportunities for conversion of marginal crop and pastureland. This analysis identified 108 thousand ha for conversion to forest ecosystems. In addition to these economic investment opportunities the analysis examined opportunities to achieve environmental goals associated with reduced soil erosion by conversion of highly erodible cropland into forests. This analysis identified 90 thousand ha that would benefit from conversion to forest.

If implemented, these forest management investments and land use conversions would increase the growth of Eastern Oklahoma's forests by 70% (*16*). Three million m^3/yr. of timber growth would result from investments in forest management. An additional 0.6 and 0.7 million m^3 of timber growth per year would be created by conversion of marginal crop- and pastureland, and erodible cropland.

In Central and Western Oklahoma a preliminary analysis indicates that it would be beneficial to convert 1.1 million ha of marginal crop and pastureland and highly erodible cropland to range and forest. These conversions would result in reduced costs and increased margins for agricultural producers, increased wildlife habitat, and assist in the maintenance and improvement of water

quality. As in the case of Eastern Oklahoma, the maintenance and improvement of water quality would be achieved through reduced soil erosion and enhancement of aquatic ecosystems. Before land use conversion of this magnitude can be undertaken there will need to be an examination of the potential impacts on rural communities in Central and Western Oklahoma, and if appropriate, programs designed to mitigate the impacts of changes in land use.

In addition to the opportunities for forests to improve the quality of life for Oklahoma's people through the improved management of existing forests and expansion of the forest resource, there is an opportunity to improve the habitat in urban areas. Over two million Oklahoma citizens live in the standard metropolitan areas defined by the United States Census (*19*). The habitat for these people can be improved through better management and expansion of State's urban forests.

SUMMARY

Context

Oklahoma forests will continue to supply an expanding global demand for the products and services of forest ecosystems. The current emphasis of the Federal Government's forest policy is on the output of services. The forests of Oklahoma are part of the Southern Region that is a dominant forest region in the United States. However, the Southern Region cannot sustain its current levels of growth, drain, and industrial capacity. All of these conditions indicate an increasing demand for the products and services provided by Oklahoma's forest ecosystems. These demands will be influenced by conditions beyond the borders of Oklahoma and the United States.

Oklahoma's Forest Resource

Twenty percent of Oklahoma is occupied by forest ecosystems, and two/thirds of the forest inventory is controlled by non-industrial private owners. The current levels of growth, drain, and harvest are sustainable. However, the State's forest products industry requires the importation of mill residuals to meet its raw material requirements. The forest inventory's level of growth and drain, with the capacity of the existing industry are important considerations in the use of the forest resource in economic development.

Timber ranks third in annual value of agricultural crops produced in Oklahoma. The primary processing segment of the forest products industry contributes 2% of the manufacturing's contribution to gross state product. The harvest from Oklahoma's forests make a relatively larger contribution to manufacturing value added than other agricultural crops.

In addition to timber products the forest ecosystems of Oklahoma provide a number of services that are important to the State's economy and the quality of life enjoyed by its citizens. These include forage for domestic animals and wildlife. In addition, forests provide habitat for a number of game as well as non-game wildlife species. The State's forest ecosystems provide a place to enjoy a number of outdoor recreational pursuits including hunting. These ecosystems also provide a number of environmental benefits. The most important of these are; the maintenance and improvement of water quality, acting as sinks for atmospheric carbon, regulation of climate, and functioning as agents in sequestration of pollutants.

Potential: In Eastern Oklahoma the opportunity exists to substantially increase timber production. This will provide raw material for a significant increase in the forest products industry. Through conversion of marginal crop and pastureland there is an opportunity to increase the net income for traditional agriculture. The conversion of highly erodible cropland offers an opportunity to reduce soil erosion.

In Central and Western Oklahoma the conversion of marginal crop and pastureland, and highly erodible cropland to forest and range is an opportunity to increase the net income for agriculture. The conversion will also increase the available wildlife habitat and potential for outdoor recreation while reducing soil erosion. Im-

proved management and expansion of Oklahoma's urban forests will enhance the habitat for 60% of the State's people.

Conclusion

The challenge for the people of Oklahoma, their political leaders, and forestry professionals is to develop a vision for the forests of the State. This vision must recognize the needs and desires of the world's people while it improves the quality of life for the people of Oklahoma. The people and their political and professional leaders must also initiate the processes necessary to achieve this vision for the State's forest ecosystems.

ACKNOWLEDGMENTS

The research described in this paper was supported by the Oklahoma Agricultural Experiment Station at Oklahoma State University through McIntire-Stennis project OKLO/2273. The paper is approved for publication by the Oklahoma Agricultural Experiment Station. The author thanks Larry Sanders, Arthur Stoecker, and Jonathan Yoder of the Agricultural Economics Faculty and Gordon Holley, Thomas Lynch, and Robert Wittwer of the Forestry Faculty at Oklahoma State University, two anonymous reviewers for their constructive reviews, and Carrie McDowell for editorial suggestions.

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Received: January 17, 2001; Accepted: August 28, 2001