FEB 28 1975
SOUTHERN FOREST EXPERIMENT STATION
LIBRARY

USDA FOREST SERVICE

RESEARCH NOTE NC-179

NORTH CENTRAL FOREST EXPERIMENT STATION, FOREST SERVICE—U.S. DEPARTMENT OF AGRICULTURE
Folwell Avenue, St. Paul, Minnesota 55101

1974

TIMBER VOLUME IN MISSOURI COUNTIES

Arnold J. Ostrom, *Mensurationist*

ABSTRACT.--The third forest inventory of Missouri showed timber volume of growing-stock material reaching 76 million cords in 1972, an increase of 5 percent since 1959. The growing stock included 15 million board feet of sawtimber. Timber volume by county is presented.

OXFORD: 524.32(778). KEY WORDS: growing stock, sawtimber, species.

Missouri's 12.5 million acres of commercial forest land supported 76 million cords in growing-stock trees in 1972. Oaks accounted for 54 million cords or 70 percent of this total. Other hardwoods (primarily hickory, ash, sycamore, cottonwood, walnut, and elm) represented another 17 million cords or 22 percent, and softwoods (shortleaf pine, redcedar, and cypress) the remainder.

Included in the total volume of growing stock are 15 billion board feet of saw log material. The oaks account for over two-thirds of this total and are broken down into the red oak group with 5.5 billion board feet and the white oak group with 5.1 billion board feet. Hickory, sycamore, cottonwood, maple, and black walnut are the other abundant sawtimber-size hardwoods in Missouri.

The major concentrations of timber are found in the southeastern section of the State (fig. 1). This area includes the Eastern Ozarks Survey Unit, a 14-county block containing only one-seventh of the State's land area but over one-third of the growing-stock and sawtimber volumes. Half the counties in this Survey Unit each contain over 2 million cords and Shannon County leads all others in the State with over 3 million cords (table 1).

Although area of commercial forest land is declining in the State, volume of timber is on the increase. Since 1959 volume of growing stock has grown from 72 million cords to 76 million. However, this gain was not distributed proportionately across the State. Volume in the Eastern Ozarks Unit rose 30 percent from 22 to 28 million cords in the 13 years between surveys. An opposite trend was found in the Prairie Unit where growing-stock volume decreased by 15 percent during the same period. Growing-stock trends are shown in the following tabulation:

Forest Survey Unit	*Survey year 1959*[1]	*1972*	*Change since 1959 (Percent)*
	(Million cords)		
Eastern Ozarks	21.6	28.0	+30
Southwestern Ozarks	12.1	10.8	-11
Northwestern Ozarks	7.9	8.6	+ 9
Prairie	13.8	11.7	-15
Riverborder	17.0	16.9	- 1
State total	72.4	76.0	+ 5

[1]*The 1959 volumes have been adjusted to 1972 standards so as to make comparisons between the 2 years possible.*

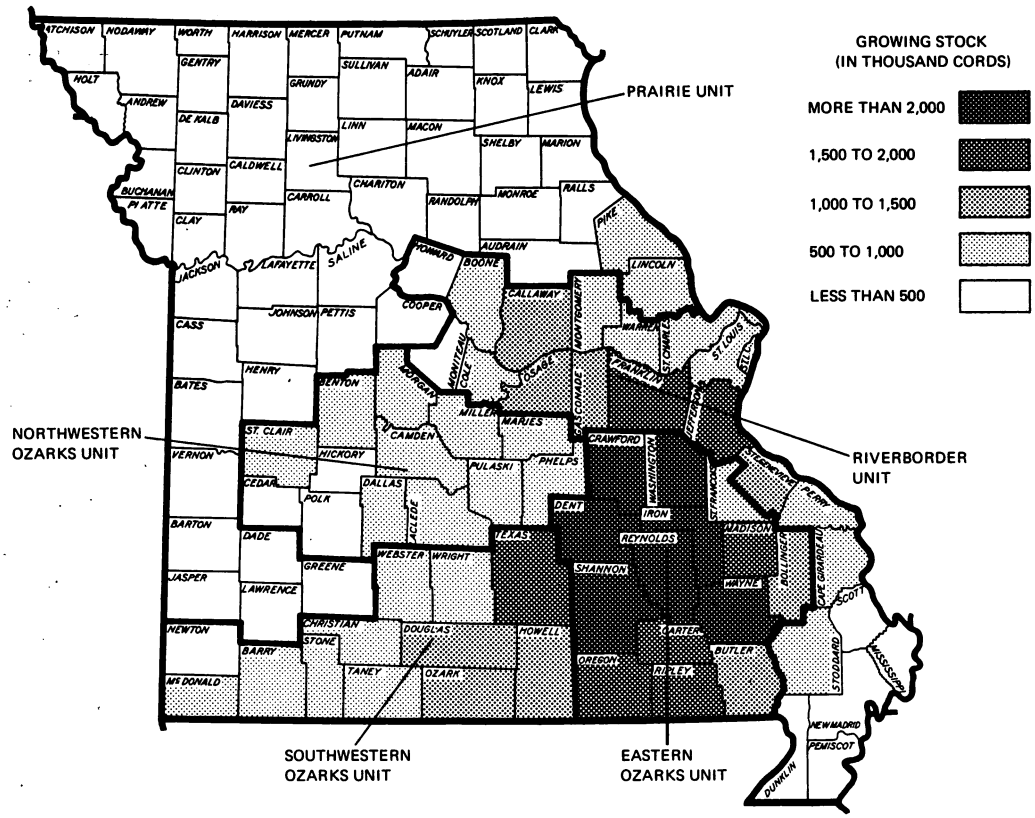

Figure 1.--*Growing-stock volume in Missouri counties, 1972.*

The State's sawtimber volume has accumulated more rapidly than the younger growing stock. The largest increase was again found in the Eastern Ozarks Unit where a gain of over 50 percent between surveys has been recorded:

Forest Survey Unit	*Survey year 1959*[1] *(Million board feet)*	*1972*	*Change (Percent)*
Eastern Ozarks	3,480	5,287	+52
Southwestern Ozarks	2,217	2,085	- 6
Northwestern Ozarks	1,322	1,584	+20
Prairie	2,765	2,458	-11
Riverborder	3,559	3,641	+ 2
State total	13,343	15,055	+13

Across the entire State, volume of growing-stock timber averages 6 cords/acre of commercial forest land. Among Forest Survey Units, the average ranges from a high of 8 cords in the Riverborder Unit to a low of 4.5 cords in the Northwestern Ozarks Unit:

Forest Survey Unit	*Growing-stock volume/acre (Cords)*
Eastern Ozarks	6.9
Southwestern Ozarks	4.7
Northwestern Ozarks	4.5
Prairie	6.9
Riverborder	8.0
State total	6.1

Sampling error (at one standard deviation) is estimated to be ± 1.54 percent for the total growing-stock volume in the State. For the State's sawtimber volume the error is ± 2.17 percent. The percent error figure doubles as the volume is divided by four.

These statistics are from the third Forest Survey of Missouri conducted between 1970 and 1973 by the North Central Forest Experiment Station, the Missouri Department of Conservation, and the National Forests in Missouri. This is one of a number of reports that will be published making these resource statistics available.

Table 1.--*Volume of growing stock*[1] *and sawtimber*[2] *on commercial forest land by county and species group,*[3] *Missouri, 1972*

County	Growing stock: All species	Growing stock: Softwoods	Growing stock: Oaks	Growing stock: Other hardwoods	Sawtimber: All species	Sawtimber: Softwoods	Sawtimber: White oak group	Sawtimber: Red oak group	Sawtimber: Hickory	Sawtimber: Black walnut	Sawtimber: Other hardwoods
	Thousand cords				Million board feet[4]						
EASTERN OZARKS											
Bollinger	1,387.0	114.3	1,049.9	222.8	275.7	30.3	72.0	133.6	19.7	1.3	18.8
Butler	1,257.6	181.1	854.8	221.7	261.5	48.5	50.8	120.6	15.0	.9	25.7
Carter	1,695.2	231.6	1,248.5	215.1	318.0	60.5	79.6	144.6	21.6	1.3	10.4
Crawford	2,195.8	178.1	1,678.4	339.3	412.1	46.8	108.5	198.5	29.7	1.9	26.7
Dent	2,061.9	201.7	1,586.0	274.2	374.0	53.2	97.3	181.2	27.0	1.6	13.7
Iron	2,009.4	198.8	1,541.4	269.2	364.8	49.4	95.3	177.3	26.1	1.6	15.1
Madison	1,621.1	235.8	1,157.9	227.4	303.2	58.4	73.6	132.6	19.8	1.2	17.6
Oregon	1,988.0	243.6	1,472.2	272.2	378.5	65.0	97.0	172.3	26.7	1.6	15.9
Reynolds	2,996.5	295.9	2,283.5	417.1	560.1	77.2	146.1	268.9	39.5	2.5	25.9
Ripley	1,848.6	272.4	1,308.6	267.6	350.0	71.6	82.2	151.3	22.6	1.4	20.9
St. Francois	863.8	77.4	647.8	138.6	158.6	19.2	41.2	74.9	11.7	.7	10.9
Shannon	3,169.6	346.8	2,405.0	417.8	584.2	90.7	151.7	277.3	41.6	2.5	20.4
Washington	2,533.4	308.0	1,871.3	354.1	484.7	82.1	123.3	221.1	33.1	2.2	22.9
Wayne	2,417.7	326.8	1,769.2	321.7	461.1	85.8	113.4	210.2	30.6	2.0	19.1
All counties	28,045.6	3,712.3	20,874.5	3,958.8	5,286.5	838.7	1,332.0	2,464.4	364.7	22.7	264.0
SOUTHWESTERN OZARKS											
Barry	863.6	78.7	657.9	127.0	166.8	17.3	53.8	76.6	9.6	2.0	7.5
Christian	593.3	47.5	453.3	92.5	113.5	11.4	36.6	51.3	6.8	1.4	6.0
Douglas	1,157.8	105.6	882.7	169.5	226.4	27.4	71.6	101.6	13.2	2.7	9.9
Howell	1,303.2	104.3	1,012.6	186.3	260.6	25.7	83.6	122.3	15.1	3.1	10.8
McDonald	817.2	39.1	653.6	124.5	157.8	9.9	52.2	76.4	9.9	2.1	7.3
Newton	488.8	24.2	389.9	74.7	96.6	5.9	32.3	46.4	6.0	1.3	4.7
Ozark	1,095.8	73.7	851.6	170.5	214.6	17.8	70.7	99.4	12.7	2.8	11.2
Stone	566.0	36.2	440.5	89.3	106.1	7.9	35.3	49.6	6.4	1.4	5.5
Taney	757.4	52.5	577.4	127.5	138.3	10.0	48.7	61.8	8.6	1.9	7.3
Texas	1,811.6	176.0	1,376.1	259.5	351.0	46.7	108.5	157.0	20.4	4.2	14.2
Webster	574.6	28.8	458.5	87.3	112.6	7.0	37.6	54.4	6.9	1.4	5.3
Wright	743.6	41.4	582.7	119.5	140.9	10.2	46.4	65.6	8.8	1.9	8.0
All counties	10,772.9	808.0	8,336.8	1,628.1	2,085.2	197.2	677.3	962.4	124.4	26.2	97.7
NORTHWESTERN OZARKS											
Benton	755.6	7.6	611.8	136.2	144.4	2.7	62.9	54.8	6.7	1.6	15.7
Camden	935.1	11.3	781.5	142.3	173.1	3.8	78.4	68.2	7.9	2.1	12.7
Cedar	324.1	2.8	259.3	62.0	62.8	1.0	26.9	23.6	3.0	.6	7.7
Dallas	571.3	5.8	463.8	101.7	108.1	2.1	47.0	41.0	5.2	1.2	11.6
Hickory	456.5	4.3	372.1	80.1	87.3	1.6	38.2	33.2	4.2	.9	9.2
Laclede	843.0	10.3	702.9	129.8	152.6	3.5	68.5	60.0	7.0	2.0	11.6
Maries	603.9	6.8	509.4	87.7	104.1	2.5	48.4	40.5	4.8	1.2	6.7
Miller	690.7	7.2	565.6	117.9	126.4	2.6	56.0	48.0	5.8	1.4	12.6
Morgan	755.0	9.0	634.1	111.9	140.0	3.3	63.7	55.4	6.4	1.5	9.7
Phelps	957.7	15.1	812.2	130.4	168.1	5.4	75.3	68.6	7.5	2.1	9.2
Polk	368.2	7.0	287.5	73.7	69.2	2.1	28.1	25.3	3.3	1.0	9.4
Pulaski	772.1	8.1	640.2	123.8	138.7	2.9	61.5	54.2	6.6	1.6	11.9
St. Clair	557.6	5.0	435.0	117.6	109.3	1.8	45.0	39.8	5.5	1.1	16.1
All counties	8,590.8	100.3	7,075.4	1,415.1	1,584.1	35.3	699.9	612.6	73.9	18.3	144.1
PRAIRIE											
Adair	290.2	1.1	187.7	101.4	52.0	.4	21.1	14.6	3.3	1.6	11.0
Andrew	79.4	.3	44.6	34.5	15.6	.1	4.9	4.0	1.0	.5	5.1
Atchison	92.8	.2	45.5	47.1	20.6	.1	5.7	4.2	1.3	.7	8.6
Audrain	191.0	.4	86.5	104.1	42.4	.2	10.8	8.1	2.4	1.5	19.4
Barton	138.6	.4	70.2	68.0	32.5	.1	7.1	10.2	3.7	1.9	9.5
Bates	288.7	.9	143.8	144.0	67.8	.3	14.4	20.9	7.5	3.5	21.2
Buchanan	112.4	.3	49.2	62.9	23.5	.1	5.6	4.8	1.4	1.1	10.5
Caldwell	109.9	.3	48.3	61.3	24.9	.1	6.1	4.8	1.5	.9	11.5
Carroll	182.3	.5	87.1	94.7	41.2	.2	11.0	8.4	2.4	1.4	17.8
Cass	191.0	.8	125.3	64.9	40.9	.3	13.1	14.6	4.3	2.4	6.2
Chariton	283.5	.6	124.2	158.7	65.7	.2	16.5	12.5	3.6	2.4	30.5
Clark	328.9	1.3	195.2	132.4	70.2	.4	25.6	17.7	4.6	2.3	19.6
Clay	133.6	.4	61.5	71.7	27.5	.1	6.8	5.8	1.6	1.1	12.1
Clinton	124.7	.3	48.4	76.0	28.0	.1	5.6	4.9	1.3	1.0	15.1
Cooper	289.4	1.6	194.0	93.8	58.6	.4	20.5	19.9	5.9	3.1	8.8
Dade	208.5	1.4	136.7	70.4	39.9	.4	13.7	13.5	4.1	2.3	5.9
Daviess	197.7	.8	123.4	73.5	39.1	.3	15.0	10.6	2.4	1.3	9.5
DeKalb	78.9	.3	41.2	37.4	17.6	.1	5.4	3.9	1.2	.6	6.4
Gentry	138.2	.5	78.9	58.8	26.7	.2	8.7	6.8	1.8	.9	8.3
Greene	321.0	2.1	216.9	102.0	61.2	.7	22.1	21.0	6.3	3.4	7.7

(Continued on next page)

(Table 1 continued)

County	Growing stock				Sawtimber						
	All species	Softwoods	Oaks	Other hardwoods	All species	Softwoods	White oak group	Red oak group	Hickory	Black walnut	Other hardwoods
	Thousand cords				Million board feet 4/						
					PRAIRIE (continued)						
Grundy	149.3	0.5	79.6	69.2	33.6	0.2	10.7	7.6	2.2	1.2	11.7
Harrison	284.3	1.0	162.2	121.1	59.1	.4	20.1	14.4	3.6	1.9	18.7
Henry	221.4	.8	116.9	103.7	49.5	.2	11.6	15.7	5.2	2.7	14.1
Holt	101.3	.3	48.2	52.8	20.1	.1	5.3	4.3	1.2	.8	8.4
Jackson	99.7	.7	57.1	41.9	19.4	.3	5.1	6.6	2.1	1.2	4.1
Jasper	263.5	.9	154.5	108.1	60.0	.3	16.6	20.0	6.6	3.3	13.2
Johnson	268.2	1.5	160.8	105.9	56.0	.5	16.5	18.5	6.0	3.1	11.4
Knox	207.5	.8	122.7	84.0	42.9	.2	15.3	10.8	2.7	1.3	12.6
Lafayette	126.9	.4	67.4	59.1	29.9	.1	7.1	9.4	3.2	1.6	8.5
Lawrence	297.7	1.6	207.4	88.7	62.0	.5	23.3	21.7	6.2	3.2	7.1
Lewis	301.3	1.1	185.1	115.1	62.6	.4	23.7	16.2	3.9	2.0	16.4
Lincoln	516.7	1.8	309.0	205.9	106.9	.6	38.8	26.9	6.6	3.4	30.6
Linn	179.5	.4	76.3	102.8	41.1	.1	10.0	7.8	2.3	1.6	19.3
Livingston	175.4	.5	77.1	97.8	38.3	.2	9.3	7.4	2.2	1.5	17.7
Macon	388.3	1.5	243.9	142.9	74.9	.5	29.2	20.7	4.7	2.2	17.6
Marion	269.4	1.0	168.8	99.6	53.3	.3	20.6	14.1	3.3	1.7	13.3
Mercer	172.8	.7	107.1	65.0	35.9	.2	13.6	9.5	2.4	1.1	9.1
Monroe	318.1	1.1	181.4	135.6	68.2	.4	23.6	16.3	4.2	2.3	21.4
Nodaway	146.0	.4	72.6	73.0	30.7	.2	8.7	6.6	1.8	1.1	12.3
Pettis	244.4	1.1	155.9	87.4	50.8	.3	16.3	16.9	5.3	2.7	9.3
Pike	594.0	2.2	356.3	235.5	123.2	.7	44.8	31.1	7.7	3.9	35.0
Platte	171.0	.5	89.1	81.4	30.0	.2	8.1	7.4	2.0	1.3	11.0
Putnam	245.0	1.0	152.2	91.8	49.4	.3	18.8	13.2	3.2	1.5	12.4
Ralls	295.8	1.1	182.4	112.3	62.3	.4	24.0	16.0	4.1	2.0	15.8
Randolph	306.4	1.2	199.0	106.2	61.5	.4	25.1	16.9	4.0	1.8	13.3
Ray	218.1	.7	117.0	100.4	41.5	.3	12.5	10.0	2.6	1.5	14.6
Saline	175.1	.8	103.2	71.1	37.8	.2	10.6	12.4	3.9	2.0	8.7
Schuyler	76.4	.3	45.4	30.7	15.8	.1	5.7	4.0	1.0	.5	4.5
Scotland	135.6	.4	73.5	61.7	30.4	.2	10.0	7.0	1.8	1.0	10.4
Shelby	228.5	.8	133.6	94.1	50.7	.3	18.1	12.3	3.1	1.6	15.3
Sullivan	235.7	.9	135.9	98.9	50.5	.3	17.5	12.4	3.2	1.6	15.5
Vernon	403.9	1.0	211.0	191.9	98.2	.3	22.7	30.9	11.1	5.0	28.2
Worth	75.7	.3	43.9	31.5	15.6	.1	5.4	3.8	1.0	.5	4.8
All counties	11,673.6	43.8	6,705.1	4,924.7	2,458.0	14.6	788.4	660.0	186.0	98.0	711.0
					RIVERBORDER						
Boone	793.4	21.0	535.8	236.6	164.5	3.0	74.9	38.2	12.0	2.9	33.5
Callaway	1,306.1	30.9	911.6	363.6	266.5	4.4	126.0	64.8	19.9	4.5	46.9
Cape Girardeau	717.8	15.7	499.2	202.9	156.5	2.5	77.1	34.7	11.5	2.5	28.2
Cole	535.0	17.2	369.5	148.3	107.2	2.6	50.6	25.9	7.8	1.7	18.6
Dunklin	269.8	24.1	54.3	191.4	75.2	8.7	4.2	11.2	5.5	.2	45.4
Franklin	1,907.8	54.1	1,357.4	496.3	408.7	8.0	205.0	98.3	31.3	5.9	60.2
Gasconade	1,230.0	29.1	895.5	305.4	250.0	4.2	127.5	61.9	19.2	3.4	33.8
Howard	429.0	13.3	286.4	129.3	90.2	2.0	40.6	21.3	6.6	1.6	18.1
Jefferson	1,675.1	49.0	1,227.0	399.1	349.9	7.2	181.1	87.9	27.3	4.8	41.6
Mississippi	193.6	11.0	18.3	164.3	51.2	4.1	1.8	2.4	2.2	.2	40.5
Moniteau	369.1	12.6	259.4	97.1	71.9	1.7	33.6	19.3	5.4	1.2	10.7
Montgomery	760.8	18.3	497.7	244.8	159.6	3.0	68.2	35.7	11.1	3.1	38.5
New Madrid	210.9	12.4	22.3	176.2	55.9	4.5	2.2	3.1	2.5	.1	43.5
Osage	1,219.8	35.9	854.2	329.7	248.8	5.0	117.4	62.1	18.5	4.1	41.7
Pemiscot	176.9	11.9	21.7	143.3	46.8	4.3	1.6	2.9	2.5	.1	35.4
Perry	830.8	20.1	587.0	223.7	176.4	3.0	87.6	42.3	13.3	2.6	27.6
St. Charles	786.6	15.3	465.1	306.2	182.2	2.7	72.9	33.1	11.9	3.8	57.8
St. Louis	500.7	15.9	316.0	168.8	111.4	2.3	47.3	24.0	7.9	2.3	27.6
Ste. Genevieve	1,140.1	35.5	834.0	270.6	227.6	4.0	117.6	60.5	17.5	3.0	25.0
Scott	241.1	5.9	119.3	115.9	65.3	2.2	14.6	20.8	10.0	.1	17.6
Stoddard	594.4	29.0	253.2	312.2	163.2	10.6	27.7	45.8	20.7	.2	58.2
Warren	995.1	25.3	683.3	286.5	212.1	4.2	100.7	48.2	15.4	3.4	40.2
All counties	16,883.9	503.5	11,068.2	5,312.2	3,641.1	94.2	1,580.2	844.4	280.0	51.7	790.6
STATE TOTAL	75,966.8	4,667.9	54,060.0	17,238.9	15,054.9	1,180.0	5,077.8	5,543.8	1,029.0	216.9	2,007.4

1/Net volume of live merchantable trees 5 in. d.b.h. and larger from the stump to a variable 4-in. top diameter outside bark of the central stem. Does not include limbs or cull tree volume.

2/Net volume of live merchantable sawtimber trees (softwoods 9.0 in. d.b.h. or larger and hardwoods 11.0 in. d.b.h. and larger) from the stump to a point in the central stem at which utilization from sawn products is limited by large branches, forks, or other defects, or by a diameter outside bark 7.0 in. for softwoods and 9.0 in. for hardwoods.

3/Species groups: Softwoods--primarily shortleaf pine, eastern redcedar, and cypress (Riverborder Unit). Oak--white oak group--primarily white oak, post oak, and chinkapin oak; red oak group--primarily northern red oak, black oak, scarlet oak, blackjack oak, southern red oak, pin oak, and shingle oak. Other hardwoods--hickory (growing stock only), maple, sweetgum, blackgum, ash, sycamore, cottonwood, river birch, basswood, black walnut (growing stock only), black cherry, and elm.

4/International 1/4-in. rule.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1974--667207/11 REGION NO.6