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Missouri's Forest Resources in 2005

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Thomas B. Treiman



Abstract

The U.S. Forest Service, Northern Research Station's Forest Inventory and Analysis program is continuing its annual inventory of Missouri's forest resources. This report presents estimates of area, volume, and biomass using data for 2005, and growth, removals, and mortality using data for the most recent remeasurement period. Estimates from this inventory showed a total of 14.7 million acres of forest land in the state. The estimate of total net volume of live trees on forest land was 18.8 billion cubic feet. Higher than average mortality values for certain oak species are likely due to the increased age of the state's forests, as well from a drought-induced oak decline over much of the past 10 years.

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INTRODUCTION

In 2005, the Forest Inventory and Analysis program (NRS-FIA) of the U.S. Forest Service, Northern Research Station, continued the annual inventory effort with remeasurement of field plots that were previously measured in 2000. Information presented in this report is based on moving average estimates that use the most recent measurements of every field plot measured over the past 5-year period for estimates of current conditions, such as area, number of trees, volume, and biomass. Estimates of forest change components (net growth, removals, and mortality) were based on plots measured in 1999-2000 and remeasured in 2004-2005 (the remeasurement period). Because oak (*Quercus*) species play an important role in the ecological and economic health of Missouri's forests, this report pays particular attention to patterns and trends of *Quercus*.

RESULTS

Area

Total forest land¹ area consisted of 14.7 million acres. Like most eastern states, private landowners hold the bulk of forest land (82 percent). Timberland² area was 14.2 million acres (Fig. 1).

Missouri is at the western edge of the Central Hardwoods forest, so it is not surprising that the oak/hickory forest-type group comprises 83 percent of the total forest land area in the state and 80 percent of hardwood timberland area (Fig. 2).

Volume

In 2005 the net volume of live trees on forest land, which includes growing stock, rough, and rotten trees, was 18.8 billion cubic feet. As with the area measurements, hardwoods dominated the inventory with 17.3 billion cubic feet, or 92.3 percent of the total volume. Net volume of live trees and salvable dead trees on timberland was 18.3 billion cubic feet (Fig. 3). There was very little rough and rotten volume in softwoods.

The net volume of live oak trees on forest land was 11.6 billion cubic feet or 61.7 percent of the total volume. Select red and white oak volume was 5.5 billion cubic feet or 47 percent of all oaks and 32 percent of all hardwoods.

Trees are a valuable resource to the forest products industry of Missouri. Of the 15.9 billion cubic feet of growing stock, 67 percent was in sawtimber-size trees.

Growing-stock volume steadily increased in Missouri from 1959 to 2005 (Fig. 4). As with timberland area, the dramatic increases of the past have been replaced with smaller gains, with volume increasing only 3 percent since 2004. The higher densities and age of Missouri's forests result in slower growth as evidenced by the volume per-acre trends shown in Figure 5.

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¹ Forest land is land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is 1 acre and 120 feet wide.

² Timberland is forest land not restricted from harvesting by statute, administrative regulation, or designation and capable of growing trees at a rate of 20 cubic feet per acre per year. It may not be equivalent to the area actually available for commercial timber harvesting or other access. The actual availability of land for various uses depends upon owner decisions that consider economic, physical, legal, and social factors.

Figure 1.—Area of timberland, in millions of acres, by inventory year, Missouri, 1947–2005. Note: 67-percent confidence intervals are shown for all years except 1947.

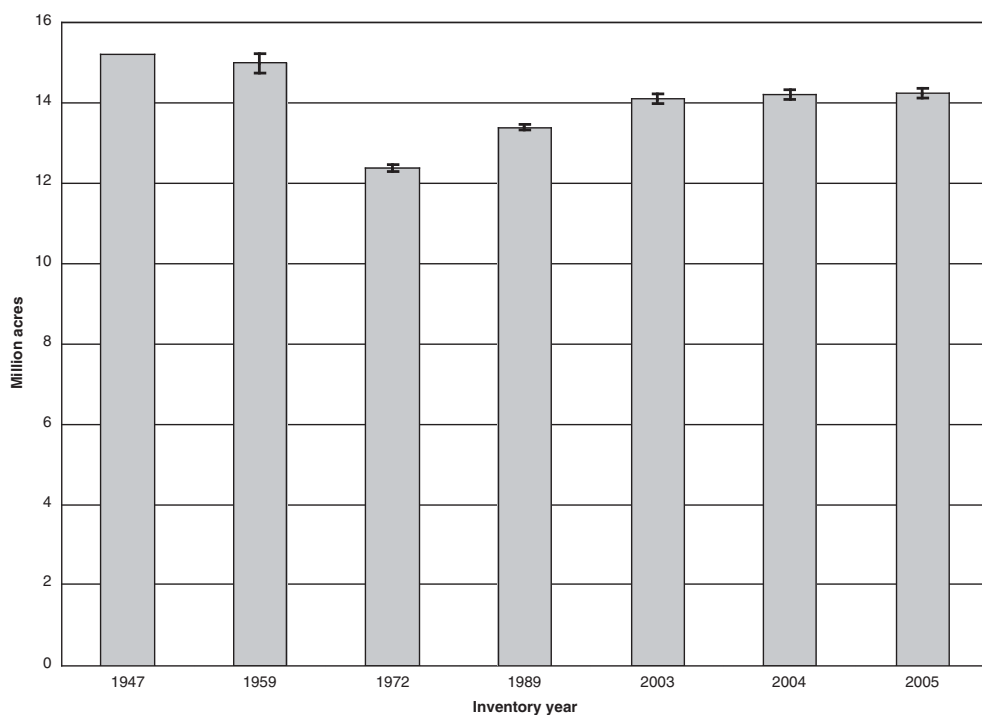
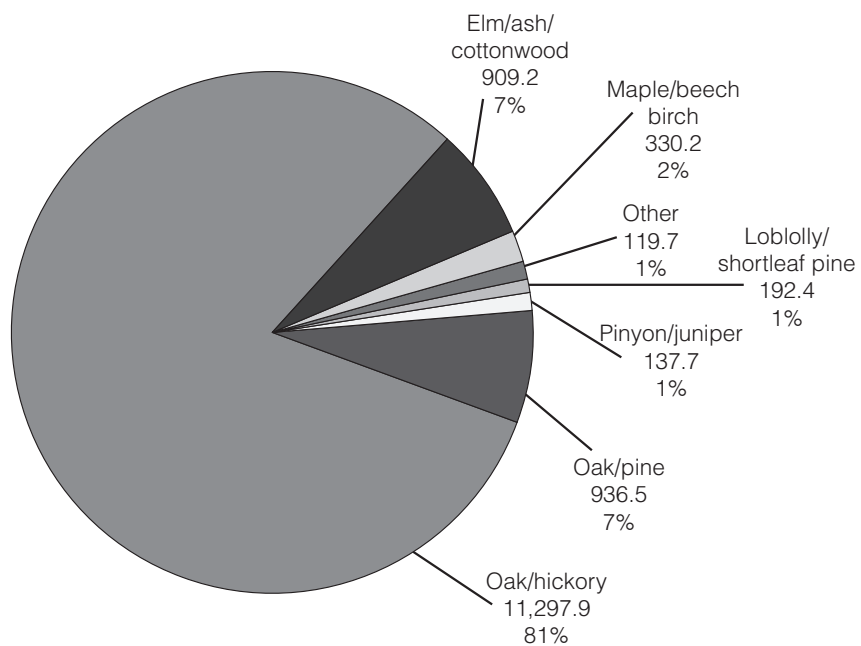


Figure 2.—Area of timberland by forest type group, in thousands of acres and percentage of total timberland area, Missouri, 2005.



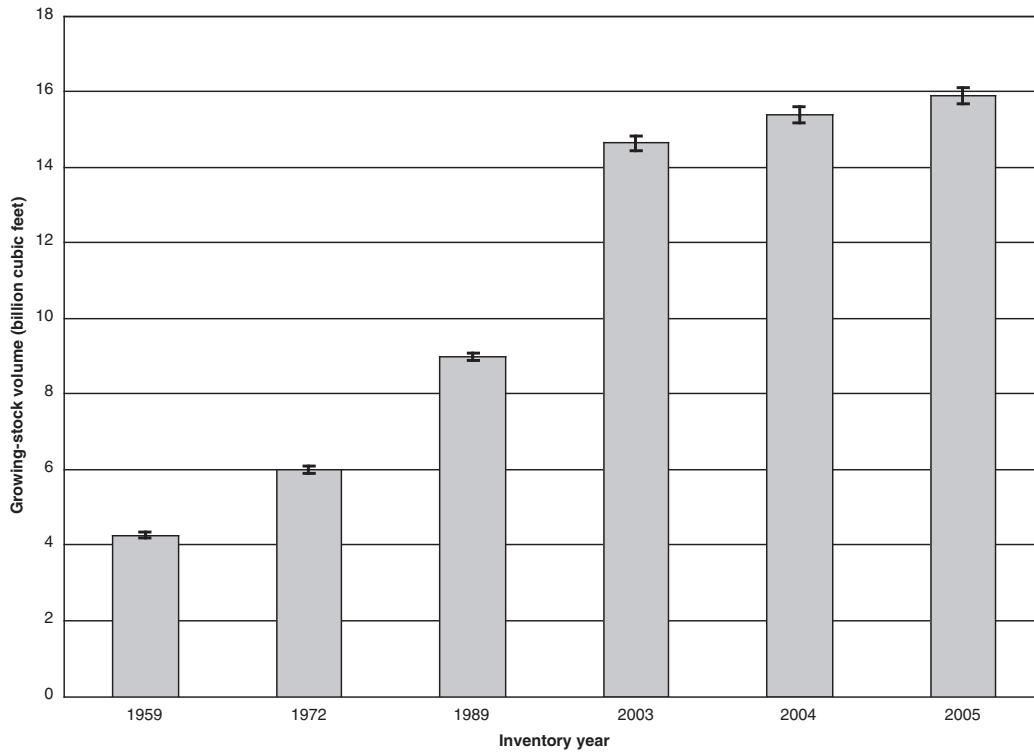


Figure 3.—Volume of growing stock on timberland (in billions of cubic feet) in Missouri by inventory year, 1959 – 2005. Note: 67-percent confidence intervals are shown.

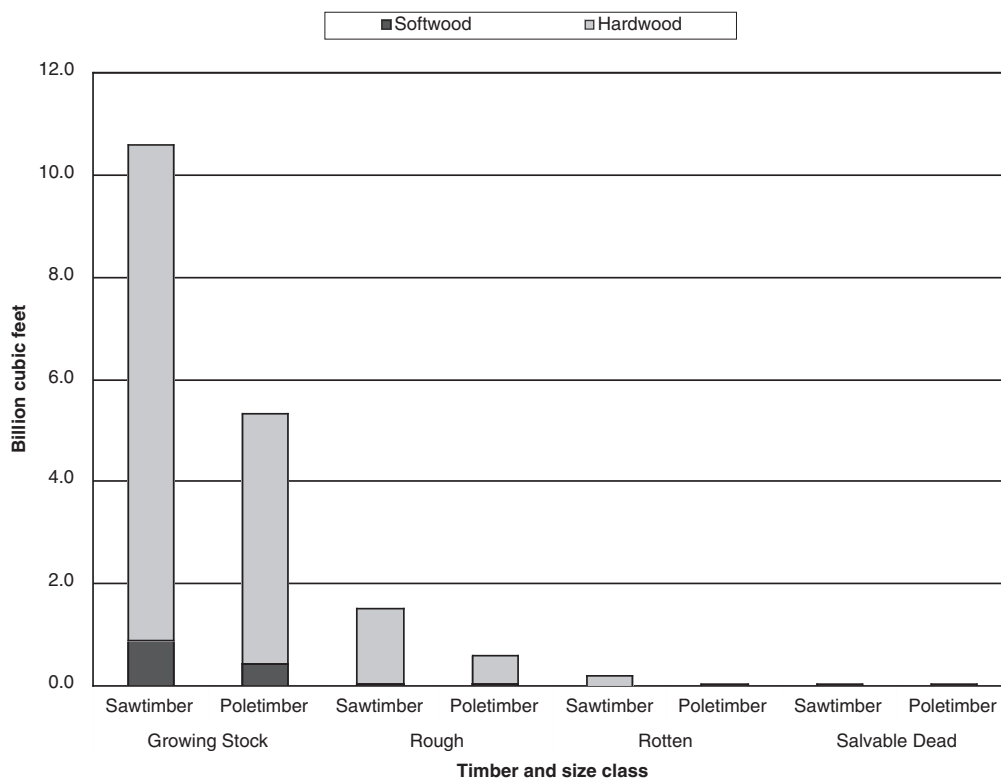
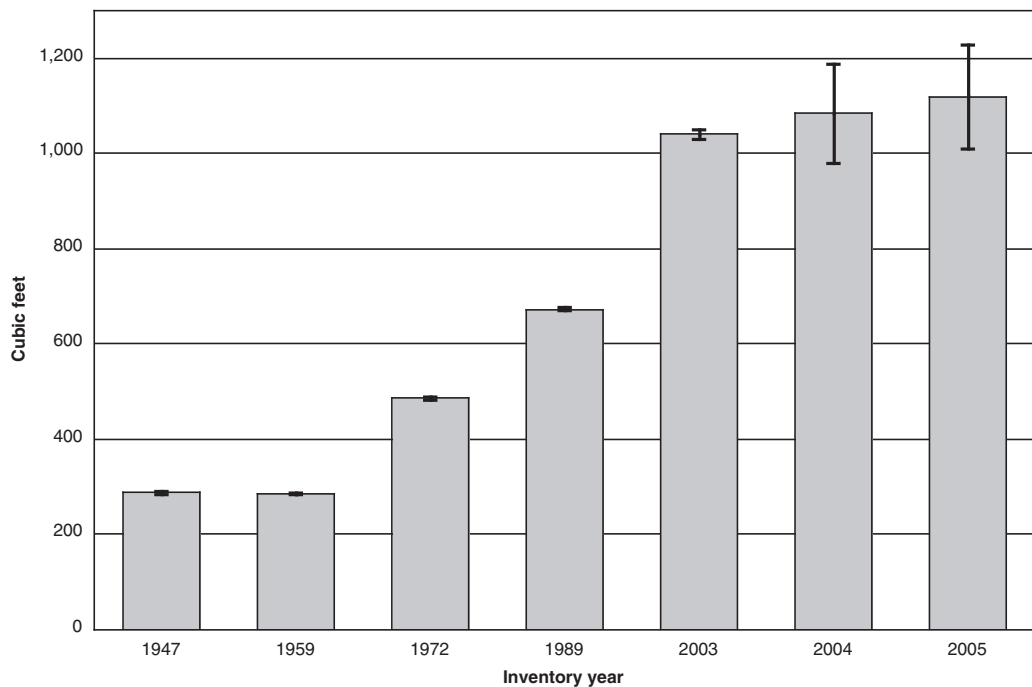


Figure 4.—Net volume, in billion cubic feet, of live trees and salvable dead trees on timberland by timber and size class, and softwood/hardwood category, Missouri, 2005.

Figure 5.—Mean growing-stock volume per acre of timberland in Missouri by inventory year, 1947 – 2005. Note: 67-percent confidence intervals are shown.



The net volume of sawtimber on timberland was 50.9 billion board feet. Red and white oaks totaled 33.6 billion board feet, or 66.1 percent of the total sawtimber volume. Trees that were 19 or more inches in diameter at breast height (d.b.h.) were 6 percent of the softwood volume and 24 percent of hardwood volume.

Net Growth, Removals, and Mortality

Net growth of growing-stock trees on timberland was 516.8 million cubic feet per year (Fig. 6). Hardwood growth comprised nearly 90 percent of the annual net growth. Select oaks, white and red, had a net growth of 123.5 million cubic feet per year. Net growth of hickory (50.7 million ft³/yr), maples (25.3 million ft³/yr), and other eastern soft and hard hardwoods (74.2 million ft³/yr), was high. This suggests that there is potential for a change in the species composition of the state's forests.

Average annual removals of growing stock totaled 151.5 million cubic feet per year. Softwood removals comprised only 4 percent of the total removals. Oaks are the primary genus in Missouri's forests and are the source

of many forest products, ranging from pallets to flooring to furniture. "Other red oaks" had the highest removals—46.6 million cubic feet per year, or 31 percent of total removals. "Select white oaks" (32.1 million ft³/yr), "other white oaks" (11.3 million ft³/yr) and "cottonwood and aspen" (9.8 million ft³/yr) account for 35 percent of removals, collectively.

The growth-to-removals ratio gives an indication of the sustainability of forest products utilization in Missouri. Some desirable species groups, such as loblolly/shortleaf pine, show favorable ratios (loblolly/shortleaf pine is 8.4). Reduced growth and increased harvesting in some cases caused by preventive or salvage operations due to oak decline, have caused the ratio for oaks to be much lower. For example, the growth-to-removals ratio for "select red oaks" is 1.8 and for "other red oaks" is 2.0. "Cottonwood and aspen" ratio is 0.8. High ratios for maples—17.4 for "hard maples" and 19.2 for "soft maples"—suggests a potential forest type shift. The ratio for "other eastern hardwoods" is 9.4. These values indicate that the economically important species, such as oaks, face more pressure than species not favored by the forest products industry. Without a strong market for the "unpopular"

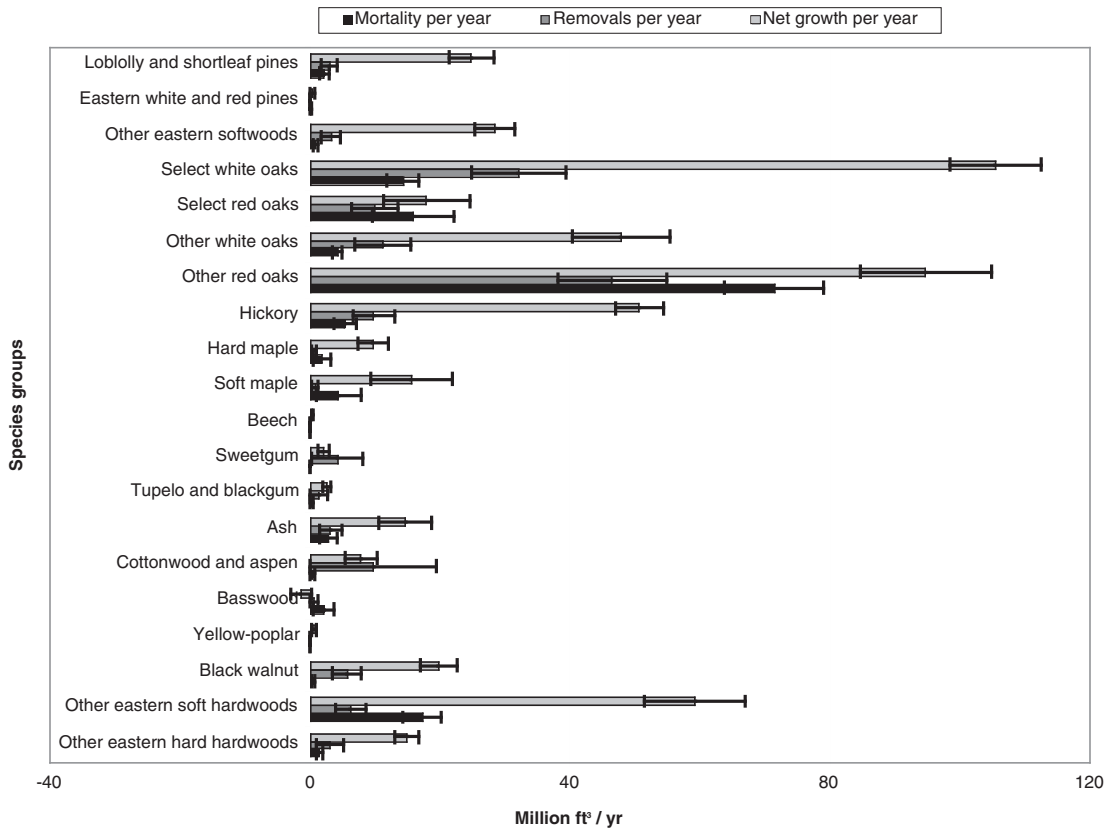


Figure 6.—Average annual net growth, removals, and mortality by species group, in million cubic feet per year, Missouri 2004-2005.

species, landowners may face pressure to “high-grade” their stands—taking the desirable trees and leaving the undesirable species. This practice contributes to changes in overall forest composition.

Average annual mortality of growing stock was 145.5 million cubic feet per year. Almost 98 percent of total mortality, or 142 million cubic feet per year, was from hardwoods. Among hardwood species groups, the “other red oaks” category had the highest average annual mortality at 71.4 million cubic feet per year, or 50 percent of all hardwood mortality. Scarlet, black, and southern red oaks—components of the “other red oaks” species group—are susceptible to oak decline, a forest health complex that impacted record levels of Missouri’s forests over the past decade (Lawrence et al.

2002). Among many of the oak species groups, mortality exceeded removals. If mortality continues to exceed removals, mortality will present a greater threat to sustainability than harvesting.

Data

Summary resource tables can be generated through the Forest Inventory Mapmaker Web site, <http://ncrs2.fs.fed.us/4801/fiadb/index.htm>.

LITERATURE CITED

Lawrence, R.; Moltzan, B.; Moser, W.K. 2002. **Oak decline and the future of Missouri’s Forests.** Missouri Conservationist. 63(7): 11–18.

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TABLES

Table 1. -- Area of forest land by forest type group, forest type, and owner category, Missouri, 2001-2005

(In thousand acres)

Forest type group/ forest type	Owner category			
	All owners	Public	Private	Unidentified owner
Softwood type groups				
White / red / jack pine group	1.8	1.8	--	--
Eastern white pine	1.8	1.8	--	--
All forest types	1.8	1.8	--	--
Loblolly / shortleaf pine group				
Shortleaf pine	206.3	129.0	77.3	--
All forest types	206.3	129.0	77.3	--
Pinyon / juniper group				
Eastern redcedar	445.7	30.8	414.8	--
All forest types	445.7	30.8	414.8	--
Exotic softwoods group				
Scotch pine	1.4	1.4	--	--
All forest types	1.4	1.4	--	--
All softwood groups	655.2	163.1	492.1	--
Hardwood type groups				
Oak / pine group				
White pine / red oak / white ash	3.5	--	3.5	--
Eastern redcedar / hardwood	645.5	76.8	568.7	--
Shortleaf pine / oak	344.4	193.3	151.1	--
All forest types	993.3	270.1	723.2	--
Oak / hickory group				
Post oak / blackjack oak	1,463.2	177.7	1,285.5	--
White oak / red oak / hickory	6,424.2	1,151.3	5,272.9	--
White oak	1,627.7	339.1	1,288.5	--
Northern red oak	132.5	23.9	108.6	--
Sassafras / persimmon	101.9	10.5	91.4	--
Sweetgum / yellow-poplar	9.1	--	9.1	--
Bur oak	21.4	3.2	18.2	--
Scarlet oak	140.4	71.1	69.3	--
Yellow-poplar	0.9	0.9	--	--
Black walnut	83.1	12.3	70.8	--
Black locust	16.4	2.2	14.1	--
Chestnut oak / black oak / scarlet oak	319.3	104.8	214.5	--
Red maple / oak	3.8	3.8	--	--
Mixed upland hardwoods	1,270.5	101.3	1,169.2	--
All forest types	11,614.1	2,002.1	9,612.0	--
Oak / gum / cypress group				
Swamp chestnut oak / cherrybark oak	12.2	--	12.2	--
Sweetgum / Nuttall oak / willow oak	4.6	3.6	1.0	--
Overcup oak / water hickory	41.3	16.6	24.7	--
Baldcypress / water tupelo	4.4	--	4.4	--
Sweetbay / swamp tupelo / red maple	4.1	--	4.1	--
All forest types	66.6	20.2	46.4	--

(Table 1 continued on next page)

(Table 1 continued)

Forest type group/ forest type	Owner category			
	All owners	Public	Private	Unidentified owner
Hardwood type groups				
Elm / ash / cottonwood group				
Black ash / American elm / red maple	5.7	2.3	3.3	--
River birch / sycamore	202.9	23.5	179.4	--
Cottonwood	52.0	10.3	41.6	--
Willow	41.2	5.9	35.3	--
Sycamore / pecan / American elm	94.6	12.7	81.9	--
Sugarberry / hackberry / elm / green ash	373.6	41.4	332.2	--
Silver maple / American elm	138.6	25.9	112.7	--
Red maple / lowland	3.9	3.9	--	--
Cottonwood / willow	13.3	8.6	4.7	--
All forest types	925.9	134.6	791.2	--
Maple / beech / birch group				
Sugar maple / beech / yellow birch	157.7	21.3	136.4	--
Black cherry	4.6	0.8	3.9	--
Cherry / ash / yellow-poplar	31.6	--	31.6	--
Hard maple / basswood	54.4	7.2	47.2	--
Elm / ash / locust	86.9	3.9	82.9	--
Red maple / upland	2.8	2.8	--	--
All forest types	338.0	36.1	302.0	--
All hardwood groups	13,937.9	2,463.1	11,474.8	--
Nonstocked	53.3	2.5	50.7	--
All forest groups	14,646.3	2,628.7	12,017.7	--

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table 2. -- Area of timberland by major forest type group, stand origin, and owner category, Missouri, 2001-2005

(In thousand acres)

Major forest type group and stand origin	Owner category		
	Public	Private	Unidentified owner
Softwood type groups			
Natural	594.7	127.6	467.1
Planted	38.6	23.8	14.8
All softwood types	633.3	151.4	481.9
Hardwood type groups			
Natural	13,517.6	2,223.5	11,294.1
Planted	19.2	5.2	13.9
All hardwood types	13,536.8	2,228.7	11,308.1
Nonstocked	53.3	2.5	50.7
All groups	14,223.3	2,382.7	11,840.6

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table 3. -- Area of timberland by forest type group, forest type, and stand-size class, Missouri, 2001-2005

(In thousand acres)

Forest type group/ forest type	Stand-size class				
	All stands	Sawtimber	Pole/timber	Sapling-seedling	Non-stocked
Softwood type groups					
White / red / jack pine group	1.8	1.8	--	--	--
Eastern white pine	1.8	1.8	--	--	--
All forest types					
Loblolly / shortleaf pine group					
Shortleaf pine	192.4	128.9	58.2	5.3	--
All forest types	192.4	128.9	58.2	5.3	--
Pinyon / juniper group					
Eastern redcedar	437.7	86.7	228.1	122.9	--
All forest types	437.7	86.7	228.1	122.9	--
Exotic softwoods group					
Scotch pine	1.4	1.4	--	--	--
All forest types	1.4	1.4	--	--	--
All softwood groups	633.3	218.8	286.3	128.2	--
Hardwood type groups					
Oak / pine group					
White pine / red oak / white ash	3.5	3.5	--	--	--
Eastern redcedar / hardwood	588.6	125.3	345.3	118.0	--
Shortleaf pine / oak	344.4	235.6	99.3	9.4	--
All forest types	936.5	364.4	444.6	127.5	--
Oak / hickory group					
Post oak / blackjack oak	1,353.6	554.0	721.3	78.3	--
White oak / red oak / hickory	6,292.4	3,509.4	2,296.9	486.2	--
White oak	1,587.1	1,137.3	438.6	11.2	--
Northern red oak	131.6	99.3	30.7	1.6	--
Sassafras / persimmon	99.9	5.4	20.7	73.8	--
Sweetgum / yellow-poplar	9.1	--	3.3	5.8	--
Bur oak	21.4	21.4	--	--	--
Scarlet oak	128.0	85.5	38.7	3.8	--
Yellow-poplar	0.9	--	0.9	--	--
Black walnut	79.5	49.1	18.5	11.9	--
Black locust	16.4	7.4	8.9	--	--
Chestnut oak / black oak / scarlet oak	307.0	168.8	106.4	31.8	--
Red maple / oak	3.8	--	--	3.8	--
Mixed upland hardwoods	1,267.3	497.5	529.5	240.3	--
All forest types	11,297.9	6,135.0	4,214.5	948.4	--
Oak / gum / cypress group					
Swamp chestnut oak / cherrybark oak	12.2	3.7	7.0	1.4	--
Sweetgum / Nuttall oak / willow oak	4.6	1.0	3.6	--	--
Overcup oak / water hickory	37.8	36.2	1.6	--	--
Baldcypress / water tupelo	4.4	4.4	--	--	--
Sweetbay / swamp tupelo / red maple	4.1	--	4.1	--	--
All forest types	63.0	45.4	16.2	1.4	--

(Table 3 continued on next page)

(Table 3 continued)

Forest type group/ forest type	Stand-size class				
	All stands	Sawtimber	Poletimber	Sapling- seedling	Non- stocked
Hardwood type groups					
Elm / ash / cottonwood group					
Black ash / American elm / red maple	4.9	1.4	3.6	--	--
River birch / sycamore	191.9	115.7	51.2	25.0	--
Cottonwood	52.0	39.8	11.1	1.1	--
Willow	41.2	14.8	10.5	15.8	--
Sycamore / pecan / American elm	92.9	79.8	11.7	1.4	--
Sugarberry / hackberry / elm / green ash	370.5	211.1	104.7	54.7	--
Silver maple / American elm	138.6	106.1	26.8	5.8	--
Red maple / lowland	3.9	--	3.2	0.6	--
Cottonwood / willow	13.3	13.3	--	--	--
All forest types	909.2	581.9	222.8	104.4	--
Maple / beech / birch group					
Sugar maple / beech / yellow birch	149.9	89.7	47.9	12.3	--
Black cherry	4.6	--	--	4.6	--
Cherry / ash / yellow-poplar	31.6	--	11.2	20.4	--
Hard maple / basswood	54.4	32.5	17.4	4.4	--
Elm / ash / locust	86.9	21.1	33.5	32.2	--
Red maple / upland	2.8	--	--	2.8	--
All forest types	330.2	143.3	110.0	76.9	--
All hardwood groups	13,536.8	7,270.0	5,008.2	1,258.6	--
Nonstocked	53.3	--	--	--	53.3
All forest groups	14,223.3	7,488.8	5,294.5	1,386.8	53.3

All table cells with out observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table 4. -- Net volume of all live trees on forest land by species group, species, and owner category, Missouri, 2001-2005

(In thousand cubic feet)

Species group/ species	Owner category			
	All owners	Public	Private	Unidentified owner
Softwoods				
Loblolly and shortleaf pines				
Shortleaf pine	837,112	507,310	329,802	--
All species	837,112	507,310	329,802	--
Other yellow pines				
Scotch pine	954	469	485	--
All species	954	469	485	--
Eastern white and red pines				
Eastern white pine	7,888	5,153	2,736	--
All species	7,888	5,153	2,736	--
Other eastern softwoods				
Eastern redcedar	589,666	59,637	530,029	--
All species	589,666	59,637	530,029	--
Total softwoods	1,435,620	572,568	863,052	--
Hardwoods				
Select white oaks				
White oak	3,789,582	861,068	2,928,514	--
Swamp white oak	73,517	3,982	69,535	--
Bur oak	112,067	13,045	99,042	--
Swamp chestnut oak	5,537	3,476	2,061	--
Chinkapin oak	371,886	47,037	324,850	--
All species	4,352,609	928,607	3,424,002	--
Select red oaks				
Cherrybark oak	7,187	908	6,280	--
Northern red oak	1,030,514	217,176	813,339	--
Shumard oak	81,975	7,944	74,031	--
All species	1,119,677	226,028	893,649	--
Other white oaks				
Overcup oak	19,970	19,102	868	--
Chestnut oak	471	471	--	--
Post oak	1,960,355	244,578	1,715,777	--
All species	1,980,796	264,151	1,716,645	--

(Table 4 continued on next page)

(Table 4 continued)

Species group/ species	Owner category			
	All owners	Public	Private	Unidentified owner
Hardwoods				
Other red oaks				
Scarlet oak	617,814	291,934	325,880	--
Northern pin oak	6,338	5,711	626	--
Southern red oak	54,845	17,986	36,859	--
Shingle oak	215,677	10,897	204,780	--
Blackjack oak	224,893	16,825	208,068	--
Pin oak	183,728	15,685	168,043	--
Willow oak	5,402	1,741	3,661	--
Black oak	2,814,859	584,591	2,230,268	--
All species	4,123,555	945,369	3,178,186	--
Hickory				
Bitternut hickory	236,145	26,801	209,345	--
Pignut hickory	158,676	29,818	128,858	--
Pecan	30,650	420	30,230	--
Shellbark hickory	50,241	14,869	35,372	--
Shagbark hickory	485,207	27,839	457,367	--
Black hickory	433,792	85,100	348,692	--
Mockernut hickory	340,785	66,379	274,405	--
All species	1,735,496	251,226	1,484,270	--
Hard maple				
Black maple	2,894	--	2,894	--
Sugar maple	279,219	31,662	247,557	--
All species	282,114	31,662	250,451	--
Soft maple				
Red maple	50,414	9,366	41,049	--
Silver maple	321,217	77,227	243,990	--
All species	371,632	86,593	285,039	--
Beech				
American beech	10,259	6,965	3,294	--
All species	10,259	6,965	3,294	--
Sweetgum				
Sweetgum	20,195	5,549	14,646	--
All species	20,195	5,549	14,646	--
Tupelo and blackgum				
Water tupelo	12,899	56	12,843	--
Blackgum	92,425	26,497	65,928	--
Swamp tupelo	128	34	94	--
All species	105,452	26,587	78,865	--

(Table 4 continued on next page)

(Table 4 continued)

Species group/ species	Owner category			
	All owners	Public	Private	Unidentified owner
Hardwoods				
Ash				
White ash	241,478	16,640	224,838	--
Green ash	181,926	16,275	165,651	--
Blue ash	10,357	558	9,800	--
All species	433,762	33,472	400,289	--
Cottonwood and aspen				
Eastern cottonwood	148,370	31,855	116,515	--
Swamp cottonwood	37	37	--	--
All species	148,407	31,891	116,515	--
Basswood				
American basswood	31,674	3,041	28,633	--
All species	31,674	3,041	28,633	--
Yellow-poplar				
Yellow-poplar	22,584	12,327	10,256	--
All species	22,584	12,327	10,256	--
Black walnut				
Black walnut	543,204	72,114	471,090	--
All species	543,204	72,114	471,090	--
Other eastern soft hardwoods				
Boxelder	65,794	14,266	51,528	--
Ohio buckeye	5,946	925	5,021	--
River birch	36,794	680	36,114	--
Northern catalpa	785	--	785	--
Sugarberry	3,089	512	2,578	--
Hackberry	322,504	10,549	311,956	--
Butternut	5,944	4,158	1,786	--
American sycamore	341,111	51,998	289,113	--
Black cherry	102,813	10,027	92,786	--
Black willow	46,986	7,191	39,795	--
Sassafras	38,974	3,057	35,916	--
Winged elm	27,719	5,953	21,766	--
American elm	341,088	24,899	316,189	--
Slippery elm	117,177	19,737	97,440	--
All species	1,456,725	153,952	1,302,773	--

(Table 4 continued on next page)

(Table 4 continued)

Species group/ species	Owner category			Unidentified owner
	All owners	Public	Private	
Hardwoods				
Other eastern hard hardwoods				
Flowering dogwood	10,297	2,007	8,290	--
Common persimmon	26,191	2,628	23,563	--
Waterlocust	2,711	654	2,056	--
Honeylocust	258,545	14,431	244,114	--
Kentucky coffeetree	11,144	741	10,403	--
Mulberry spp.	163	67	97	--
White mulberry	8,111	310	7,802	--
Red mulberry	70,989	9,809	61,180	--
Black locust	54,535	11,153	43,381	--
Rock elm	82	--	82	--
All species	442,769	41,801	400,968	--
Eastern noncommercial hardwoods				
Ailanthus	76	--	76	--
Serviceberry spp.	774	232	542	--
Common serviceberry	136	50	86	--
Pawpaw	137	--	137	--
Chittamwood, gum bumelia	1,756	636	1,120	--
American hornbeam, musciewood	3,053	127	2,927	--
Eastern redbud	11,927	1,916	10,011	--
Hawthorn spp.	666	202	463	--
Cockspur hawthorn	42	--	42	--
Downy hawthorn	43	43	--	--
Osage-orange	127,601	3,557	124,044	--
Apple spp.	81	--	81	--
Eastern hophornbeam	3,504	65	3,440	--
American plum	576	359	217	--
Peachleaf willow	1,164	1,164	--	--
Smoketree	202	151	51	--
Other or unknown tree	41	--	41	--
All species	151,778	8,502	143,276	--
Total hardwoods	17,332,688	3,129,838	14,202,849	--
All species groups	18,768,307	3,702,406	15,065,901	--

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 5. -- Net volume of all live trees and salvable dead trees on timberland by class of timber and softwood/hardwood species category, Missouri, 2001-2005

(In thousand cubic feet)

Class of timber	All species	Softwood species	Hardwood species
Live trees			
Growing-stock trees			
Sawtimber			
Saw log portion	8,989,169	770,288	8,218,881
Upper stem portion	1,594,113	97,773	1,496,339
Total	10,583,282	868,061	9,715,220
Poletimber	5,321,971	434,076	4,887,895
All growing-stock trees	15,905,253	1,302,138	14,603,115
Cull trees			
Rough trees ¹			
Sawtimber size	1,499,492	39,392	1,460,099
Poletimber size	573,060	33,238	539,822
Total	2,072,551	72,630	1,999,921
Rotten trees ¹			
Sawtimber size	203,175	3,171	200,005
Poletimber size	32,299	314	31,985
Total	235,475	3,485	231,989
All live cull trees	2,308,026	76,116	2,231,910
All live trees	18,213,279	1,378,254	16,835,025
Salvable dead trees			
Sawtimber size	39,420	552	38,867
Poletimber size	34,079	1,747	32,332
All salvable dead trees	73,499	2,299	71,199
All classes	18,286,777	1,380,553	16,906,225

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

¹ Includes noncommercial species.

Table 6. -- Net volume of growing stock on timberland by forest type group, forest type, and softwood/hardwood species category, Missouri, 2001-2005

(In thousand cubic feet)

Forest type group/ forest type	All species	Softwood species	Hardwood species
Softwood type groups			
White / red / jack pine group			
Eastern white pine	5,792	5,203	590
All forest types	5,792	5,203	590
Loblolly / shortleaf pine group			
Shortleaf pine	353,617	296,816	56,801
All forest types	353,617	296,816	56,801
Pinyon / juniper group			
Eastern redcedar	235,212	165,885	69,327
All forest types	235,212	165,885	69,327
Exotic softwoods group			
Scotch pine	322	322	--
All forest types	322	322	--
All softwood groups	594,943	468,226	126,717
Hardwood type groups			
Oak / pine group			
White pine / red oak / white ash	3,542	1,753	1,789
Eastern redcedar / hardwood	369,023	148,425	220,598
Shortleaf pine / oak	516,799	262,439	254,359
All forest types	889,364	412,618	476,746
Oak / hickory group			
Post oak / blackjack oak	1,306,128	58,789	1,247,339
White oak / red oak / hickory	7,432,463	244,940	7,187,524
White oak	2,258,184	36,162	2,222,022
Northern red oak	196,443	2,124	194,319
Sassafras / persimmon	27,061	2,124	24,937
Sweetgum / yellow-poplar	6,170	347	5,823
Bur oak	20,573	--	20,573
Scarlet oak	165,706	9,900	155,805
Yellow-poplar	2,301	--	2,301
Black walnut	76,337	985	75,353
Black locust	12,399	165	12,234
Chestnut oak / black oak / scarlet oak	349,355	26,571	322,784
Red maple / oak	677	--	677
Mixed upland hardwoods	926,134	28,758	897,375
All forest types	12,779,931	410,865	12,369,067

(Table 6 continued on next page)

(Table 6 continued)

Forest type group/ forest type	All species	Softwood species	Hardwood species
Hardwood type groups			
Oak / gum / cypress group			
Swamp chestnut oak / cherrybark oak	12,202	56	12,145
Sweetgum / Nuttall oak / willow oak	11,045	--	11,045
Overcup oak / water hickory	64,167	--	64,167
Baldcypress / water tupelo	15,144	--	15,144
Sweetbay / swamp tupelo / red maple	4,572	--	4,572
All forest types	107,129	56	107,073
Elm / ash / cottonwood group			
Black ash / American elm / red maple	4,148	--	4,148
River birch / sycamore	234,300	751	233,549
Cottonwood	111,369	49	111,321
Willow	36,321	--	36,321
Sycamore / pecan / American elm	163,750	1,586	162,163
Sugarberry / hackberry / elm / green ash	451,307	2,171	449,135
Silver maple / American elm	198,431	--	198,431
Red maple / lowland	3,899	--	3,899
Cottonwood / willow	41,287	--	41,287
All forest types	1,244,812	4,557	1,240,254
Maple / beech / birch group			
Sugar maple / beech / yellow birch	174,087	3,387	170,700
Black cherry	214	--	214
Cherry / ash / yellow-poplar	9,178	110	9,068
Hard maple / basswood	56,010	552	55,458
Elm / ash / locust	45,676	1,598	44,078
All forest types	285,165	5,645	279,519
All hardwood groups	15,306,401	833,742	14,472,659
Nonstocked	3,908	170	3,738
All forest groups	15,905,253	1,302,138	14,603,115

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 7. -- Net volume of growing stock on timberland by species group, species, and diameter class, Missouri, 2001-2005
(in thousand cubic feet)

Species group/ species	All classes	Diameter class (inches at breast height)										
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods												
Loblolly and shortleaf pines												
Shortleaf pine	799,759	52,976	105,079	151,887	178,958	144,282	80,662	42,421	27,985	15,559	--	--
All species	799,759	52,976	105,079	151,887	178,958	144,282	80,662	42,421	27,985	15,559	--	--
Other yellow pines												
Scotch pine	578	136	120	322	--	--	--	--	--	--	--	--
All species	578	136	120	322	--	--	--	--	--	--	--	--
Eastern white and red pines												
Eastern white pine	7,888	68	456	301	3,296	3,768	--	--	--	--	--	--
All species	7,888	68	456	301	3,296	3,768	--	--	--	--	--	--
Other eastern softwoods												
Eastern redcedar	488,912	140,978	134,264	96,702	59,023	39,827	13,573	3,756	2,079	3,711	--	--
All species	488,912	140,978	134,264	96,702	59,023	39,827	13,573	3,756	2,079	3,711	--	--
Total softwoods	1,302,138	194,158	239,919	249,212	241,277	187,827	94,285	46,176	30,064	19,270	--	--
Hardwoods												
Select white oaks												
White oak	3,881,809	207,110	318,865	445,745	525,674	548,845	469,914	329,594	226,300	266,356	43,406	--
Swamp white oak	61,759	2,550	3,890	6,279	10,804	6,842	10,822	6,676	9,383	4,514	--	--
Bur oak	73,417	2,995	5,038	4,131	7,594	8,198	7,000	2,163	7,388	21,887	6,974	--
Swamp chestnut oak	5,587	153	145	--	--	--	--	--	--	1,768	3,476	--
Chinkapin oak	285,338	19,898	30,063	38,139	33,872	29,816	22,579	22,343	10,903	21,166	6,614	--
All species	3,757,915	232,706	358,001	484,294	577,943	583,700	510,315	360,776	253,972	315,737	60,471	--
Select red oaks												
Cherrybark oak	7,187	221	620	1,615	409	632	2,446	1,245	--	--	--	--
Northern red oak	919,247	84,905	59,513	79,806	100,337	118,112	118,089	99,694	117,962	151,149	39,680	--
Shumard oak	74,609	5,758	7,137	8,656	9,177	12,101	8,241	5,106	2,425	16,008	--	--
All species	1,001,043	40,884	67,269	90,077	109,923	130,845	128,776	106,046	120,387	167,157	39,680	--
Other white oaks												
Overcup oak	11,726	54	--	294	980	--	713	--	--	1,816	7,889	--
Chestnut oak	471	--	--	--	--	--	471	--	--	--	--	--
Post oak	1,573,179	151,932	258,219	290,662	251,657	232,059	177,606	94,693	58,943	42,038	15,370	--
All species	1,585,376	151,986	258,219	290,957	252,637	232,059	178,790	94,693	58,943	42,038	15,370	--
Other red oaks												
Scarlet oak	557,803	29,533	57,970	81,656	89,058	96,111	89,206	49,987	28,177	32,280	3,826	--
Northern pin oak	626	231	--	396	--	--	--	--	--	--	--	--
Southern red oak	49,055	4,356	4,267	5,516	7,547	8,557	4,939	2,069	3,817	4,104	3,883	--
Shingle oak	191,324	16,693	24,809	28,698	22,286	18,820	21,021	22,793	12,424	17,172	6,618	--
Blackjack oak	133,525	20,665	25,005	22,906	27,476	19,352	17,161	11,904	8,456	--	--	--
Pin oak	178,323	5,581	12,565	16,471	22,912	28,017	14,394	21,818	13,641	32,614	10,310	--
Willow oak	5,402	289	233	263	920	573	745	--	--	2,428	--	--
Black oak	2,338,500	125,563	221,123	343,271	416,108	412,682	342,379	276,404	186,444	209,190	5,335	--
All species	3,674,557	202,859	346,572	499,168	596,307	584,113	489,845	384,975	252,959	297,768	29,971	--
Hickory												
Bitternut hickory	204,375	23,010	32,421	31,117	37,557	23,952	33,780	8,198	11,632	2,708	--	--
Pignut hickory	143,322	14,308	18,520	23,767	24,116	19,539	22,044	9,018	3,937	8,052	--	--
Pecan	24,026	1,304	1,604	3,197	3,683	6,791	2,338	3,228	1,941	--	--	--
Shellbark hickory	45,895	2,633	4,127	6,285	5,239	4,669	1,012	3,079	2,444	16,609	--	--
Shagbark hickory	444,386	51,516	70,908	85,901	74,925	54,187	47,447	33,013	12,903	15,584	--	--
Black hickory	393,467	60,159	76,995	70,347	74,755	48,212	31,663	17,461	11,951	1,925	--	--
Mockernut hickory	304,106	44,259	56,200	63,253	55,326	39,708	22,991	12,869	5,267	4,833	--	--
All species	1,559,576	197,190	260,776	283,887	273,601	196,997	160,674	86,866	49,874	49,711	--	--
Hard maple												
Black maple	2,855	242	118	625	--	--	--	--	1,870	--	--	--
Sugar maple	226,356	36,419	37,114	42,632	32,523	27,618	16,146	13,976	13,013	6,914	--	--
All species	229,211	36,661	37,232	48,258	32,523	27,618	16,146	13,976	14,883	6,914	--	--

(Table 7 continued on next page)

(Table 7 continued)

Species group/ species	All classes	Diameter class (inches at breast height)									
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+
Hardwoods											
Soft maple											
Red maple	42,303	6,473	7,454	6,172	4,343	1,723	1,114	7,317	3,008	4,699	--
Silver maple	225,768	9,206	13,182	16,785	15,988	28,703	33,130	10,688	18,348	44,721	35,038
All species	268,071	15,680	20,636	22,957	20,311	30,426	34,244	18,005	21,356	49,420	35,038
Beech											
American beech	2,805	129	150	--	--	1,149	--	1,378	--	--	--
All species	2,805	129	150	--	--	1,149	--	1,378	--	--	--
Sweetgum											
Sweetgum	17,307	1,834	2,733	3,077	2,183	596	1,628	2,166	3,091	--	--
All species	17,307	1,834	2,733	3,077	2,183	596	1,628	2,166	3,091	--	--
Tupelo and blackgum											
Water tupelo	11,484	183	174	--	855	1,832	5,339	1,231	1,671	--	--
Blackgum	78,400	14,838	12,611	11,707	10,031	8,168	6,279	5,197	3,330	6,239	--
Swamp tupelo	94	--	94	--	--	--	--	--	--	--	--
All species	89,977	15,021	12,879	11,707	10,886	10,000	11,818	6,428	5,001	6,239	--
Ash											
White ash	197,915	21,346	26,909	33,941	24,547	22,976	25,704	21,290	14,604	6,800	--
Green ash	154,969	12,523	17,804	22,559	23,998	19,933	23,866	10,111	10,228	13,928	--
Blue ash	7,817	511	788	1,841	956	1,153	--	--	--	2,569	--
All species	360,701	34,380	45,499	58,341	49,501	44,061	49,590	31,401	24,832	23,097	--
Cottonwood and aspen											
Eastern cottonwood	148,130	1,574	3,773	2,428	7,340	2,341	13,523	20,444	21,350	26,021	44,337
All species	148,130	1,574	3,773	2,428	7,340	2,341	13,523	20,444	21,350	26,021	44,337
Basswood											
American basswood	25,868	1,217	2,640	3,004	4,696	766	3,260	--	4,266	6,068	--
All species	25,868	1,217	2,640	3,004	4,696	766	3,260	--	4,266	6,068	--
Yellow-poplar											
Yellow-poplar	14,202	363	884	842	983	4,111	4,365	1,016	1,638	--	--
All species	14,202	363	884	842	983	4,111	4,365	1,016	1,638	--	--
Black walnut											
Black walnut	442,628	22,833	41,262	58,753	73,027	71,725	54,528	47,381	33,625	39,494	--
All species	442,628	22,833	41,262	58,753	73,027	71,725	54,528	47,381	33,625	39,494	--
Other eastern soft hardwoods											
Boxelder	34,632	5,102	5,598	6,458	3,443	5,436	3,724	2,820	2,051	--	--
Ohio buckeye	4,604	1,279	1,252	140	1,410	522	--	--	--	--	--
River birch	27,647	1,517	3,305	4,213	6,192	6,191	3,203	3,025	--	--	--
Northern catalpa	323	--	--	323	--	--	--	--	--	--	--
Sugarberry	3,015	512	356	337	1,809	--	--	--	--	--	--
Hackberry	272,056	22,801	35,337	41,534	38,872	33,275	22,422	27,001	15,914	29,455	5,444
Butternut	2,535	59	215	269	759	1,233	--	--	--	--	--
American sycamore	319,514	7,068	11,985	14,720	19,447	31,870	43,760	28,882	33,098	86,879	36,796
Black cherry	79,660	15,943	17,745	16,741	11,942	8,613	5,319	1,014	--	2,342	--
Black willow	34,121	3,621	4,089	6,306	5,248	2,464	3,351	5,672	1,621	1,747	--
Sassafras	23,631	8,084	5,057	5,328	2,648	1,483	--	1,031	--	--	--
Winged elm	23,183	9,906	8,188	1,921	836	656	1,675	--	--	--	--
American elm	250,003	56,179	55,218	46,999	28,200	14,836	22,405	12,909	10,067	3,160	--
Slippery elm	96,685	24,345	20,512	14,329	13,814	7,280	6,768	4,209	4,175	1,253	--
All species	1,171,607	156,417	168,869	159,619	134,619	113,858	112,627	86,564	71,956	124,837	42,241

(Table 7 continued on next page)

(Table 7 continued)

Species group/ species	Diameter class (inches at breast height)											29.0+
	All classes	5.0-5.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Hardwoods												
Other eastern hard hardwoods												
Flowering dogwood	5,180	4,439	741	--	--	--	--	--	--	--	--	--
Common persimmon	21,589	9,587	6,848	3,811	970	372	--	--	--	--	--	--
Waterlocust	2,056	66	200	--	935	--	--	855	--	--	--	--
Honeylocust	153,166	13,182	18,892	27,689	22,663	28,968	9,371	19,124	4,081	8,794	5,401	--
Kentucky coffeetree	63,349	708	512	1,378	766	2,985	--	--	--	--	--	--
Mulberry spp.	97	--	--	--	--	--	--	--	--	--	--	--
White mulberry	3,817	353	185	1,056	349	520	--	--	1,355	--	--	--
Red mulberry	26,084	4,054	6,829	5,874	1,778	3,981	--	3,568	--	--	--	--
Black locust	40,732	3,680	6,669	9,551	5,625	8,617	4,469	--	2,120	--	--	--
All species	259,069	36,166	40,876	49,359	83,087	40,442	13,840	23,548	7,556	8,794	5,401	--
Total hardwoods	14,603,115	1,147,898	1,668,269	2,071,727	2,160,567	2,084,808	1,783,968	1,285,661	945,688	1,165,151	280,378	--
All species groups	15,905,233	1,342,056	1,908,188	2,320,939	2,410,844	2,272,635	1,878,203	1,331,838	975,752	1,184,420	280,378	--

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 8. -- Net volume of sawtimber on timberland by species group, species, and diameter class, Missouri, 2001-2005

(In thousand board feet)¹

Species group/ species	All classes	Diameter class (inches at breast height)								29.0+
		9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9		
Softwoods										
Loblolly and shortleaf pines										
Shortleaf pine	3,327,188	758,002	917,659	755,014	429,669	228,854	152,685	85,355	--	--
All species	3,327,188	758,002	917,659	755,014	429,669	228,854	152,685	85,355	--	--
Other yellow pines										
Scotch pine	1,660	1,660	--	--	--	--	--	--	--	--
All species	1,660	1,660	--	--	--	--	--	--	--	--
Eastern white and red pines										
Eastern white pine	35,399	1,334	15,477	18,589	--	--	--	--	--	--
All species	35,399	1,334	15,477	18,589	--	--	--	--	--	--
Other eastern softwoods										
Eastern redcedar	1,137,328	535,942	305,093	193,648	62,762	16,539	8,871	15,073	--	--
All species	1,137,328	535,942	305,093	193,648	62,762	16,539	8,871	15,073	--	--
Total softwoods	4,501,575	1,296,338	1,238,229	967,251	492,430	245,393	161,507	100,428	--	--
Hardwoods										
Select white oaks										
White oak	11,305,056	--	2,569,472	2,637,931	2,220,640	1,525,033	1,026,480	1,155,774	169,725	--
Swamp white oak	230,591	--	53,032	33,076	51,190	30,964	42,633	19,695	--	--
Bur oak	270,963	--	37,149	39,339	32,887	9,987	33,416	92,949	25,236	--
Swamp chestnut oak	21,335	--	--	--	--	--	--	7,914	13,421	--
Chinkapin oak	684,115	--	165,110	142,586	106,537	103,015	49,305	92,805	24,757	--
All species	12,512,060	--	2,824,762	2,852,932	2,411,256	1,668,999	1,151,835	1,369,137	233,139	--
Select red oaks										
Cherrybark oak	29,590	--	2,028	3,131	12,231	6,200	--	--	--	--
Northern red oak	3,657,317	--	497,680	590,606	592,163	497,758	584,986	725,707	168,418	--
Shumard oak	260,712	--	45,559	60,551	41,277	25,425	12,129	75,772	--	--
All species	3,941,620	--	545,267	654,288	645,670	529,383	597,115	801,479	168,418	--
Other white oaks										
Overcup oak	53,361	--	5,131	--	3,763	--	--	8,954	35,514	--
Chestnut oak	2,403	--	--	--	2,403	--	--	--	--	--
Post oak	4,201,325	--	1,224,710	1,124,254	859,349	456,676	280,139	194,187	62,010	--
All species	4,257,089	--	1,229,841	1,124,254	865,515	456,676	280,139	203,141	97,524	--

(Table 8 continued on next page)

(Table 8 continued)

Species group/ species	All classes	Diameter class (inches at breast height)							
		9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+
Hardwoods									
Other red oaks									
Scarlet oak	1,913,979	--	441,620	477,802	441,948	246,296	137,620	152,759	15,983
Southern red oak	168,048	--	37,342	42,543	24,495	10,113	18,598	19,047	15,910
Shingle oak	589,453	--	110,398	93,491	104,099	112,535	60,488	81,052	27,410
Blackjack oak	418,609	--	136,843	96,514	85,392	58,717	41,148	--	--
Pin oak	692,923	--	113,005	138,845	71,168	107,326	66,217	151,385	44,976
Willow oak	22,267	--	4,511	2,801	3,665	--	--	11,290	--
Black oak	9,109,138	--	2,065,376	2,054,554	1,701,649	1,363,324	910,778	990,218	23,289
All species	12,914,416	--	2,909,094	2,906,549	2,432,417	1,898,312	1,234,824	1,405,751	127,468
Hickory									
Bitternut hickory	585,271	--	186,302	119,018	167,775	40,889	57,845	13,442	--
Pignut hickory	429,797	--	119,319	96,974	109,606	44,848	19,556	39,494	--
Pecan	86,700	--	17,751	32,551	11,335	15,638	9,425	--	--
Shellbark hickory	159,468	--	25,339	22,688	4,894	14,883	10,900	80,759	--
Shagbark hickory	1,145,236	--	352,974	262,845	230,221	160,571	62,813	75,812	--
Black hickory	921,737	--	369,791	239,093	157,393	86,751	59,243	9,467	--
Mockernut hickory	680,208	--	267,531	192,393	108,742	62,539	25,513	23,490	--
All species	4,008,412	--	1,339,007	965,562	789,967	426,119	245,293	242,465	--
Hard maple									
Black maple	8,622	--	--	--	--	--	8,622	--	--
Sugar maple	519,509	--	153,849	131,181	76,639	65,702	60,751	31,386	--
All species	528,130	--	153,849	131,181	76,639	65,702	69,373	31,386	--
Soft maple									
Red maple	96,419	--	18,837	7,522	4,896	32,029	13,133	20,001	--
Silver maple	797,831	--	69,285	125,394	145,339	46,872	80,149	192,472	138,319
All species	894,250	--	88,122	132,916	150,235	78,901	93,282	212,473	138,319
Beech									
American beech	12,586	--	--	5,783	--	6,802	--	--	--
All species	12,586	--	--	5,783	--	6,802	--	--	--
Sweetgum									
Sweetgum	43,644	--	9,964	2,761	7,448	9,738	13,734	--	--
All species	43,644	--	9,964	2,761	7,448	9,738	13,734	--	--
Tupelo and blackgum									
Water tupelo	50,240	--	3,901	8,348	25,078	5,524	7,389	--	--
Blackgum	178,994	--	46,449	37,630	28,775	23,697	14,991	27,253	--
All species	229,234	--	50,350	46,178	53,853	29,221	22,380	27,253	--

(Table 8 continued on next page)

(Table 8 continued)

Species group/ species	Diameter class (inches at breast height)									
	All classes	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Hardwoods										
Ash										
White ash	540,291	--	111,252	106,421	120,937	101,233	69,679	30,770	--	
Green ash	475,866	--	108,666	92,395	112,549	48,027	48,791	65,488	--	
Blue ash	21,600	--	4,357	5,307	--	--	--	11,937	--	
All species	1,037,758	--	224,274	204,123	233,466	149,260	118,470	108,145	--	
Cottonwood and a spen										
Eastern cottonwood	648,715	--	33,971	11,102	66,876	102,929	107,934	131,073	194,831	
All species	648,715	--	33,971	11,102	66,876	102,929	107,934	131,073	194,831	
Basswood										
American basswood	94,261	--	23,760	3,858	16,306	--	20,939	29,398	--	
All species	94,261	--	23,760	3,858	16,306	--	20,939	29,398	--	
Yellow-poplar										
Yellow-poplar	62,615	--	4,825	21,403	22,863	5,190	8,933	--	--	
All species	62,615	--	4,825	21,403	22,863	5,190	8,933	--	--	
Black walnut										
Black walnut	1,497,685	--	349,284	342,385	258,933	222,358	154,213	170,562	--	
All species	1,497,685	--	349,284	342,385	258,933	222,358	154,213	170,562	--	
Other eastern soft hardwoods										
Boxelder	79,717	--	15,827	24,949	16,953	12,716	9,273	--	--	
Ohio buckeye	8,885	--	6,469	2,416	--	--	--	--	--	
River birch	85,447	--	28,519	28,528	14,633	13,767	--	--	--	
Sugarberry	8,410	--	8,410	--	--	--	--	--	--	
Hackberry	756,318	--	180,507	151,316	100,504	117,674	68,313	118,009	19,995	
Butternut	9,188	--	3,495	5,693	--	--	--	--	--	
American sycamore	1,304,946	--	86,328	143,335	200,561	132,924	176,710	403,283	161,805	
Black cherry	134,480	--	55,101	39,647	24,612	4,630	--	10,489	--	
Black willow	87,550	--	22,951	10,786	14,546	24,836	6,971	7,459	--	
Sassafras	23,851	--	12,295	6,901	--	4,656	--	--	--	
Winged elm	13,684	--	3,868	2,769	7,047	--	--	--	--	
American elm	410,772	--	130,889	66,723	100,579	55,185	43,753	13,662	--	
Slippery elm	168,833	--	64,036	33,143	29,836	18,907	17,739	5,192	--	
All species	3,092,101	--	618,675	516,206	509,272	385,296	322,759	558,094	181,800	

(Table 8 continued on next page)

(Table 8 continued)

Species group/ species	Diameter class (inches at breast height) ¹									
	All classes	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Hardwoods										
Other eastern hard hardwoods										
Common persimmon	6,244	--	4,481	1,762	--	--	--	--	--	
Waterlocust	8,331	--	4,378	--	--	3,958	--	--	--	
Honeylocust	423,483	--	104,784	110,628	42,997	87,012	18,351	38,074	21,637	
Kentucky coffeetree	17,296	--	3,335	13,761	--	--	--	--	--	
White mulberry	10,115	--	1,628	2,937	--	--	6,090	--	--	
Red mulberry	42,837	--	8,221	18,301	--	16,315	--	--	--	
Black locust	95,778	--	23,899	39,708	20,645	--	9,526	--	--	
All species	604,084	--	152,921	186,558	63,642	107,285	33,967	38,074	21,637	
Total hardwoods	46,378,661	--	10,557,917	10,108,041	8,604,378	6,142,170	4,474,589	5,328,430	1,163,136	
All species groups	50,880,236	1,296,338	11,796,145	11,075,292	9,096,808	6,387,563	4,636,095	5,428,858	1,163,136	

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand board feet. Columns and rows may not add to their totals due to rounding.

¹ International 1/4-inch rule.

Table 9. -- All live aboveground tree biomass on timberland by owner category, softwood/hardwood species category, and tree biomass component, Missouri, 2001-2005

(In thousand dry tons)

Owner category and softwood/hardwood category	Tree biomass component											
	All live components			Growing-stock trees			Non-growing-stock trees			Total	Stumps, tops, and limbs	
	All 1-5 inch trees	All live trees	Total	Boles	Stumps, tops, and limbs	Total	Boles	Stumps, tops, and limbs	Total			
Public												
Softwoods	10,711	568	9,998	8,330	1,669	144	107	37				
Hardwoods	91,488	9,123	73,275	52,642	20,633	9,091	6,634	2,456				
Total	102,199	9,691	83,273	60,972	22,301	9,285	6,742	2,493				
Private												
Softwoods	21,485	3,719	16,056	12,134	3,922	1,710	1,224	486				
Hardwoods	447,430	35,259	344,859	246,631	98,228	67,312	49,028	18,284				
Total	468,916	38,978	360,915	258,765	102,150	69,023	50,252	18,770				
All ownerships												
Softwoods	32,196	4,287	26,055	20,464	5,591	1,854	1,331	523				
Hardwoods	538,919	44,382	418,134	299,273	118,860	76,403	55,662	20,740				
Total	571,115	48,669	444,188	319,737	124,451	78,257	56,994	21,264				

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the aboveground tree biomass rounds to less than 1 thousand dry tons. Columns and rows may not add to their totals due to rounding.

Table 10. -- Average annual net growth of growing stock on timberland by species group and owner category, Missouri, 1999-2000 to 2004-2005

(In thousand cubic feet per year)

Species group	Owner category			
	All owners	Public	Private	Unidentified owner
Softwoods				
Loblolly and shortleaf pines	24,810	14,098	10,712	--
Eastern white and red pines	427	427	--	--
Other eastern softwoods	28,451	4,123	24,328	--
Total softwoods	53,688	18,648	35,040	--
Hardwoods				
Select white oaks	105,548	22,190	83,358	--
Select red oaks	17,969	-500	18,469	--
Other white oaks	47,933	5,822	42,111	--
Other red oaks	94,836	19,247	75,590	--
Hickory	50,663	7,026	43,636	--
Hard maple	9,748	-542	10,289	--
Soft maple	15,592	6,625	8,967	--
Beech	256	52	204	--
Sweetgum	2,002	681	1,321	--
Tupelo and blackgum	2,731	571	2,159	--
Ash	14,709	824	13,885	--
Cottonwood and aspen	7,941	1,189	6,753	--
Basswood	-1,360	45	-1,405	--
Yellow-poplar	563	32	531	--
Black walnut	19,764	1,761	18,002	--
Other eastern soft hardwoods	59,303	1,382	57,921	--
Other eastern hard hardwoods	14,931	1,956	12,974	--
Total hardwoods	463,129	68,362	394,768	--
All species groups	516,817	87,009	429,808	--

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 11. -- Average annual removals of growing stock on timberland by species group and owner category, Missouri, 1999-2000 to 2004-2005

(In thousand cubic feet per year)

Species group	Owner category			
	All owners	Public	Private	Unidentified owner
Softwoods				
Loblolly and shortleaf pines	2,954	647	2,307	--
Other eastern softwoods	3,316	1,179	2,136	--
Total softwoods	6,269	1,826	4,444	--
Hardwoods				
Select white oaks	32,083	2,824	29,260	--
Select red oaks	9,889	1,654	8,235	--
Other white oaks	11,279	806	10,473	--
Other red oaks	46,550	3,157	43,393	--
Hickory	9,811	1,462	8,349	--
Hard maple	561	179	382	--
Soft maple	811	--	811	--
Sweetgum	4,243	--	4,243	--
Tupelo and blackgum	1,354	1,325	29	--
Ash	3,101	--	3,101	--
Cottonwood and aspen	9,846	--	9,846	--
Basswood	627	--	627	--
Black walnut	5,716	576	5,140	--
Other eastern soft hardwoods	6,286	1,387	4,900	--
Other eastern hard hardwoods	3,044	150	2,894	--
Total hardwoods	145,199	13,518	131,681	--
All species groups	151,469	15,344	136,125	--

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Table 12. -- Average annual mortality of growing stock on timberland by species group and owner category, Missouri, 1999-2000 to 2004-2005

(In thousand cubic feet per year)

Species group	Owner category			
	All owners	Public	Private	Unidentified owner
Softwoods				
Loblolly and shortleaf pines	2,234	1,708	525	--
Eastern white and red pines	103	103	--	--
Other eastern softwoods	789	--	789	--
Total softwoods	3,126	1,812	1,314	--
Hardwoods				
Select white oaks	14,336	2,414	11,922	--
Select red oaks	15,888	4,949	10,939	--
Other white oaks	4,164	360	3,804	--
Other red oaks	71,464	16,937	54,527	--
Hickory	5,430	551	4,879	--
Hard maple	1,756	1,632	123	--
Soft maple	4,364	64	4,300	--
Sweetgum	43	--	43	--
Tupelo and blackgum	343	--	343	--
Ash	2,803	--	2,803	--
Cottonwood and aspen	350	--	350	--
Basswood	2,209	--	2,209	--
Black walnut	533	46	487	--
Other eastern soft hardwoods	17,308	3,153	14,155	--
Other eastern hard hardwoods	1,411	--	1,411	--
Total hardwoods	142,404	30,106	112,298	--
All species groups	145,529	31,918	113,611	--

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 thousand cubic feet. Columns and rows may not add to their totals due to rounding.

Moser, W. Keith; Hansen, Mark H.; Brand, Gary J.; Treiman, Thomas B.

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The U.S. Forest Service, Northern Research Station's Forest Inventory and Analysis program is continuing its annual inventory of Missouri's forest resources. This report presents estimates of area, volume, and biomass using data for 2005, and growth, removals, and mortality using data for the most recent remeasurement period. Estimates from this inventory showed a total of 14.7 million acres of forest land in the state. The estimate of total net volume of live trees on forest land was 18.8 billion cubic feet. Higher than average mortality values for certain oak species are likely due to the increased age of the state's forests, as well from a drought-induced oak decline over much of the past 10 years.

KEY WORDS: Missouri, annual inventory, forest land, timberland, forest type, volume, biomass

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