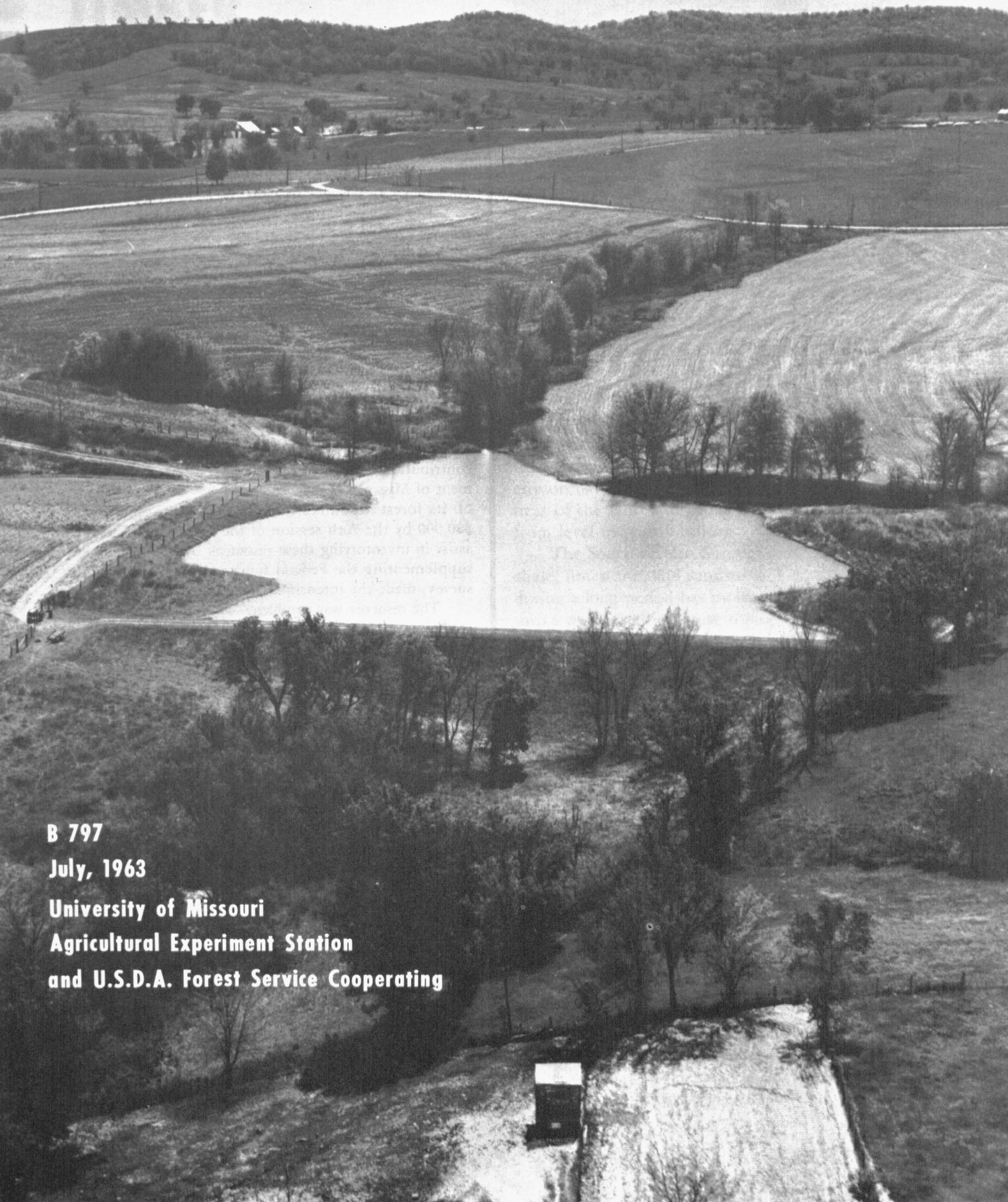


TIMBER RESOURCES of the MISSOURI PRAIRIE REGION



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University of Missouri

Agricultural Experiment Station

and U.S.D.A. Forest Service Cooperating

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COVER PHOTO: Lost Creek Watershed near Elsberry, Missouri. Courtesy of U. S. Soil Conservation Service

This bulletin reports on Missouri Agricultural Experiment Station Research Project 399, Forest Survey.

FOREWORD

This is the second in a new series of reports describing the timber resources of Missouri. It presents statistical data needed in long-range planning to meet future demands. In addition, it provides up-to-date information that will help rural communities and forest-based industries make greater use of their forest resources.

The first forest survey of Missouri was made in 1947. Changes in timber cutting, land use, and tree growth since then have all served to modify the forest situation. The resurvey reveals the changes that have occurred and the trends that have developed since the first survey.

The new survey, part of which is reported here, began in January, 1958, and ended in December, 1960. It is part of the nationwide program of maintaining a current account of our forest assets authorized by Congress in the McSweeney-McNary Forest Research Act of May 22, 1928. A distinctive feature of the resurvey for Missouri is an intensification that permits presenting county data for the more heavily forested areas. This important contribution is directly attributable to the State Government of Missouri. The State's awareness of the importance of its forest resources resulted in an appropriation of \$80,000 by the 70th session of the General Assembly to assist in inventorying these resources. This appropriation, supplementing the Federal funds available for a regular survey, made the intensified survey possible.

The resurvey was conducted by the Forest Survey organization of the Lake States Forest Experiment Station in active collaboration with the School of Forestry, University of Missouri, which administered the state functions of the survey. The Central States Forest Experiment Station participated in the studies of timber cut, collaborated in compiling the data, and prepared this report.

Acknowledgment is made of the active participation of the North Central Region of the U.S. Forest Service, which surveyed the National Forests in Missouri, and the Missouri Conservation Commission and the T. J. Moss Tie Company, which provided men and equipment to assist in surveying areas of their interest.

Appreciation is also expressed to the U.S. Agricultural Stabilization and Conservation Service in Missouri and the Mark Twain and Clark National Forests for providing the survey crew with office space and unlimited use of their aerial photographs.

The resurvey was directed by Clarence D. Chase, head of the Forest Survey Unit at the Lake States Forest Experiment Station. Data were compiled by Burton L. Essex.

TIMBER RESOURCES of the MISSOURI PRAIRIE REGION

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● The Missouri Prairie Region is divided into two subregions. One spans the entire northern third of the state. The other extends south along the western boundary from the Missouri River on the north to Jasper and Lawrence Counties on the south (Fig. 1). The Northern Subregion contains 13 million acres and the Southwestern, 6.5 million. Together they include 44 percent of the total land area and 53 of the 114 counties in Missouri.

Soils of the Northern Subregion are of glacial origin. As the last glacier receded it left a broad till

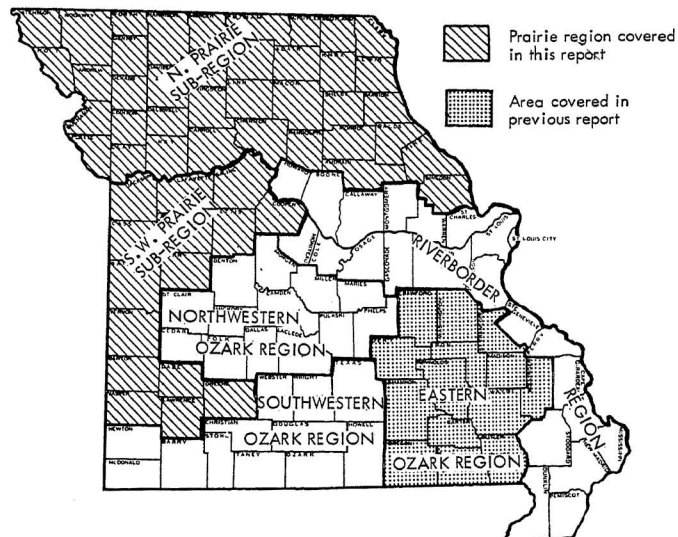


Figure 1.—Location of Forest Survey units in Missouri, 1959.

plain with low-lying moraines. Wind then spread a layer of loess over the areas adjacent to the Missouri and Mississippi Rivers, the largest accumulation occurring in northwest Missouri. The forces of erosion have since done little to change the smoothness of the land and today the topography ranges from level to gently rolling.

The Southwestern Subregion is underlain with shale, limestone, and sandstone. Continued erosion during a long period has molded this parent material into a geologically mature topography of flat plains and rolling escarpments.

The gentle lay of the land in the Prairie Region permits extensive agriculture. Though the prairie occupies almost one-half the land surface of Missouri, it supports less than one-fifth of the state's total forest area.

When the early settlers arrived here, they found belts of trees that ranged from a few rods to 10 miles wide along all the larger drainages. But they cleared these woods when they broke the sod. The bulk of the timber remaining today is found along the wet bottoms and rough hills of streams where farming is impractical, or as small scattered farm woodlands.

In the Prairie Region there are six nonforested acres for every forested one—this is farming country where one can drive for miles without seeing any concentration of woodland. For this reason, the prairie was not sampled as intensively as the other more heavily forested regions of the state. The prairie report is less detailed than the reports for the more heavily forested regions.

Forest Area Increases 15 Percent

There are 19.5 million acres of land in Missouri's Prairie Region and only about 2.9 million acres or 15 percent of it is forest. In comparison, more than 70 percent of the 6.2 million acres in Missouri's eastern Ozarks are forested.

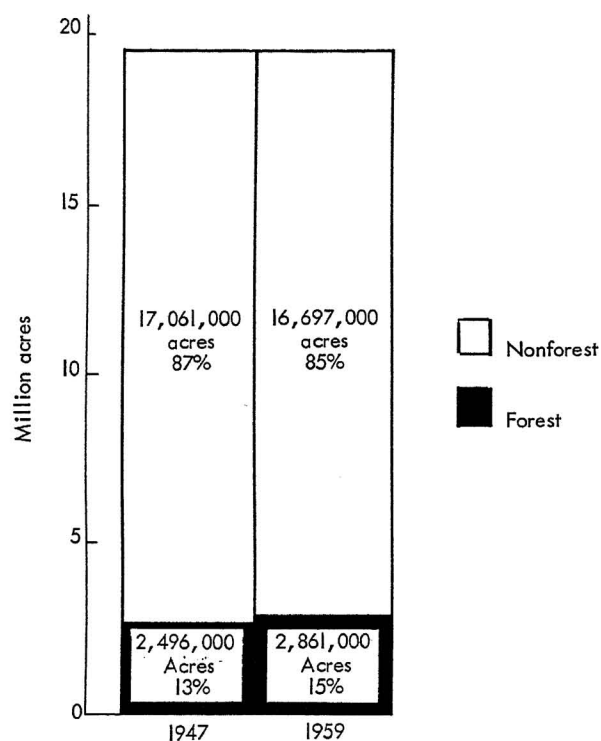


Figure 2.—Comparison of forest and nonforest area, 1947 and 1959.

The forest acreage of the Prairie Region is well distributed. About 15 percent of the land area in both the Northern and Southwestern Subregions is in forest. None of the 53 prairie counties is less than 8 or more than 26 percent forested. Pike County with 110,000 acres has the greatest forest area and Worth County with 16,000 acres has the least.

Analysis of the earlier inventory indicates the forest area has increased from 2,496,000 to 2,861,000 acres since 1947 (Fig. 2). The 365,000-acre difference represents a 15 percent increase. Almost half occurred in the 19 western counties of the Northern Prairie Subregion.

A reduction in grazing in combination with the soil bank legislation passed by Congress in 1956 probably accounts for most of the increase in forest acreage. Pasture land in the Prairie Region diminished about 600,000 acres between 1949 and 1959¹. Some of this acreage, left idle, reverted to forest. Soil bank legislation has put many acres of nonforest land into the Conservation Reserve Program (about 800,000 for the State of Missouri in 1960)². A portion of this acreage now classifies as nonstocked or poorly stocked commercial forest. These soil bank lands are under contracts averaging 6 years.

About 30,000 acres or 1 percent of the Prairie Region's forest land is classified as noncommercial. This is forest land that has been withdrawn from timber production because it is set aside for a park or similar use or is incapable of producing industrial wood crops because of poor site conditions.

¹U. S. Bureau of the Census. U. S. Census of Agriculture: 1950. Vol. I, Counties and State Economic Areas, Part 10, Missouri. U. S. Govt. Printing Office, Wash., D. C., 1952.

U. S. Bureau of the Census. U. S. Census of Agriculture: 1959. Vol. I, Counties, Part 17, Missouri. U. S. Govt. Printing Office, Wash., D. C., 1961.

²U. S. Agricultural Stabilization and Conservation Service. Conservation Reserve Program of the Soil Bank, 1960 Statistical Summary. Wash., D. C., August 1961.

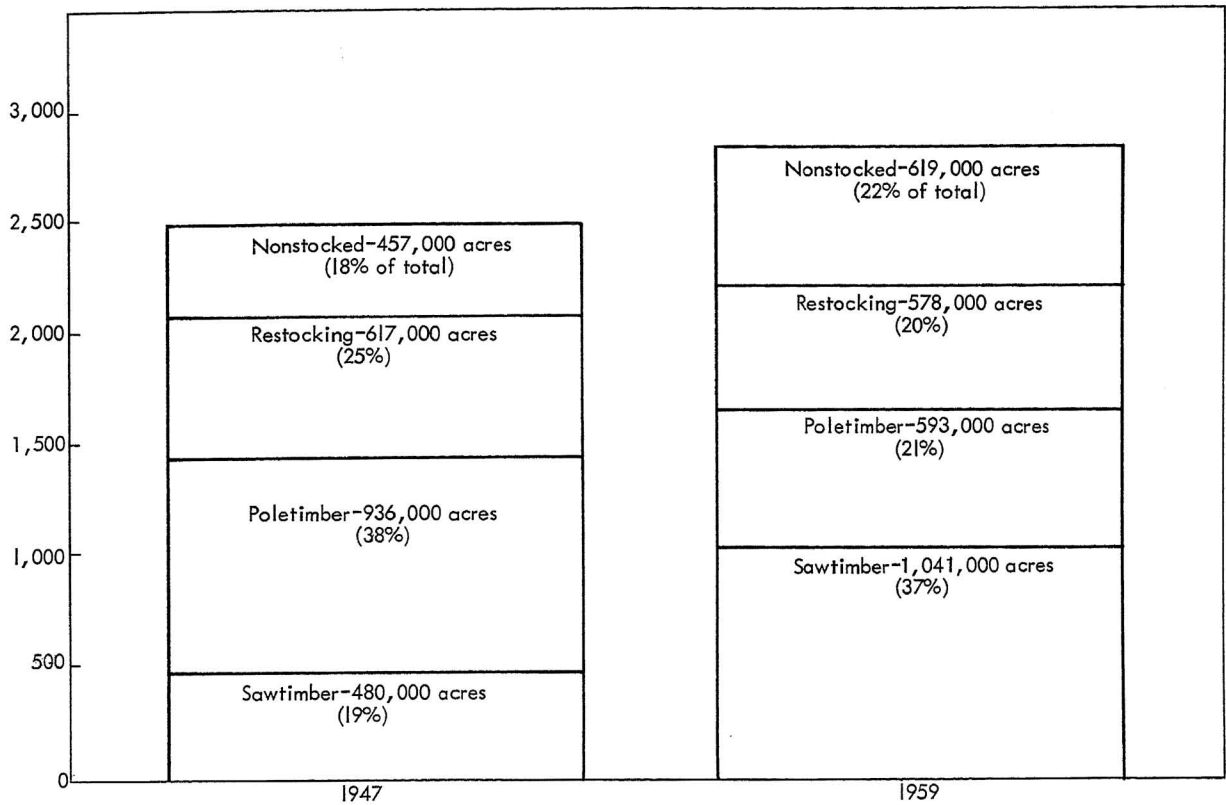


Figure 3.—Distribution of commercial forest area by stand-size class in 1947 and 1959.

Acreage in Sawtimber Stands Doubles

Sawtimber stands occupy more than 1 million acres or 37 percent of the total commercial forest acreage in the Prairie Region. Acreage of sawtimber stands has more than doubled since 1947.

While the acreage of sawtimber stands was doubling, pole stands decreased 37 percent to 593,000 acres and nonstocked forest increased 36 percent to 619,000 acres. Acreage in seedling and sapling stands remained about the same (Fig. 3).

Most of the increase in sawtimber acreage was due to the advancement of pole stands to sawtimber

size. The addition of reverted pastures and Conservation Reserve land to the prairie forest was largely responsible for the increase in nonstocked acreage.

The distribution of forest area by stand-size classes is about the same in both Prairie Subregions. Sawtimber stands represent 39 percent of the commercial forest area in the north and 33 percent in the southwest. Pole, restocking, and nonstocked stands each account for about 20 percent of the commercial forest area in both subregions.

Elm-Ash-Cottonwood the Major Forest Type

The elm-ash-cottonwood combination is the major forest type of the Prairie Region. It occupies about 1.4 million acres or 48 percent of the total area of commercial forest. Fifty-five percent of the Region's acreage in sawtimber stands is classified elm-ash-cottonwood. The type also accounts for 27, 43, and 61 percent of the total acreage of pole stands, restocking stands, and nonstocked stands, respectively. Elm, ash, and cottonwood are the major species of this bottomland type, but the type also contains a large amount of oak.

Black-scarlet oak, consisting of upland oaks and hickory, is the second largest type. It occupies 852,000 acres or 30 percent of the total area of commercial forest (Fig. 4).

The elm-ash-cottonwood type is prominent because it occupies most of the bottom areas that are too wet for farming. Also, the light-seeded representatives of the type, particularly elm, are quick to occupy land left idle. Many pastures or fields left ungrazed or uncultivated for a few years have been taken over by elm seedlings.

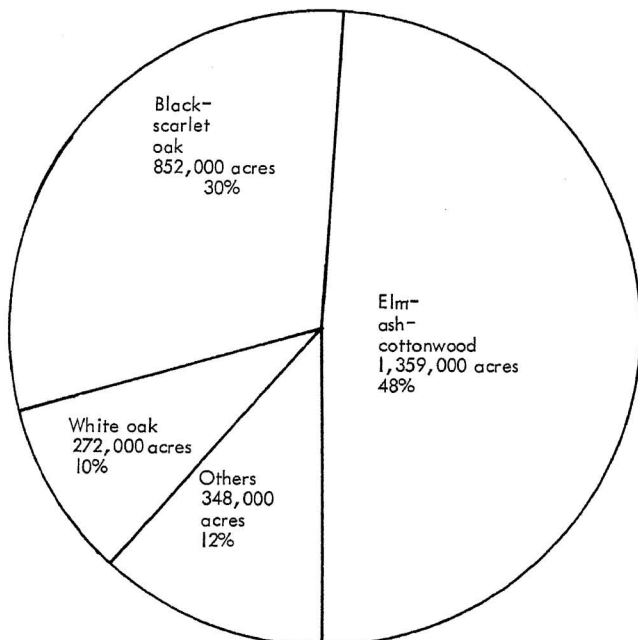


Figure 4.—Distribution of commercial forest area by major forest types, 1959.

Site quality is poorer on the average in the Southwestern Subregion than it is in the north. Some of the dry ridge-top lands characteristic of the adjacent Ozark Region extend into the Southwestern Prairie. As a result, the Southwestern Prairie Subregion contains 119,000 acres or 86 percent of the Prairie Region's post-blackjack oak type. On the other hand, the Northern Subregion, with its deeper soils and better sites, contains all the Prairie Region's acreage of the lowland oak type and 84 percent of the white oak type.

Farmers Own Much of the Forest

Farmers own 78 percent of the commercial forest acreage in the prairies and other private owners possess 21 percent. The remaining 1 percent is in public ownership (Fig. 5).

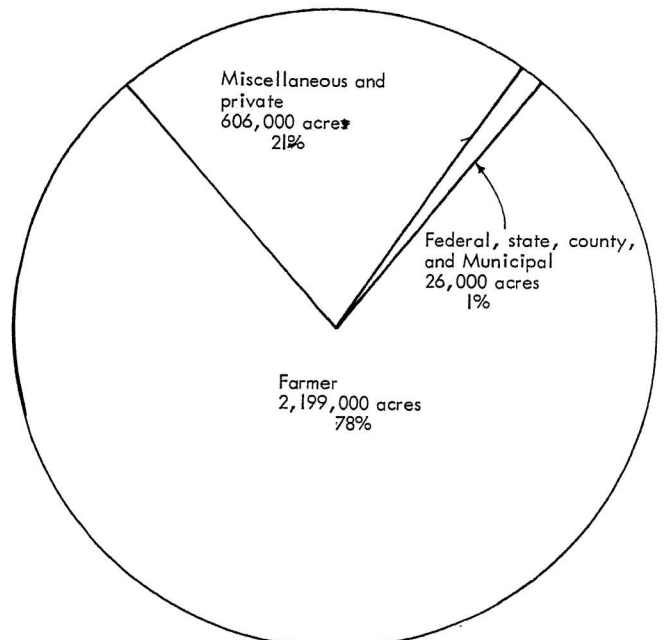


Figure 5.—Distribution of commercial forest area by ownership, 1959.

Growing-Stock Volume Increases 18 Percent

Since the last forest inventory of 1947, the total volume of growing stock in the prairie has increased from 9.2 to 10.9 million cords, a gain of 18 percent or 1.5 percent per year³.

Large increases in volume occurred in the smaller diameter classes between surveys. Poletimber volume increased 26 percent to about 4.6 million cords. Still, almost 6.3 million cords or 57 percent of the growing stock remains in trees of sawtimber size (Figs. 6 and 7).

Four and nine-tenths million cords or 45 percent of the 1959 growing stock is oak and one-third of the oak volume is white oak. Elm alone

³Tables used to compute volumes for 1959 differ from those used to compute volumes for 1947. Adjustments were made in 1947 volumes to permit comparison with 1959 data.

accounts for approximately 2.0 million cords or 18 percent of the total growing stock (Fig. 8).

Sawtimber volume increased 14 percent from 2,675 to 3,059 million board feet between surveys. Much of this increase was due to the large movement of poletimber trees to sawtimber size.

The oaks account for 44 percent of the sawtimber volume and white oak represents about one-third of the oak volume. Twenty percent of the volume of the sawtimber growing stock is elm, a species that has limited markets and is at present very low on the list of desirable timber species.

Over 60 percent of the total volume of sawtimber is in trees of 16+ inches d.b.h and about 30 percent of the total is in trees of 20+ inches d.b.h.

Farmers own most of the growing stock. They hold 79 percent of the total cord volume and 81 percent of the sawtimber volume.

The oaks, hickories, and elms account for about 70 percent of the total volume of growing stock in each of the prairie subregions. Individual species differ in their distribution. For example, 85 percent

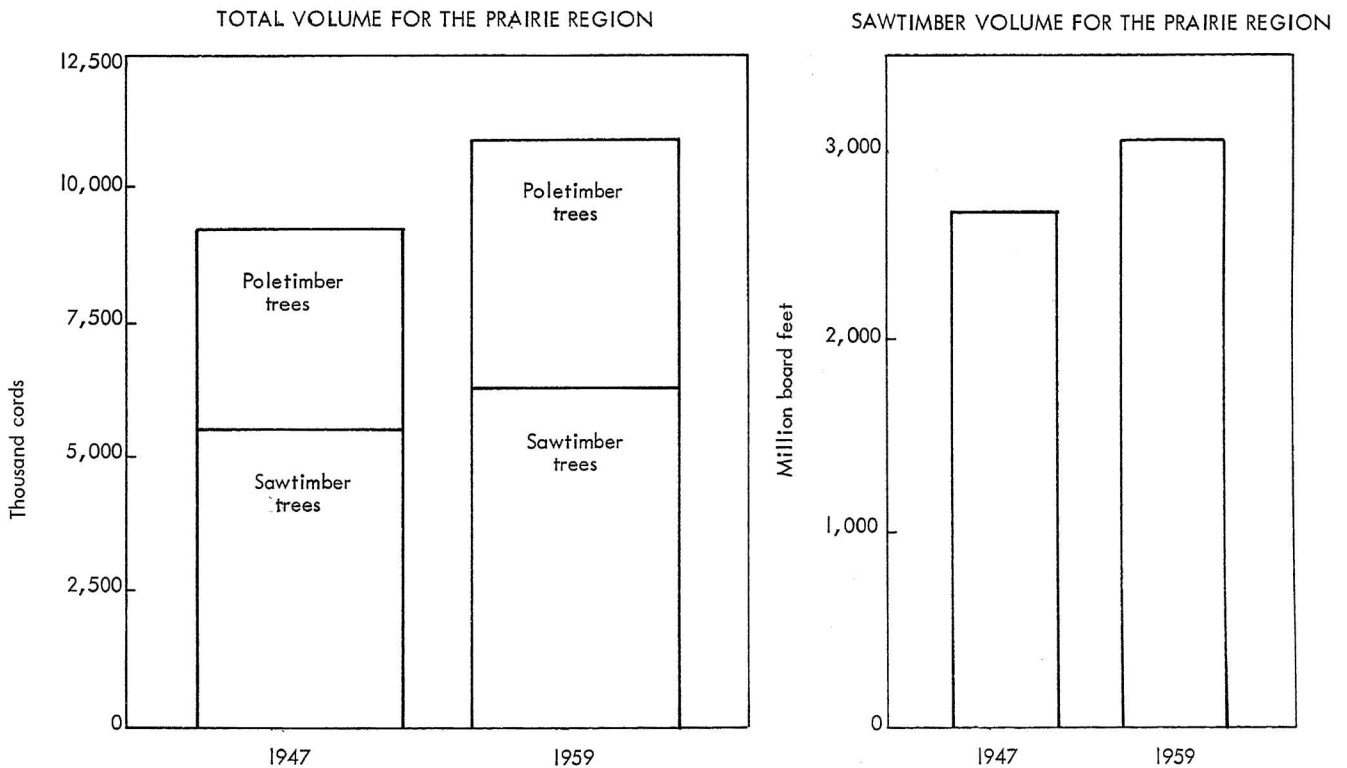


Figure 6.—Comparison of the volume of growing stock on commercial forest land in 1947 and 1959.

of the white oak volume of the prairie is in the Northern Subregion and 80 percent of the post oak volume is in the Southwest Subregion.

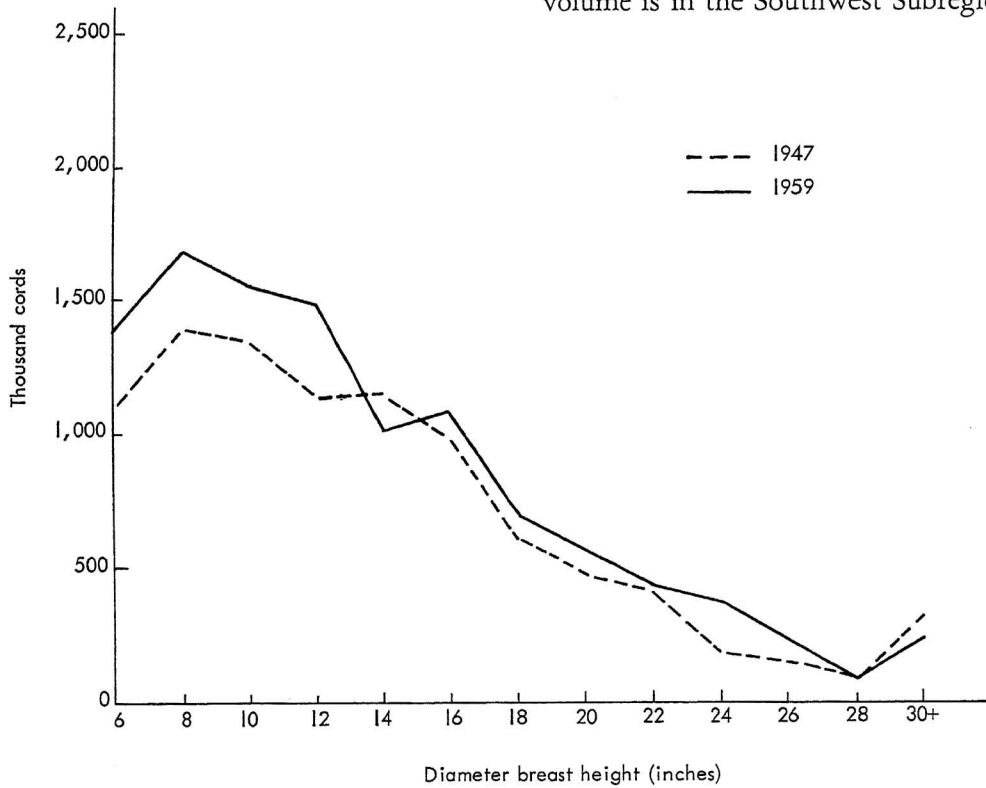


Figure 7.—Distribution of the volume of growing stock by tree-diameter classes, 1947 and 1959.

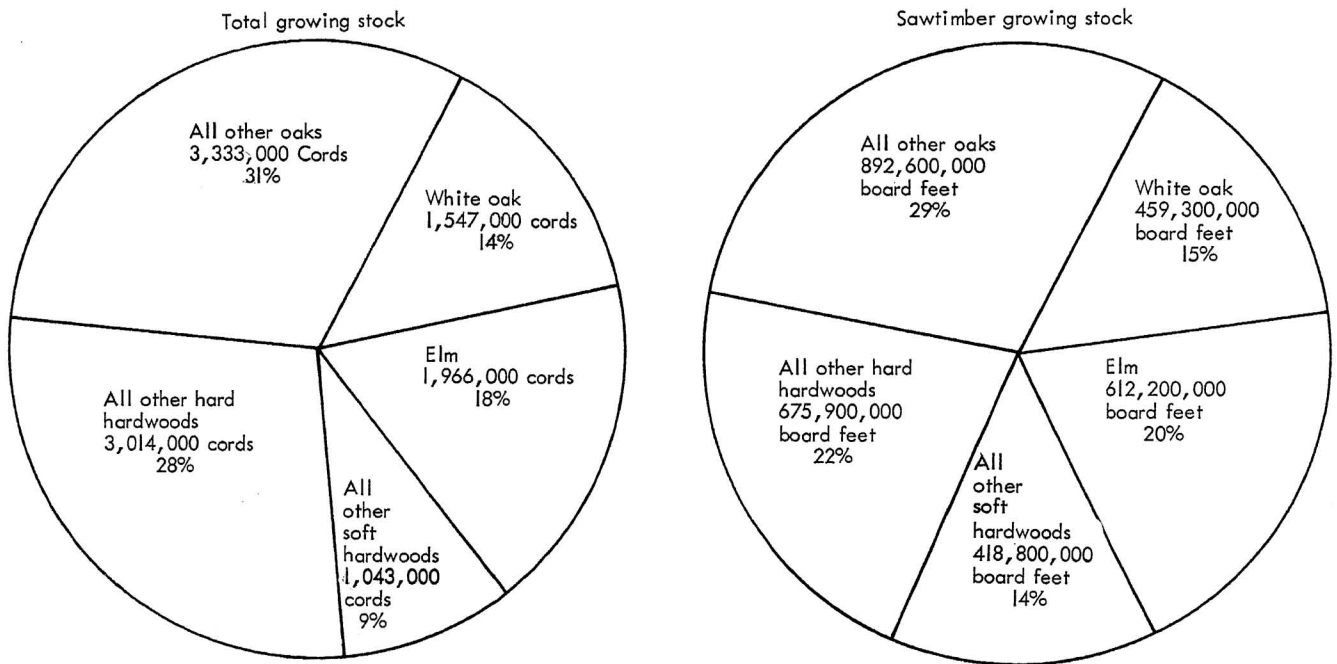


Figure 8.— Distribution of growing-stock volume by major species groups, 1959.

Volume Per Acre Increases Slightly

The volume of growing stock per acre increased slightly from 3.7 cords (292 cubic feet) in 1947 to 3.9 cords (301 cubic feet) in 1959 (Fig. 9). This increase would have been more pronounced except for the fact that the 18 percent increase in growing stock that took place between inventories was spread over a larger area in 1959 than in 1947.

Sawtimber volume per acre increased from 1,074 to 1,081 board feet. Yet board feet per acre in sawtimber stands decreased from 3,179 to 2,373. Many younger stands grew into sawtimber between surveys. These younger stands averaged in with existing sawtimber contributed to the decrease.

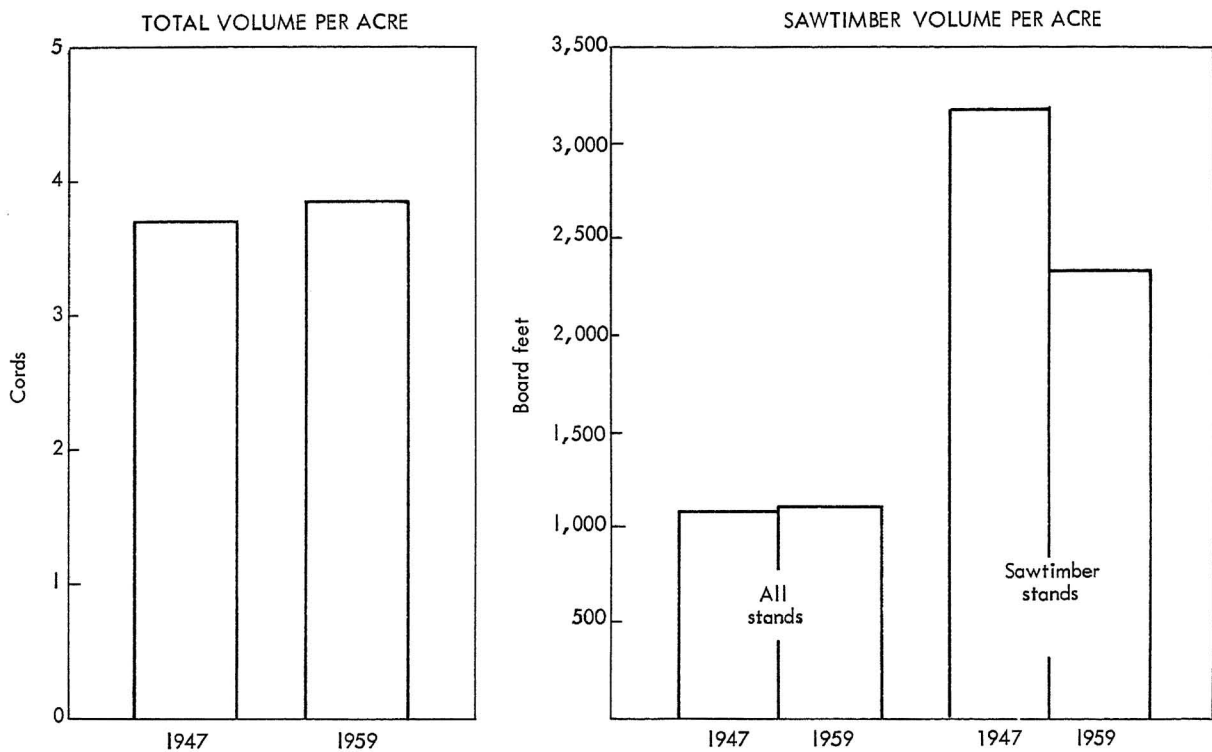


Figure 9.— Comparison of volume per acre, 1947 versus 1959.

Growing-Stock Quality Is Low

The quality of the growing stock of the prairie forest is poor. Only 43 percent of the trees are suitable for future management, and only one-tenth of these qualify as crop or good storage trees. Thirty-two percent of the trees in the region are cull according to present standards of the Forest Survey. The remaining 25 percent should be harvested as soon as possible because they are too old, rough, or defective to manage for future commercial products.

The quality of saw-log material is also low. Only 10 percent of the sawtimber growing stock volume is log grade 2 or better; 21 percent is grade 3 and 69 percent is tie and timber.

The poor condition of the prairie timber is not surprising. The farm residents do little in the way of forest management. Timberlands are generally left to grow as they will. When a commercial cut is

made, only the most desirable species and highest quality trees are taken, leaving a residual stand of defective and overmature trees and unwanted species. Also, much of the prairie forest is poorly stocked land used for grazing. The trees that occupy these relatively open areas tend to be limby and of poor sawlog quality.

Annual Growth Exceeds 600,000 Cords

Annual net growth in the Prairie Region before cutting amounted to 610,500 cords or 5.6 percent of total growing stock. This is equivalent to 17 cubic feet or 0.22 cords per acre. Forty-five percent of this growth occurred on poletimber trees. Thirty-seven percent was ingrowth of sapling trees to poletimber and 18 percent was growth on sawtimber trees (Fig. 10). Twenty-nine percent of the growth accumulated on the oaks and 24 percent on elm.

Annual net growth of sawtimber in all stands

was 171.1 million board feet or 60.5 board feet per acre. Sixty-six percent of this sawtimber growth was ingrowth of poletimber trees. Thirty-five percent of the sawtimber growth accumulated on oaks and 21 percent on elm.

The annual net increment in sawtimber stands amounted to 99 board feet per acre.

High mortality, resulting from the prolonged drouth of the late 1950s, had a severe effect on timber growth in the Prairie Region. Sawtimber trees

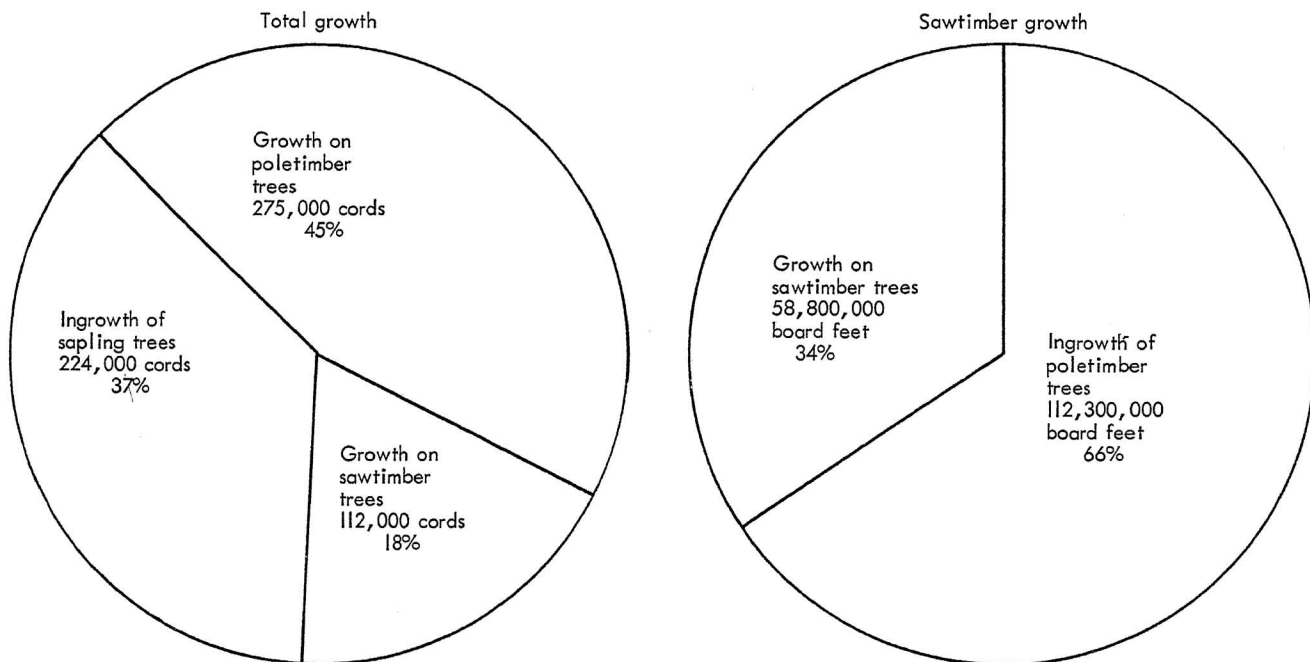


Figure 10.—Periodic annual net growth on commercial forest land, 1959.

of the red oak group were the hardest hit and the damage was most pronounced in the Southwestern Subregion. The effect of the drouth on black oak

sawtimber was so great that the total annual growth of this species in the Prairie Region was negative.

Cut of Almost 400,000 Cords Annually Desirable

An estimated net desirable cut of 394,800 cords of growing stock, including 116.8 million board feet of sawtimber, can be harvested from the Missouri prairie forest annually during the next decade. Sixty percent of the total cord volume should come from sawtimber trees. Forty-one percent of the total should come from oak species and 25 percent from elm (Fig. 11). New markets for poletimber trees and elm species would have to be developed to make this desired cut possible.

About 110 million board feet or 94 percent of

the total annual cut of sawtimber should come from sawtimber stands. This amounts to a cut of 106 board feet per acre per year, 7 board feet per acre more than the net growth in these stands.

A net volume of 368,000 cords of material suitable for local use in the form of cull trees and hardwood limbs is also available for consumption annually. This is sound material that does not conform to present merchantability standards for sawlogs or pulpwood, but can be used for such products as fuelwood, charcoal, and sub-standard sawlogs.

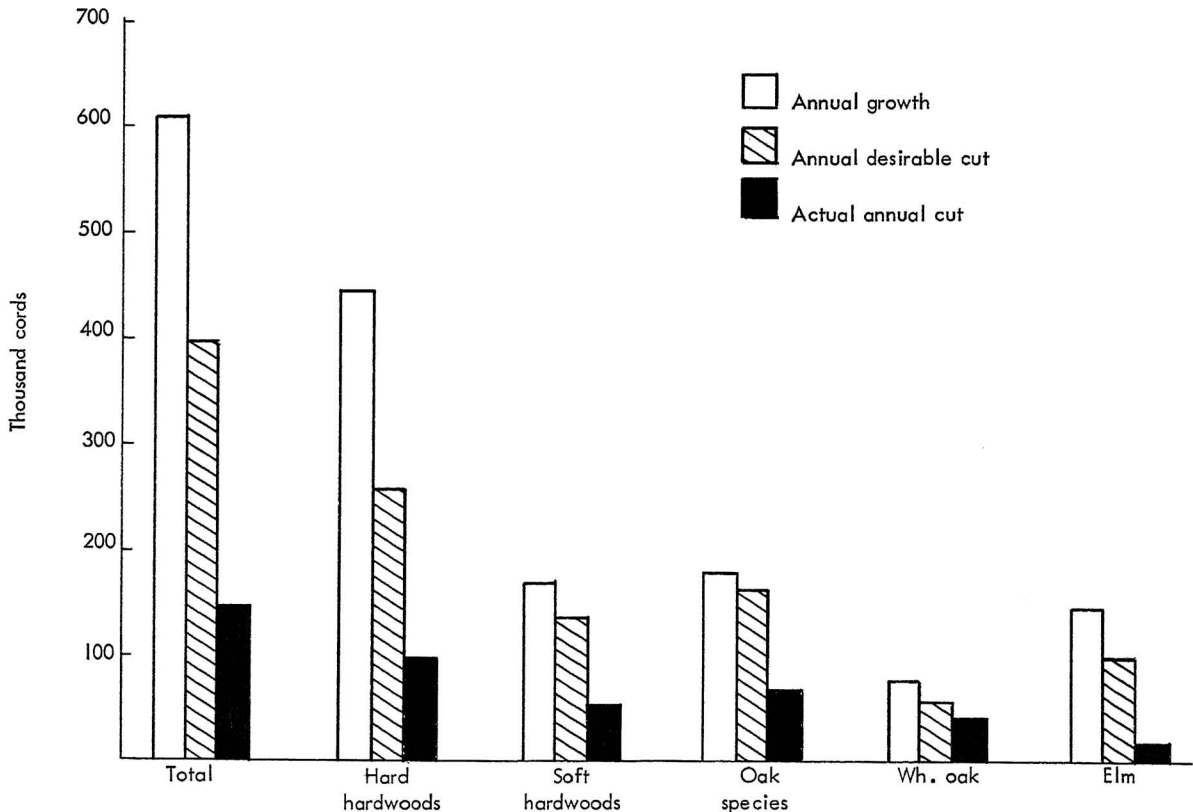


Figure 11.—Comparison of growth, desirable cut, and actual cut of the growing stock of major groups of species in the Prairie Region, 1959.

Actual Cut Only 143,000 Cords Annually

Timber production studies were made for the calendar year of 1958 to determine the current annual cut of timber in Missouri. They revealed that only 143,000 cords of growing stock were harvested from the Prairie Region forest. Included in this cut were 59 million board feet of sawtimber. The cut represented a little more than 1 percent of the total growing stock and 23 percent of the net annual growth in the region. Practically all the volume harvested was used for sawlogs, cooperage stock, fuelwood, and fenceposts.

About 86 percent of the total cord volume harvested came from sawtimber-size trees. More than 18 percent came from trees of the 20- and 22-inch diameter classes.

About 28 million board feet or 48 percent of the volume of sawtimber cut came from oak and two-thirds of the oak volume was white oak. Less

than 8 percent was elm, the most abundant individual species in the Prairie Region.

The timber cut from all growing stock in 1958 was only 36 percent of the annual cut recommended for the prairie; the remaining 64 percent that could have been cut was 252,000 cords (Fig. 11). Total actual cut exceeded annual desirable cut for only a few soft hardwood species such as cottonwood and sycamore.

The 59 million board feet of sawtimber taken from the prairie in 1958 represents only about half of the sawtimber that should be harvested annually. However, the bulk of this sawtimber cut was concentrated in a few species. The cut of white oak and cottonwood sawtimber exceeded desirable levels while that of elm sawtimber was about 22 million board feet less than was recommended.

Forestry Has a Place in the Prairie

Agriculture is the main source of livelihood in the prairie. The farming residents are primarily concerned with growing cultivated crops and livestock. The average farmer values the tree for its shade, as a windbreak, and as an ornamental, but for little else. Timber is left to grow on land that cannot be farmed economically. But, these small, scattered woodlands represent some of Missouri's best timber sites. They can produce top-quality hardwoods with minimum cost and management. There are scattered

good oaks, walnuts, and soft hardwoods to prove it. Measures should be taken to remove overmature and cull trees and improve the quality and species composition of the prairie forest stands. Markets are needed for pole-timber-size trees and for large soft hardwood sawtimber, particularly elm. These prairie woodlands can be put to work growing high-quality wood that would add to the income of the local residents.

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FOREST SURVEY PROCEDURE

The data on forest area, timber volume, and growth presented in this report are the results of a sampling procedure used with some regional variation by forest survey units throughout the nation. Information is obtained from aerial photographs and from sample plots examined on the ground.

To attain specified levels of statistical accuracy, triple sampling was employed in the inventory procedure for the second Forest Survey of Missouri. A very large number of points were first examined on the aerial photographs to determine the proportions of forest and non-forest. Then a number of these were further analyzed and measured to estimate forest type, stand size, density, and site. Finally, a somewhat smaller sample of these photo plots was systematically selected for ground examination. Classification of these plots on the ground was used as a check on photo classifications. Trees were measured to estimate timber volume, growth, and mortality.

The information thus gathered is edited, coded, and punched for machine computing and tabulation. The tables presented in this report are the final estimates resulting from statistical summary of these data.

ACCURACY OF DATA

Estimates of forest area and timber volume are subject to two kinds of error. These are sampling errors that arise in the use of sampling procedures and nonsampling errors caused by mistakes in judgment, recording of measurements, and calculation.

Sampling errors are measurable errors that are held to a minimum through sampling design. Barring the effects of nonsampling errors, the probabilities are two out of three that the actual areas and volumes are within the standard errors shown in the accompanying tables.

Nonsampling errors are not measurable and their effects are kept at a minimum through close supervision, adequate training, and rechecking of all phases of the work.

Tables 17 and 18 can be used to determine the accuracy both of sampling of commercial forest and of estimates of total volume for the Prairie Region. In Table 17, the probabilities are two out of three that:

- a. When an area of commercial forest is reported as 1,000,000 acres, the actual acreage is within ± 9.8 percent of 1,000,000 acres or between 902,000 and 1,098,000 acres.
- b. The actual volume on an area of 1,000,000 acres will be within ± 10.9 percent of the volume estimated for that 1,000,000 acres.

In Table 18, the probabilities are two out of three that when a volume of growing stock is reported as

1,000,000 cords, the actual volume is within ± 21.4 percent of 1,000,000 cords or between 786,000 and 1,214,000 cords.

Note that sampling error for any one class within a district would be much greater than for the district as a whole, whether the class considered is type, species, ownership, condition, or others. Generally the smaller the area or volume, the higher the sampling error. Some of the very small volumes, areas, etc. were not sampled by the inventory crews and are not included in the survey data. Although subject to large error, the estimates for small units represent the best available information and will serve as a guide for management of resources.

DEFINITION OF TERMS

Classes of Land Use

Land Area.—Dry land and land temporarily or partially covered with water, including streams less than $\frac{1}{8}$ mile in width and ponds less than 40 acres in area.

Forest Land.—Includes areas at least 10 percent stocked with species of forest trees that are capable of producing timber or other wood products, as well as land from which the trees have been removed to less than 10 percent stocking, as long as this land has not been developed for other uses. The minimum size of tract recognized as forest is 1 acre; the minimum width for a wooded strip is 120 feet.

Commercial Forest Land.—Includes forest land that is producing, or is physically capable of producing, usable crops of industrial wood (usually sawlogs and pulpwood but excluding fuelwood). Commercial forest land is available or prospectively available, and not withdrawn from timber utilization.

Noncommercial Forest Land.—Forest land that qualifies as commercial forest, but is withdrawn from timber utilization through statute, ordinance, or administrative order such as state parks (shown as **productive-reserved**), or forest land that is incapable of yielding a stand averaging at least one 13-foot sawlog per tree (shown as **unproductive forest**).

Stand-Size and Stocking Classes

Sawtimber.—Stands having a minimum net volume in live merchantable sawtimber trees of commercial species of 1,500 board feet per acre, International $\frac{1}{4}$ -inch rule (this is equal to approximately 1,300 net board feet by the Scribner Decimal C rule).

Poletimber.—Stands failing to meet the specifications for sawtimber but at least 10 percent stocked with trees 5.0 inches d.b.h. or larger and with at least half of the minimum stocking in poletimber-size trees.

Seedling and Sapling (Restocking Stands).—Stands failing to meet the minimum requirements for either sawtimber or poletimber stands but at least 10 percent stocked with trees of commercial species and at least 5 percent stocked with seedlings and saplings.

Satisfactorily stocked: Stands that are 40 percent or more stocked with present or potential growing-stock trees.

Poorly stocked: Stands that are from 10 to 39 percent stocked with present or potential growing-stock trees.

Nonstocked Area.—Areas of commercial forest land not qualifying as sawtimber, poletimber, or seedling and sapling stands. Stands may contain both board feet and cubic feet but less than 10 percent of the growing space is effectively utilized by growing stock.

Tree-Size Classes

Sawtimber Trees.—Live merchantable softwoods 9.0 inches d.b.h. or larger and hardwoods 11.0 inches d.b.h. and larger.

Poletimber Trees.—Trees of softwood species between 5.0 and 8.9 inches d.b.h. and of hardwood species between 5.0 and 10.9 inches d.b.h.

Seedlings and Saplings.—Trees less than 5.0 inches d.b.h.

Cull Trees.—Live trees of sawtimber or poletimber size with 50 percent or more of the gross volume of the stem unusable due to defects or deformities.

Hardwood Limbs.—Live merchantable hardwood sawtimber limbs with a minimum diameter of 4.0 inches inside bark.

Forest Types

Forest Type.—A tract of forest land in which one or more predominant species make up a specified proportion of the stands. Predominance is based on gross cubic volume in sawtimber and poletimber stands, and on the number of trees in seedling and sapling stands. Nonstocked forest land will be classified with the forest type best suited on the soil.

Pine.—Forests in which 50 percent or more of the stand is pine (usually shortleaf pine).

Redcedar.—Forests in which 50 percent or more of the stand is redcedar.

Hardwood-Redcedar.—Forests in which 50 percent or more of the stand is hardwood, but in which redcedar makes up 25 to 49 percent of the stand.

Oak-Pine.—Forests in which 50 percent or more of the stand is hardwood (usually upland oaks), but in which hard pines make up 25 to 49 percent of the stand.

Black-Scarlet Oaks.—Forests in which 50 percent or more of the stand is hickory, upland oaks, or a combination of them, except where pines or redcedar comprise 25 to 49 percent, or white oak or post and blackjack oak exceed 50 percent of the stand.

White Oak.—Forests in which 50 percent or more of the stand is white oak and minor additional white oak species.

Post-Blackjack Oak.—Forests in which 50 percent or more of the stand is post oak, blackjack oak, or a combination of them.

Lowland Oak.—Bottomland forests in which 50 percent or more of the stand is bottomland oaks such as pin, swamp white, and shingle. This type is called oak-gum-cypress in regions where gum and cypress are components.

Elm-Ash-Cottonwood.—Forests in which 50 percent or more of the stand consists of elm, ash, cottonwood, or any combination of them.

Maple-Beech.—Forests in which 50 percent or more of the stand is hard maple, beech, or a combination of them.

Species Groups

Softwoods.—Coniferous species which in this region include shortleaf pine and redcedar.

Soft Hardwoods.—Soft-textured broad-leaved species that include elm, soft maple, sweetgum, blackgum, yellow-poplar, cottonwood, and sycamore.

Hard Hardwoods.—Firm-textured, broad-leaved species that include all of the oaks and hickories, hard maple, birch, black walnut, and ash.

Timber Volume

Net Timber Volume.—Volume of live merchantable trees from stump to a minimum diameter inside bark of the central stem, or to a point where the central stem becomes unmerchantable for other reasons. Sound volumes of cull trees and hardwood limbs to a minimum 4-inch diameter inside bark.

Growing Stock.—Net timber volume of live merchantable sawtimber and poletimber trees from stump to a

minimum 4-inch top diameter inside bark of the central stem. Cubic feet of unpeeled wood were computed from a Lake States Composite Volume Table and corrected for bark thickness by species and diameter class. This volume was then converted to cords using the factor of 79 cubic feet of peeled wood as equal to 1 cord of unpeeled wood. This is a standard cord (a stacked pile 4x4x8 feet).

Sawtimber Material.—Net timber volume of live merchantable sawtimber between the stump and a point in the top of the stem at which utilization is limited by large branches, forks, or other defects, or by a diameter inside bark of 8 inches (6 inches for softwoods). This volume is expressed in terms of board feet by the International ¼-inch rule which approximates green lumber tally. Conversion to the Scribner rule may be achieved (roughly) by multiplying volumes by 0.85. Sawtimber volume was computed using a Lake States Composite Volume Table and corrected for form class differences by species and diameter classes. Numerous bark thickness and form class measurements were made in Missouri as a means of providing satisfactory corrections for the composite volume tables.

Growth

Periodic Annual Net Growth.—The change during the inventory year in net volume of growing stock on commercial forest land from natural causes exclusive of catastrophic losses. It is expressed in board feet (International ¼-inch rule) of sawtimber and unpeeled cords of total growing stock. Net growth includes growth on trees that were of volume size at the beginning of the year and survived to the end, plus the volume of smaller trees growing into volume size during the year, plus the net volume increment of growing stock that was cut or died during the year, minus the net volume of growing-stock trees that died during the year, and minus the net volume of growing-stock trees that became cull during the year.

Ingrowth of Sawtimber.—The net board-foot volume of trees that first became sawtimber trees during the inventory year as measured at the end of the year.

Desirable Cut

Desirable cut is the net volume of merchantable timber that may be cut annually during the current decade while (1) progressively effecting a reasonably even distribution of age classes during the optimum rotation selected for each type, and (2) progressively building up to a desirable level of good growing stock to meet the future needs for desired products. The cut should be at

a level that can be sustained in subsequent decades. It includes both harvest and intermediate commercial cuttings (yielding at least 3 cords total volume or 500 board feet International ¼-inch rule of sawtimber volume). Cull tree and hardwood limb volumes are not included. "High-grading" will yield less volume than is indicated; utilization closer than anticipated by Forest Survey (see definition of timber volume) will yield more volume. Noncommercial cuttings also will increase timber yield.

Desirable cut encourages full use of the timber resource while avoiding overcutting. It is based upon forest practices that improve the stands. It must be reduced if timber is allowed to die or overcutting takes place.

Timber Cut

Current annual timber cut is the net volume in live sawtimber and poletimber trees that is being cut annually for forest products from commercial forest land. It includes both roundwood products and logging residues. Timber production was surveyed in 1958 to estimate the amount of timber removed from each of the Forest Survey regions and ownership groups in the State. The four sources of data used to arrive at the estimate were:

1. Production reports from forest industries
2. Stump counts from forest inventory plots
3. Cutting records from industrial and public landowners
4. Utilization factors based on woods study.

Regeneration Classes

Restocking Satisfactorily.—Areas that are 5 percent or more stocked with pine or redcedar, have seed source present, and are likely to regenerate naturally to pine or redcedar. Or areas at least 20 percent stocked with commercial hardwoods of any size.

Restocking Unsatisfactorily, Conflicting Uses.—Areas not suitable for planting because of uses other than forestry.

Tree Classes

Crop Tree.—A sound, vigorous, dominant, or codominant growing-stock tree that has good form and a good crown. The tree must be the most desirable species for the site and must have a butt log of grade 2 or better potential.

Good Storage Tree.—A good growing-stock tree that does not meet all the specifications of a crop tree, but in form and soundness is a suitable leave tree.

Poor Storage Tree.—A poor growing-stock tree that would normally be removed in harvest or intermediate cuttings, but may be left if desired.

Harvest Tree.—A poor growing-stock tree that is diseased, of poor form or crown, and not likely to survive 10 years.

Poor Pole.—A poletimber-size growing stock tree that cannot be classed as crop, storage, or harvest because it is unlikely to produce merchantable sawtimber. Sawtimber ingrowth is not computed for these trees.

Sound Cull.—Nongrowing stock. Fifty percent or more of the gross volume defective and less than half of the defect due to rot.

Rotten Cull.—Nongrowing stock. Fifty percent or more of the gross volume defective and more than half of the defect due to rot.

Log Grades

Log grading was done for sawtimber-size trees using hardwood log grades for standard lumber developed by the Forest Products Laboratory, specifications for logs of southern pines, and specifications for tie and timber logs. In grading, the "12-foot rule" was used. Under this rule, the tree is divided into 16-foot sections insofar as possible, and the best 12-foot portion in each section is graded.

Miscellaneous Definitions

D.b.h. (Diameter at breast height).—Diameter of the tree in inches, outside bark, measured at 4½ feet above the average ground level.

Diameter Class.—In this report, data are presented in 2-inch diameter classes that include diameters from 1.0 inch below to 0.9 inch above the stated midpoint; e.g., trees 5.0 inches d.b.h., to and including trees 6.9 inches d.b.h. are included in the 6-inch class. Corresponding limits apply to other diameter classes.

COMMERCIAL TREE SPECIES

Commercial tree species for which data are presented in the tables of this report are listed below. Species that are major components of species groups such as "other white oak" or "other hard hardwoods" are also shown. The common and scientific names are based on Check List of Native Naturalized Trees of the United States (Including Alaska), by Elbert L. Little, Jr.⁴

Softwood Species

Redcedar (eastern) *Juniperus virginiana* L.

Hardwood Species

Hard hardwoods:

White oak *Quercus alba* L.
Post oak *Q. stellata* Wangenh.

Other white oak includes:

Swamp white oak *Q. bicolor* Willd.
Swamp chestnut oak *Q. michauxii* Nutt.
Overcup oak *Q. lyrata* Walt.
Bur oak *Q. macrocarpa* Michx.
Chinkapin oak *Q. muehlenbergii* Engelm.
Black oak *Q. velutina* Lam.
Scarlet oak *Q. coccinea* Muenchh.
Northern red oak *Q. rubra* L.

Other red oak includes:

Blackjack oak *Q. marilandica* Muenchh.
Pin oak *Q. palustris* Muenchh.
Shumard oak *Q. shumardii* Buckl.
Shingle oak *Q. imbricaria* Michx.

Hickory Group A includes:

Shagbark hickory *Carya ovata* (Mill.) K. Koch
Shellbark hickory *C. laciniosa* (Michx. f.) Loud.
Mockernut hickory *C. tomentosa* Nutt.

Hickory Group B includes:

All other hickories *Carya* spp.

Hard maple includes:

Black maple *Acer nigrum* Michx. f.
Sugar maple *A. saccharum* Marsh.
Birch (river) *Betula nigra* L.
Black walnut *Juglans nigra* L.
Ash *Fraxinus* spp.

Other hard hardwood includes:

Black locust *Robinia pseudoacacia* L.
Honeylocust *Gleditsia triancanthos* L.
Yellowwood *Cladrastis lutea* (Michx. f.)
K. Koch

Soft hardwoods:

Elm *Ulmus* spp.

Soft maple includes:

Boxelder *Acer negundo* L.
Red maple *A. rubrum* L.
Silver maple *A. saccharinum* L.
Sweetgum *Liquidambar styraciflua* L.
Blackgum (black tupelo) *Nyssa sylvatica* Marsh.
Yellow-poplar *Liriodendron tulipifera* L.
Cottonwood (eastern) *Populus deltoides* Bartr.
Sycamore (American) *Platanus occidentalis* L.

Other soft hardwood includes:

Basswood (American) *Tilia americana* L.
Black cherry *Prunus serotina* Ehrh.
Buckeye (Ohio) *Aesculus glabra* Willd.
Butternut *Juglans cinerea* L.
Catalpa (northern) *Catalpa speciosa* Warder.
Hackberry *Celtis occidentalis* L.
Kentucky coffeetree *Gymnocladus dioica* (L.)
K. Koch.

Magnolia (Cucumbertree) *Magnolia acuminata* L.
Sugarberry *Celtis laevigata* Willd.
Willow *Salix* spp.

⁴Little, Elbert L., Jr. Check list of trees of the United States (Including Alaska). U. S. Dept. Agr., Forest Serv., Agr. Handb. 11. U. S. Govt. Printing Office, Wash., D. C. 1933.

REGIONAL AND SUBREGIONAL TABLES

TABLE 1a -- FOREST LAND AREA BY TYPE AND STAND-SIZE CLASS,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

(ACRES)

Forest Type	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Commercial Forest						
Black-Scarlet Oak	529,000	122,900	155,600	55,600	80,999	114,900
White Oak	228,200	117,500	72,200	20,100	5,200	13,200
Post-Blackjack Oak	20,200	-	7,900	12,300	-	-
Lowland Oak	161,700	63,100	39,900	31,800	-	26,900
Elm-Ash-Cottonwood	887,900	400,600	124,700	29,500	81,100	252,000
Maple-Beech	37,100	16,500	12,400	8,200	-	-
All Commercial Forest	1,864,100	720,600	412,700	157,500	166,300	407,000
Percent	100.0	38.7	22.1	8.5	8.9	21.8
Noncommercial Forest						
Productive-Reserved	13,800	3,800	4,000	1,200	2,000	2,800
Unproductive Forest	6,800	-	-	-	-	6,800
All Noncommercial Forest	20,600	3,800	4,000	1,200	2,000	9,600
All Forest Area	1,884,700	724,400	416,700	158,700	168,300	416,600

TABLE 1b -- FOREST LAND AREA BY TYPE AND STAND-SIZE CLASS,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

(ACRES)

Forest Type	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Commercial Forest						
Hardwood-Redcedar	9,600	-	-	-	-	9,600
Black-Scarlet Oak	323,400	87,400	90,000	81,900	14,600	49,500
White Oak	43,600	37,500	-	6,100	-	-
Post-Blackjack Oak	119,200	25,500	54,800	11,700	1,000	26,200
Elm-Ash-Cottonwood	470,700	170,000	35,000	78,100	60,500	127,100
All Commercial Forest	966,500	320,400	179,800	177,800	76,100	212,400
Percent	100.0	33.1	18.6	18.4	7.9	22.0
Noncommercial Forest						
Productive-Reserved	3,600	900	1,000	1,200	100	400
Unproductive Forest	5,700	-	-	-	-	5,700
All Noncommercial Forest	9,300	900	1,000	1,200	100	6,100
All Forest Area	975,800	321,300	180,800	179,000	76,200	218,500

TABLE 1c -- FOREST LAND AREA BY TYPE AND STAND-SIZE CLASS,
PRAIRIE REGION OF MISSOURI, 1959

(ACRES)

Forest Type	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Commercial Forest						
Hardwood-Redcedar	9,600	-	-	-	-	9,600
Black-Scarlet Oak	852,400	210,300	245,600	137,500	94,600	164,400
White Oak	271,800	155,000	72,200	26,200	5,200	13,200
Post-Blackjack Oak	139,400	25,500	62,700	24,000	1,000	26,200
Lowland Oak	161,700	63,100	39,900	31,800	-	26,900
Elm-Ash-Cottonwood	1,358,600	570,600	159,700	107,600	141,600	379,100
Maple-Beech	37,100	16,500	12,400	8,200	-	-
All Commercial Forest	2,830,600	1,041,000	592,500	335,300	242,400	619,400
Percent	100.0	36.8	20.9	11.8	8.6	21.9
Noncommercial Forest						
Productive-Reserved	17,400	4,700	5,000	2,400	2,100	3,200
Unproductive Forest	12,500	-	-	-	-	12,500
All Noncommercial Forest	29,900	4,700	5,000	2,400	2,100	15,700
All Forest Area	2,860,500	1,045,700	597,500	337,700	244,500	635,100

TABLE 2a -- COMMERCIAL FOREST LAND BY OWNERSHIP AND STAND-SIZE CLASS,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

(ACRES)

Ownership Class	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Federally Owned or Managed	3,600	1,400	800	300	300	800
State	1,300	500	300	100	100	300
County or Municipal	6,300	-	-	-	-	6,300
Farmer	1,485,200	590,200	304,600	117,500	122,400	350,500
Miscellaneous Private	367,700	128,500	107,000	39,600	43,500	49,100
All Ownerships	1,864,100	720,600	412,700	157,500	166,300	407,000

TABLE 2b -- COMMERCIAL FOREST LAND BY OWNERSHIP AND STAND-SIZE CLASS,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

(ACRES)

Ownership Class	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
State	1/	-	-	-	-	-
County or Municipal	14,300	-	7,100	-	-	7,200
Farmer	713,900	265,300	120,400	126,600	74,200	127,400
Miscellaneous Private	238,300	55,100	52,300	51,200	1,900	77,800
All Ownerships	966,500	320,400	179,800	177,800	76,100	212,400

1/ Insignificant amount.

TABLE 2c -- COMMERCIAL FOREST LAND BY OWNERSHIP AND STAND-SIZE CLASS,
PRAIRIE REGION OF MISSOURI, 1959

(ACRES)

Ownership Class	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Federally Owned or Managed	3,600	1,400	800	300	300	800
State	1,300	500	300	100	100	300
County or Municipal	20,600	-	7,100	-	-	13,500
Farmer	2,199,100	855,500	425,000	244,100	196,600	477,900
Miscellaneous Private	606,000	183,600	159,300	90,800	45,400	126,900
All Ownerships	2,830,600	1,041,000	592,500	335,300	242,400	619,400

TABLE 3a -- NET TIMBER VOLUME BY OWNERSHIP AND SPECIES GROUP,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

Ownership Class	Growing Stock (thousand cords)				Sawtimber (million board feet)			
	Total	Soft		Hard	Total	Soft		Hard
		Softwoods	Hardwoods			Softwoods	Hardwoods	
Federally Owned or Managed	14.6	1/	4.0	10.6	4.2	1/	1.4	2.8
State	5.1	1/	1.5	3.6	1.4	1/	.4	1.0
County or Municipal	4.2	1/	1.9	2.3	1.1	1/	.5	.6
Farmer	5,893.8	0.7	1,652.6	4,240.5	1,711.4	0.1	575.7	1,135.6
Miscellaneous Private	1,490.9	.2	393.2	1,097.5	401.5	1/	135.6	265.9
All Ownerships	7,408.6	.9	2,053.2	5,354.5	2,119.6	.1	713.6	1,405.9

1/ Insignificant amount.

TABLE 3b -- NET TIMBER VOLUME BY OWNERSHIP AND SPECIES GROUP,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

Ownership Class	Growing Stock (thousand cords)				Sawtimber (million board feet)			
	Total	Soft		Hard	Total	Soft		Hard
		Softwoods	Hardwoods			Softwoods	Hardwoods	
State	1/	-	-	-	-	-	-	-
County or Municipal	40.5	-	6.6	33.9	3.7	-	0.6	3.1
Farmer	2,704.6	-	759.7	1,944.9	755.9	-	258.7	497.2
Miscellaneous Private	749.5	-	189.9	559.6	179.7	-	58.1	121.6
All Ownerships	3,494.6	-	956.2	2,538.4	939.3	-	317.4	621.9

1/ Insignificant amount.

TABLE 3c -- NET TIMBER VOLUME BY OWNERSHIP AND SPECIES GROUP,
PRAIRIE REGION OF MISSOURI, 1959

Ownership Class	Growing Stock (thousand cords)				Sawtimber (million board feet)			
	Total	Soft		Hard	Total	Soft		Hard
		Softwoods	Hardwoods			Softwoods	Hardwoods	
Federally Owned or Managed	14.6	1/	4.0	10.6	4.2	1/	1.4	2.8
State	5.1	1/	1.5	3.6	1.4	1/	0.4	1.0
County or Municipal	44.7	1/	8.5	36.2	4.8	1/	1.1	3.7
Farmer	8,598.4	0.7	2,412.3	6,185.4	2,467.3	0.1	834.4	1,632.8
Miscellaneous Private	2,240.4	0.2	583.1	1,657.1	581.2	1/	193.7	387.5
All Ownerships	10,903.2	0.9	3,009.4	7,892.9	3,058.9	0.1	1,031.0	2,027.8

1/ Insignificant amount.

TABLE 4a -- NET TIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees	Total	Sawtimber Stands	Other Stands		
<u>Softwoods</u>								
Redcedar	0.9	0.5	0.4	0.1	0.1	-	5.1	-
All Softwoods	.9	.5	.4	.1	.1	-	5.1	-
<u>Hard Hardwoods</u>								
Oak, White	1,292.2	566.6	725.6	359.2	297.4	61.8	83.9	716.8
Oak, Post	111.7	48.6	63.1	29.7	23.3	6.4	15.9	61.0
Oak, Other White	649.6	258.5	391.1	183.5	142.2	41.3	124.7	350.6
Oak, Black	408.8	219.1	189.7	90.3	63.4	26.9	91.5	176.9
Oak, Northern Red	415.0	123.4	291.6	147.2	119.6	27.6	100.2	276.0
Oak, Other Red	552.5	217.0	335.5	168.9	128.8	40.1	90.5	327.0
Hickory, Group A	562.9	302.3	260.6	132.3	118.2	14.1	57.6	256.0
Hickory, Group B	95.1	70.7	24.4	12.1	8.5	3.6	24.6	23.2
Maple, Hard	87.6	33.5	54.1	26.5	13.3	13.2	18.5	44.3
Birch	56.8	19.8	37.0	18.0	18.0	-	16.5	40.3
Walnut, Black	363.3	112.2	251.1	115.6	109.8	5.8	111.3	224.4
Ash	169.6	112.2	57.4	27.2	16.2	11.0	71.4	52.2
Other Hard Hardwoods	589.4	389.4	200.0	95.4	86.8	8.6	309.1	159.7
All Hard Hardwoods	5,354.5	2,473.3	2,881.2	1,405.9	1,145.5	260.4	1,115.7	2,708.4
<u>Soft Hardwoods</u>								
Elm	1,351.2	508.9	842.3	425.8	326.9	98.9	564.4	816.9
Maple, Soft	323.6	89.2	234.4	111.9	86.3	25.6	81.8	184.5
Cottonwood	229.6	2.9	226.7	110.4	96.9	13.5	23.9	195.2
Other Soft Hardwoods ^{1/}	148.8	9.8	139.0	65.5	40.4	25.1	20.8	123.6
All Soft Hardwoods	2,053.2	610.8	1,442.4	713.6	550.5	163.1	690.9	1,320.2
All Hardwoods	7,407.7	3,084.1	4,323.6	2,119.5	1,696.0	423.5	1,806.6	4,028.6
All Species	7,408.6	3,084.6	4,324.0	2,119.6	1,696.1	423.5	1,811.7	4,028.6

^{1/} Mainly sycamore.

TABLE 4b -- TIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees	Total	Sawtimber Stands	Other Stands		
<u>Hard Hardwoods</u>								
Oak, White	254.4	49.8	204.6	100.1	85.0	15.1	43.9	199.8
Oak, Post	441.3	284.6	156.7	74.9	70.0	4.9	70.7	153.8
Oak, Other White	93.8	38.5	55.3	26.4	20.7	5.7	45.0	50.4
Oak, Black	389.2	203.2	186.0	89.9	70.6	19.3	120.3	176.1
Oak, Northern Red	136.3	29.9	106.4	55.4	49.4	6.0	47.3	103.9
Oak, Other Red	134.6	81.2	53.4	26.4	14.1	12.3	66.5	51.1
Hickory, Group A	180.0	74.0	106.0	52.3	35.8	16.5	42.7	101.2
Hickory, Group B	113.4	78.6	34.8	15.1	9.4	5.7	30.5	29.0
Birch	67.6	22.1	45.5	20.8	7.6	13.2	15.0	46.5
Walnut, Black	252.6	92.3	160.3	74.7	65.1	9.6	37.5	145.0
Ash	180.8	123.1	57.7	26.7	20.7	6.0	48.3	51.3
Other Hard Hardwoods	294.4	170.5	123.9	59.2	40.6	18.6	203.3	99.1
All Hard Hardwoods	2,538.4	1,247.8	1,290.6	621.9	489.0	132.9	771.0	1,207.2
<u>Soft Hardwoods</u>								
Elm	614.8	245.5	369.3	186.4	166.4	20.0	258.3	357.6
Maple, Soft	117.5	30.5	87.0	42.7	42.7	-	63.4	70.4
Cottonwood	67.4	28.3	39.1	19.2	15.5	3.7	7.6	33.9
Other Soft Hardwood ^{1/}	156.5	11.9	144.6	69.1	60.4	8.7	5.4	130.4
All Soft Hardwoods	956.2	316.2	640.0	317.4	285.0	32.4	334.7	592.3
All Species	3,494.6	1,564.0	1,930.6	939.3	774.0	165.3	1,105.7	1,799.5

^{1/} Mainly sycamore.

TABLE 4c -- NET TIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL,
PRAIRIE REGION OF MISSOURI, 1959

Species	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber	Sawtimber	Total	Sawtimber	Other		
		Trees	Trees		Stands	Stands		
Softwoods								
Redcedar	0.9	0.5	0.4	0.1	0.1	-	5.1	-
All Softwoods	.9	.5	.4	.1	.1	-	5.1	-
Hard Hardwoods								
Oak, White	1,546.6	616.4	930.2	459.3	382.4	76.9	127.8	916.6
Oak, Post	553.0	333.2	219.8	104.6	93.3	11.3	86.6	214.8
Oak, Other White	743.4	297.0	446.4	209.9	162.9	47.0	169.7	401.0
Oak, Black	798.0	422.3	375.7	180.2	134.0	46.2	211.8	353.0
Oak, Northern Red	551.3	153.3	398.0	202.6	169.0	33.6	147.5	379.9
Oak, Other Red	687.1	298.2	388.9	195.3	142.9	52.4	157.0	378.1
Hickory, Group A	742.9	376.3	366.6	184.6	154.0	30.6	100.3	357.2
Hickory, Group B	208.5	149.3	59.2	27.2	17.9	9.3	55.1	52.2
Maple, Hard	87.6	33.5	54.1	26.5	13.3	13.2	18.5	44.3
Birch	124.4	41.9	82.5	38.8	25.6	13.2	31.5	86.8
Walnut, Black	615.9	204.5	411.4	190.3	174.9	15.4	148.8	369.4
Ash	350.4	235.3	115.1	53.9	36.9	17.0	119.7	103.5
Other Hard Hardwoods	883.8	559.9	323.9	154.6	127.4	27.2	512.4	258.8
All Hard Hardwoods	7,892.9	3,721.1	4,171.8	2,027.8	1,634.5	393.3	1,886.7	3,915.6
Soft Hardwoods								
Elm	1,966.0	754.4	1,211.6	612.2	493.3	118.9	822.7	1,174.5
Maple, Soft	441.1	119.7	321.4	154.6	129.0	25.6	145.2	254.9
Cottonwood	297.0	31.2	265.8	129.6	112.4	17.2	31.5	229.1
Other Soft Hardwoods ^{1/}	305.3	21.7	283.6	134.6	100.8	33.8	26.2	254.0
All Soft Hardwoods	3,009.4	927.0	2,082.4	1,031.0	835.5	195.5	1,025.6	1,912.5
All Hardwoods	10,902.3	4,648.1	6,254.2	3,058.8	2,470.0	588.8	2,912.3	5,828.1
All Species	10,903.2	4,648.6	6,254.6	3,058.9	2,470.1	588.8	2,917.4	5,828.1

^{1/} Mainly sycamore.

TABLE 5a -- DISTRIBUTION OF GROWING-STOCK VOLUME BY SPECIES AND DIAMETER CLASS,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species	Growing Stock by Inch-Diameter Class (thousand cords)					Sawtimber by Inch-Diameter Class (million board feet)						
	Total	6	8	10	12+	Total	10	12-14	16-18	20-22	24-28	30+
Softwoods												
Redcedar	0.9	0.5	-	0.4	-	0.1	0.1	-	-	-	-	-
All Softwoods	.9	.5	-	.4	-	.1	.1	-	-	-	-	-
Hard Hardwoods												
Oak, White	1,292.2	137.2	200.6	228.8	725.6	359.2	-	232.1	89.3	14.2	20.5	3.1
Oak, Post	111.7	7.8	13.3	27.5	63.1	29.7	-	23.7	6.0	-	-	-
Oak, Other White	649.6	58.8	98.2	101.5	391.1	183.5	-	29.3	49.7	50.9	36.7	16.9
Oak, Black	408.8	35.1	112.4	71.6	189.7	90.3	-	57.6	20.7	5.9	4.7	1.4
Oak, Northern Red	415.0	27.8	40.0	55.6	291.6	147.2	-	44.3	42.7	21.9	34.5	3.8
Oak, Other Red	552.5	67.1	91.5	58.4	335.5	168.9	-	35.6	16.9	52.6	45.1	18.7
Hickory, Group A	562.9	171.0	62.6	68.7	260.6	132.3	-	33.0	49.6	27.0	22.7	-
Hickory, Group B	95.1	27.5	32.0	11.2	24.4	12.1	-	4.8	3.7	-	3.6	-
Maple, Hard	87.6	11.0	9.4	13.1	54.1	26.5	-	21.8	-	2.6	2.1	-
Birch	56.8	5.2	4.4	10.2	37.0	18.0	-	-	14.3	3.7	-	-
Walnut, Black	363.3	39.8	32.6	39.8	251.1	115.6	-	76.5	28.7	8.2	2.2	-
Ash	169.6	45.1	34.2	32.9	57.4	27.2	-	5.9	14.2	2.9	4.2	-
Other Hard Hardwoods	589.4	122.0	140.3	127.1	200.0	95.4	-	53.9	21.6	8.8	11.1	-
All Hard Hardwoods	5,354.5	755.4	871.5	846.4	2,881.2	1,405.9	-	618.5	357.4	198.7	187.4	43.9
Soft Hardwoods												
Elm	1,351.2	179.6	157.6	171.7	842.3	425.8	-	152.4	146.9	74.4	43.6	8.5
Maple, Soft	323.6	11.8	13.8	63.6	234.4	111.9	-	35.9	51.6	19.9	-	4.5
Cottonwood	229.6	-	2.9	-	226.7	110.4	-	1.7	16.7	25.7	41.4	24.9
Other Soft Hardwoods ^{1/}	148.8	-	9.8	-	139.0	65.5	-	8.5	16.5	30.8	-	9.7
All Soft Hardwoods	2,053.2	191.4	184.1	235.3	1,442.4	713.6	-	198.5	231.7	150.8	85.0	47.6
All Hardwoods	7,407.7	946.8	1,055.6	1,081.7	4,323.6	2,119.5	-	817.0	589.1	349.5	272.4	91.5
All Species	7,408.6	947.3	1,055.6	1,082.1	4,323.6	2,119.6	0.1	817.0	589.1	349.5	272.4	91.5
Percent	100.0	12.8	14.2	14.6	58.4	100.0	2/	38.5	27.8	16.5	12.9	4.3

^{1/} Mainly sycamore.

^{2/} Insignificant amount.

TABLE 5b -- DISTRIBUTION OF GROWING-STOCK VOLUME BY SPECIES AND DIAMETER CLASS,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species	Growing Stock by Inch-Diameter Class (thousand cords)					Sawtimber by Inch-Diameter Class (million board feet)					
	Total	6	8	10	12+	Total	12-14	16-18	20-22	24-28	30+
Hard Hardwoods											
Oak, White	254.4	15.1	21.3	13.4	204.6	100.1	42.7	38.6	13.1	-	5.7
Oak, Post	441.3	57.8	119.7	107.1	156.7	74.9	51.8	16.4	4.3	2.4	-
Oak, Other White	93.8	-	18.7	19.8	55.3	26.4	12.0	6.2	2.7	5.5	-
Oak, Black	389.2	62.7	86.6	53.9	186.0	89.9	37.3	33.7	13.8	5.1	-
Oak, Northern Red	136.3	25.1	4.8	-	106.4	55.4	7.1	14.8	18.0	15.5	-
Oak, Other Red	134.6	43.7	19.6	17.9	53.4	26.4	6.9	14.2	5.3	-	-
Hickory, Group A	180.0	37.5	21.3	15.2	106.0	52.3	15.3	29.9	7.1	-	-
Hickory, Group B	113.4	27.6	37.8	13.2	34.8	15.1	13.8	1.3	-	-	-
Birch	67.6	5.7	3.7	12.7	45.5	20.8	9.9	3.3	7.6	-	-
Walnut, Black	252.6	13.5	34.5	44.3	160.3	74.7	46.9	17.3	10.5	-	-
Ash	180.8	35.1	37.8	50.2	57.7	26.7	17.3	9.4	-	-	-
Other Hard Hardwoods	294.4	49.3	61.7	59.5	123.9	59.2	38.2	16.4	-	4.6	-
All Hard Hardwoods	2,538.4	373.1	467.5	407.2	1,290.6	621.9	299.2	201.5	82.4	33.1	5.7
Soft Hardwoods											
Elm	614.8	55.1	135.8	54.6	369.3	186.4	72.0	44.3	35.4	28.0	6.7
Maple, Soft	117.5	10.4	-	20.1	87.0	42.7	10.1	16.6	7.7	4.1	4.2
Cottonwood	67.4	5.9	22.4	-	39.1	19.2	-	11.2	8.0	-	-
Other Soft Hardwoods ^{1/}	156.5	4.0	7.9	-	144.6	69.1	14.7	24.3	15.0	9.3	5.8
All Soft Hardwoods	956.2	75.4	166.1	74.7	640.0	317.4	96.8	96.4	66.1	41.4	16.7
All Species	3,494.6	448.5	633.6	481.9	1,930.6	939.3	396.0	297.9	148.5	74.5	22.4
Percent	100.0	12.8	18.1	13.8	55.3	100.0	42.2	31.7	15.8	7.9	2.4

^{1/} Mainly sycamore.

TABLE 5c -- DISTRIBUTION OF GROWING-STOCK VOLUME BY SPECIES AND DIAMETER CLASS,
PRAIRIE REGION OF MISSOURI, 1959

Species	Growing Stock by Inch-Diameter Class (thousand cords)					Sawtimber by Inch-Diameter Class (million board feet)						
	Total	6	8	10	12+	Total	10	12-14	16-18	20-22	24-28	30+
Softwoods												
Redcedar	0.9	0.5	-	0.4	-	0.1	0.1	-	-	-	-	-
All Softwoods	0.9	0.5	-	0.4	-	0.1	0.1	-	-	-	-	-
Hard Hardwoods												
Oak, White	1,546.6	152.3	221.9	242.2	930.2	459.3	-	274.8	127.9	27.3	20.5	8.8
Oak, Post	553.0	65.6	133.0	134.6	219.8	104.6	-	75.5	22.4	4.3	2.4	-
Oak, Other White	743.4	58.8	116.9	121.3	446.4	209.9	-	41.3	55.9	53.6	42.2	16.9
Oak, Black	798.0	97.8	199.0	125.5	375.7	180.2	-	94.9	54.4	19.7	9.8	1.4
Oak, Northern Red	551.3	52.9	44.8	55.6	398.0	202.6	-	51.4	57.5	39.9	50.0	3.8
Oak, Other Red	687.1	110.8	111.1	76.3	388.9	195.3	-	42.5	31.1	57.9	45.1	18.7
Hickory, Group A	742.9	208.5	83.9	83.9	366.6	184.6	-	48.3	79.5	34.1	22.7	-
Hickory, Group B	208.5	55.1	69.8	24.4	59.2	27.2	-	18.6	5.0	-	3.6	-
Maple, Hard	87.6	11.0	9.4	13.1	54.1	26.5	-	21.8	-	2.6	2.1	-
Birch	124.4	10.9	8.1	22.9	82.5	38.8	-	9.9	17.6	11.3	-	-
Walnut, Black	615.9	53.3	67.1	84.1	411.4	190.3	-	123.4	46.0	18.7	2.2	-
Ash	350.4	80.2	72.0	83.1	115.1	53.9	-	23.2	23.6	2.9	4.2	-
Other Hard Hardwoods	883.8	171.3	202.0	186.6	323.9	154.6	-	92.1	38.0	8.8	15.7	-
All Hard Hardwoods	7,892.9	1,128.5	1,339.0	1,253.6	4,171.8	2,027.8	-	917.7	558.9	281.1	220.5	49.6
Soft Hardwoods												
Elm	1,966.0	234.7	293.4	226.3	1,211.6	612.2	-	224.4	191.2	109.8	71.6	15.2
Maple, Soft	441.1	22.2	13.8	83.7	321.4	154.6	-	46.0	68.2	27.6	4.1	8.7
Cottonwood	297.0	5.9	25.3	-	265.8	129.6	-	1.7	27.9	33.7	41.4	24.9
Other Soft Hardwoods ^{1/}	305.3	4.0	17.7	-	283.6	134.6	-	23.2	40.8	45.8	9.3	15.5
All Soft Hardwoods	3,009.4	266.8	350.2	310.0	2,082.4	1,031.0	-	295.3	328.1	216.9	126.4	64.3
All Hardwoods	10,902.3	1,395.3	1,689.2	1,563.6	6,254.2	3,058.8	-	1,213.0	887.0	498.0	346.9	113.9
All Species	10,903.2	1,395.8	1,689.2	1,564.0	6,254.2	3,058.9	.1	1,213.0	887.0	498.0	346.9	113.9
Percent	100.0	12.8	15.5	14.3	57.4	100.0	2/	39.7	29.0	16.3	11.3	3.7

^{1/} Mainly sycamore.

^{2/} Insignificant amount.

TABLE 6 -- PROPORTION OF TREES BY SPECIES AND TREE-QUALITY CLASS,
PRAIRIE REGION OF MISSOURI, 1959
(PERCENT)

Species	Total	Tree Class					
		Crop and Good Storage	Poor Storage	Harvest	Poor Pole	Sound Cull	Rotten Cull
<u>Softwoods</u>							
Redcedar	100.0	13.8	-	-	10.2	49.4	26.6
All Softwoods	100.0	13.8	-	-	10.2	49.4	26.6
<u>Hard Hardwoods</u>							
Oak, White	100.0	8.8	50.1	10.6	17.9	7.6	5.0
Oak, Post	100.0	-	45.1	12.2	12.9	21.0	8.8
Oak, Other White	100.0	3.1	30.7	12.6	13.0	34.1	6.5
Oak, Black	100.0	3.6	42.5	10.3	13.9	18.4	11.3
Oak, Northern Red	100.0	16.3	38.0	12.6	9.1	9.1	14.9
Oak, Other Red	100.0	1.7	38.4	6.1	15.1	32.0	6.7
Hickory, Group A	100.0	10.6	55.0	4.9	11.8	14.1	3.6
Hickory, Group B	100.0	8.8	46.4	4.4	14.9	15.6	9.9
Maple, Hard	100.0	-	37.3	18.5	29.7	2.4	12.1
Birch	100.0	-	43.9	14.5	15.1	9.7	16.8
Walnut, Black	100.0	8.3	40.8	11.5	7.6	19.8	12.0
Ash	100.0	6.5	30.1	3.4	22.8	26.0	11.2
Other Hard Hardwoods	100.0	3.0	32.9	5.1	16.0	32.8	10.2
All Hard Hardwoods	100.0	5.4	41.0	8.5	14.6	21.9	8.6
<u>Soft Hardwoods</u>							
Elm	100.0	.2	26.0	12.6	24.0	28.6	8.6
Maple, Soft	100.0	1.3	41.4	14.0	7.1	18.2	18.0
Cottonwood	100.0	4.6	68.1	15.8	-	6.7	4.8
Other Soft Hardwoods ^{1/}	100.0	12.0	35.4	19.7	6.4	19.5	7.0
All Soft Hardwoods	100.0	.8	29.0	13.1	21.1	26.7	9.3
All Species	100.0	4.4	38.3	9.5	16.1	23.0	8.7

^{1/} Mainly sycamore.

TABLE 7 -- QUALITY OF SAWLOG MATERIAL BY SPECIES GROUP AND LOG GRADE,
PRAIRIE REGION OF MISSOURI, 1959

Group	Total	Log Grade (Percent)			Tie and Timber	Trees Graded (Number)
		2 or Better	3			
Hard Hardwoods	100.0	8.6	26.3	65.1	128	
Soft Hardwoods	100.0	11.6	13.6	74.8	87	
All Species	100.0	9.8	21.4	68.8	215	

TABLE 8a -- PERIODIC ANNUAL NET GROWTH ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL, NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species ^{1/}	Growing Stock (thousand cords)				Sawtimber (million board feet)					
	Total	Ingrowth	Growth on		Total	Ingrowth	Growth	Sawtimber Stands		Other Stands
			Poletimber Trees	Sawtimber Trees				Ingrowth	Growth	
Hard Hardwoods										
Oak, White	65.4				24.0					
Oak, Post	3.5				2.0					
Oak, Other White	34.6				11.5					
Oak, Black	5.7				2.4					
Oak, Northern Red	15.1				8.7					
Oak, Other Red	24.3				5.3					
Hickory, Group A	30.0			<u>2/</u>	6.9			<u>2/</u>		
Hickory, Group B	6.9				1.0					
Maple, Hard	5.5				1.4					
Birch	3.6				1.3					
Walnut, Black	40.7				12.2					
Ash	11.1				1.2					
Other Hard Hardwoods	56.9				11.1					
All Hard Hardwoods	303.3	99.6	141.7	62.0	89.0	22.4	27.3	34.6	4.7	
Soft Hardwoods										
Elm	103.7				26.2					
Maple, Soft	13.7				9.6					
Cottonwood	2.3			<u>2/</u>	1.0			<u>2/</u>		
Other Soft Hardwoods ^{3/}	2.9				1.0					
All Soft Hardwoods	122.6	41.5	52.6	28.5	37.8	14.8	11.7	7.9	3.4	
All Species	425.9	141.1	194.3	90.5	126.8	37.2	39.0	42.5	8.1	

^{1/} Insignificant amount of softwoods.

^{2/} Data omitted because reliability does not meet survey standards.

^{3/} Mainly sycamore.

TABLE 8b -- PERIODIC ANNUAL NET GROWTH ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL, SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species	Growing Stock (thousand cords)				Sawtimber (million board feet)					
	Total	Ingrowth	Growth on		Total	Ingrowth	Growth	Sawtimber Stands		Other Stands
			Poletimber Trees	Sawtimber Trees				Ingrowth	Growth	
Hard Hardwoods										
Oak, White	8.9				2.9					
Oak, Post	15.0				4.2					
Oak, Other White	2.8				1.9					
Oak, Black	-6.2				-1.7					
Oak, Northern Red	2.7				-0.1					
Oak, Other Red	6.1				-1.0					
Hickory, Group A	9.2			<u>1/</u>	1.9			<u>1/</u>		
Hickory, Group B	5.5				0.8					
Birch	2.7				1.5					
Walnut, Black	22.1				9.5					
Ash	10.9				3.9					
Other Hard Hardwoods	59.5				8.6					
All Hard Hardwoods	139.2	63.3	59.3	16.6	32.4	13.8	6.8	9.2	2.6	
Soft Hardwoods										
Elm	40.2				10.2					
Maple, Soft	1.4				0.7					
Cottonwood	3.1			<u>1/</u>	0.2			<u>1/</u>		
Other Soft Hardwoods ^{2/}	0.7				0.8					
All Soft Hardwoods	45.4	19.4	21.6	4.4	11.9	4.4	1.9	5.2	0.4	
All Species	184.6	82.7	80.9	21.0	44.3	18.2	8.7	14.4	3.0	

^{1/} Data omitted because reliability does not meet survey standards.

^{2/} Mainly sycamore.

TABLE 8c -- PERIODIC ANNUAL NET GROWTH ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL, PRAIRIE REGION OF MISSOURI, 1959

Species ^{1/}	Growing Stock (thousand cords)				Sawtimber (million board feet)				
	Total	Ingrowth	Growth on		Total	Sawtimber Stands		Other Stands	
			Poletimber Trees	Sawtimber Trees		Ingrowth	Growth	Ingrowth	Growth
<u>Hard Hardwoods</u>									
Oak, White	74.3				26.9				
Oak, Post	18.5				6.2				
Oak, Other White	37.4				13.4				
Oak, Black	-0.5				0.7				
Oak, Northern Red	17.8				8.6				
Oak, Other Red	30.4				4.3				
Hickory, Group A	39.2		<u>2/</u>		8.8		<u>2/</u>		
Hickory, Group B	12.4				1.8				
Maple, Hard	5.5				1.4				
Birch	6.3				2.8				
Walnut, Black	62.8				21.7				
Ash	22.0				5.1				
Other Hard Hardwoods	<u>116.4</u>				<u>19.7</u>				
All Hard Hardwoods	<u>442.5</u>	<u>162.9</u>	<u>20.0</u>	<u>78.6</u>	<u>121.4</u>	<u>36.2</u>	<u>34.1</u>	<u>43.8</u>	<u>7.3</u>
<u>Soft Hardwoods</u>									
Elm	143.9				36.4				
Maple, Soft	15.1				10.3				
Cottonwood	5.4		<u>2/</u>		1.2		<u>2/</u>		
Other Soft Hardwoods ^{3/}	<u>3.6</u>				<u>1.8</u>				
All Soft Hardwoods	<u>168.0</u>	<u>60.9</u>	<u>74.2</u>	<u>32.9</u>	<u>49.7</u>	<u>19.2</u>	<u>13.6</u>	<u>13.1</u>	<u>3.8</u>
<u>All Species</u>	<u>610.5</u>	<u>223.8</u>	<u>275.2</u>	<u>111.5</u>	<u>171.1</u>	<u>55.4</u>	<u>47.7</u>	<u>56.9</u>	<u>11.1</u>

^{1/} Insignificant amount of softwoods.

^{2/} Data omitted because reliability does not meet survey standards.

^{3/} Mainly sycamore.

TABLE 9a -- ANNUAL NET DESIRABLE CUT ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species ^{1/}	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees and Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees	Total	Sawtimber Stands	Other Stands	
<u>Hard Hardwoods</u>							
Oak, White	47.6			14.4			32.9
Oak, Post	6.9			2.3			5.5
Oak, Other White	25.7			8.4			22.2
Oak, Black	7.0			2.8			10.1
Oak, Northern Red	17.5			8.2			20.4
Oak, Other Red	11.3			4.5			13.3
Hickory, Group A	14.4		<u>2/</u>	4.4		<u>2/</u>	11.4
Hickory, Group B	4.7			1.0			3.1
Maple, Hard	4.8			0.6			1.9
Birch	4.4			1.1			3.3
Walnut, Black	8.3			3.0			11.4
Ash	5.1			0.4			4.4
Other Hard Hardwoods	23.8			3.3			21.0
All Hard Hardwoods	181.5	70.2	111.3	54.4	50.1	4.3	160.9
<u>Soft Hardwoods</u>							
Elm	61.9			15.5			57.9
Maple, Soft	13.1			3.9			11.5
Cottonwood	14.2		<u>2/</u>	6.9		<u>2/</u>	13.4
Other Soft Hardwoods ^{3/}	-			-			-
All Soft Hardwoods	89.2	36.2	53.0	26.3	25.0	1.3	82.8
All Species	270.7	106.4	164.3	80.7	75.1	5.6	243.7

^{1/} Insignificant amount of softwoods.

^{2/} Data omitted because reliability does not meet survey standards.

^{3/} Mainly sycamore.

TABLE 9b -- ANNUAL NET DESIRABLE CUT ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees and Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees	Total	Sawtimber Stands	Other Stands	
<u>Hard Hardwoods</u>							
Oak, White	7.0			2.6			7.4
Oak, Post	17.6			4.9			13.6
Oak, Other White	3.8			0.8			3.7
Oak, Black	8.9			3.5			12.8
Oak, Northern Red	6.6			2.8			7.6
Oak, Other Red	3.0			0.3			3.9
Hickory, Group A	8.1		<u>1/</u>	2.2		<u>1/</u>	6.3
Hickory, Group B	2.3			0.2			1.9
Birch	3.1			0.6			2.1
Walnut, Black	1.9			0.9			3.6
Ash	8.6			1.0			4.3
Other Hard Hardwoods	5.8			1.1			12.0
All Hard Hardwoods	76.7	33.6	43.1	20.9	20.6	0.3	79.2
<u>Soft Hardwoods</u>							
Elm	36.7			10.0			32.1
Maple, Soft	6.1			3.0			8.1
Cottonwood	-		<u>1/</u>	-		<u>1/</u>	-
Other Soft Hardwoods ^{2/}	4.6			2.2			4.6
All Soft Hardwoods	47.4	16.9	30.5	15.2	14.2	1.0	44.8
All Species	124.1	50.5	73.6	36.1	34.8	1.3	124.0

^{1/} Data omitted because reliability does not meet survey standards.

^{2/} Mainly sycamore.

TABLE 9c -- ANNUAL NET DESIRABLE CUT ON COMMERCIAL FOREST LAND BY SPECIES AND KIND OF MATERIAL,
PRAIRIE REGION OF MISSOURI, 1959

Species ^{1/}	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees and Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees	Total	Sawtimber Stands	Other Stands	
<u>Hard Hardwoods</u>							
Oak, White	54.6			17.0			40.3
Oak, Post	24.5			7.2			19.1
Oak, Other White	29.5			9.2			25.9
Oak, Black	15.9			6.3			22.9
Oak, Northern Red	24.1			11.0			28.0
Oak, Other Red	14.3			4.8			17.2
Hickory, Group A	22.5		<u>2/</u>	6.6		<u>2/</u>	17.7
Hickory, Group B	7.0			1.2			5.0
Maple, Hard	4.8			0.6			1.9
Birch	7.5			1.7			5.4
Walnut, Black	10.2			3.9			15.0
Ash	13.7			1.4			8.7
Other Hard Hardwoods	29.6			4.4			33.0
All Hard Hardwoods	258.2	103.8	154.4	75.3	70.7	4.6	240.1
<u>Soft Hardwoods</u>							
Elm	98.6			25.5			90.0
Maple, Soft	19.2			6.9			19.6
Cottonwood	14.2		<u>2/</u>	6.9		<u>2/</u>	13.4
Other Soft Hardwoods ^{3/}	4.6			2.2			4.6
All Soft Hardwoods	136.6	53.1	83.5	41.5	39.2	2.3	127.6
All Species	394.8	156.9	237.9	116.8	109.9	6.9	367.7

^{1/} Insignificant amount of softwoods.

^{2/} Data omitted because reliability does not meet survey standards.

^{3/} Mainly sycamore.

TABLE 10a -- REGENERATION ON COMMERCIAL FOREST LAND BY TYPE AND STOCKING CLASS,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

(ACRES)

Forest type	Total	Restocking Satisfactorily		Restocking Unsatisfactorily (conflicting uses)
		Restocking Naturally to Redcedar	Stocked with Hardwoods	
Black-Scarlet Oak	529,000	22,200	499,700	7,100
White Oak	228,200	15,700	212,500	-
Post-Blackjack Oak	20,200	-	15,200	5,000
Lowland Oak	161,700	-	161,700	-
Elm-Ash-Cottonwood	887,900	-	853,700	34,200
Maple-Beech	37,100	-	37,100	-
All Types	1,864,100	37,900	1,779,900	46,300

TABLE 10b -- REGENERATION ON COMMERCIAL FOREST LAND BY TYPE AND STOCKING CLASS,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

(ACRES)

Forest Type	Total	Restocking Satisfactorily		Restocking Unsatisfactorily (conflicting uses)
		Restocking Naturally to Redcedar	Stocked with Hardwoods	
Hardwood-Redcedar	9,600	9,600	-	-
Black-Scarlet Oak	323,400	16,200	307,200	-
White Oak	43,600	-	43,600	-
Post-Blackjack Oak	119,200	-	119,200	-
Elm-Ash-Cottonwood	470,700	7,300	441,700	21,700
All Types	966,500	33,100	911,700	21,700

TABLE 10c -- REGENERATION ON COMMERCIAL FOREST LAND BY TYPE AND STOCKING CLASS,
PRAIRIE REGION OF MISSOURI, 1959

(ACRES)

Forest Type	Total	Restocking Satisfactorily		Restocking Unsatisfactorily (conflicting uses)
		Restocking Naturally to Redcedar	Stocked with Hardwoods	
Hardwood-Redcedar	9,600	9,600	-	-
Black-Scarlet Oak	852,400	38,400	806,900	7,100
White Oak	271,800	15,700	256,100	-
Post-Blackjack Oak	139,400	-	134,400	5,000
Lowland Oak	161,700	-	161,700	-
Elm-Ash-Cottonwood	1,358,600	7,300	1,295,400	55,900
Maple-Beech	37,100	-	37,100	-
All Types	1,830,600	71,000	2,691,600	68,000

TABLE 11 -- CURRENT ANNUAL TIMBER CUT INCLUDING LOGGING RESIDUE BY SPECIES AND KIND OF MATERIAL,
PRAIRIE REGION OF MISSOURI, 1959

Species	Growing Stock (thousand cords)			Sawtimber (million board feet)			Cull Trees and Hardwood Limbs (thousand cords)
	Total	Sawtimber Trees	Poletimber Trees	Total	Sawtimber Stands	Other Stands	
<u>Hard Hardwoods</u>							
Oak, White	42.7	39.6	3.1	18.6	7.7	10.9	42.4
Oak, Other White	18.0	16.7	1.3	7.7	3.2	4.5	17.7
Oak, Black	2.5	2.5	-	1.3	.5	.8	2.9
Oak, Scarlet	.5	.5	-	.3	.1	.2	.7
Oak, Northern Red	.6	.6	-	.3	.1	.2	.8
Oak, Other Red	.5	.5	-	.2	.1	.1	.5
Hickory, Group A	9.1	5.7	3.4	2.6	1.8	.8	6.7
Hickory, Group B	.8	.8	-	.4	.3	.1	.8
Maple, Hard	1.4	1.2	.2	.6	.4	.2	1.3
Birch	.1	.1	-	.1	.1	-	.2
Walnut, Black	4.4	3.8	.6	2.0	1.3	.7	4.2
Ash	1.8	1.2	.6	.5	.3	.2	1.2
Other Hard Hardwoods	11.4	7.8	3.6	3.2	2.3	.9	8.6
All Hard Hardwoods	93.8	81.0	12.8	37.8	18.2	19.6	88.0
<u>Soft Hardwoods</u>							
Elm	13.8	9.6	4.2	4.6	4.4	.2	11.9
Maple, Soft	3.8	3.3	.5	1.7	1.6	.1	3.6
Sweetgum	2.3	2.3	-	1.3	1.2	.1	2.6
Black Gum	3.7	2.8	.9	1.3	1.2	.1	2.6
Yellow Poplar	2.0	1.9	.1	1.0	1.0	-	2.0
Cottonwood	16.7	15.2	1.5	7.9	7.5	.4	16.3
Sycamore	7.0	6.6	.4	3.4	3.2	.2	6.9
All Soft Hardwoods	49.3	41.7	7.6	21.2	20.1	1.1	45.9
All Species	143.1	122.7	20.4	59.0	38.3	20.7	133.9

TABLE 12 -- VOLUME OF LIVE MERCHANTABLE TREES CUT FROM
COMMERCIAL FOREST LAND BY SPECIES GROUP AND DIA-
METER CLASS, PRAIRIE REGION OF MISSOURI, 1959

(THOUSAND CORDS)

Species Group	Total	Tree-Diameter Class (inches)			
		6 - 10	12 - 14	16 - 18	20+
Oaks	64.8	4.4	23.3	19.6	17.5
Other Hard Hardwoods	29.0	8.4	4.0	2.8	13.8
Soft Hardwoods	49.3	7.6	2.0	12.4	27.3
All Species	143.1	20.4	29.3	34.8	58.6

COUNTY TABLES

TABLE 13a -- FOREST LAND AREA BY COUNTY, NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

County	Commercial Forest	Non- Commercial	Total Forest	Percent of Land Area
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>
Adair	66,000	3,200	69,200	18.8
Andrew	36,100	100	36,200	13.2
Atchison	31,400	100	31,500	9.0
Audrain	47,600	200	47,800	10.8
Buchanan	37,400	100	37,500	14.3
Caldwell	34,900	100	35,000	12.7
Carroll	48,700	200	48,900	11.0
Chariton	65,000	200	65,200	13.4
Clark	64,300	200	64,500	19.8
Clay	25,200	100	25,300	9.6
Clinton	22,500	100	22,600	8.4
Daviess	49,400	200	49,600	13.8
DeKalb	27,700	100	27,800	10.3
Gentry	41,300	100	41,400	13.3
Grundy	36,000	1,000	37,000	13.3
Harrison	49,300	200	49,500	10.7
Holt	38,400	800	39,200	13.4
Knox	40,900	100	41,000	12.5
Lewis	56,000	200	56,200	17.4
Lincoln	95,300	6,000	101,300	25.2
Linn	44,400	1,800	46,200	11.6
Livingston	55,500	200	55,700	16.3
Macon	91,500	300	91,800	17.6
Marion	50,300	200	50,500	17.9
Mercer	31,500	100	31,600	10.8
Monroe	65,400	1,200	66,600	15.6
Nodaway	50,200	200	50,400	9.0
Pike	108,300	1,600	109,900	25.2
Platte	48,400	200	48,600	18.3
Putnam	53,900	200	54,100	16.3
Ralls	56,500	200	56,700	18.5
Randolph	53,200	200	53,400	17.2
Ray	56,400	200	56,600	15.4
Schuyler	24,500	100	24,600	12.6
Scotland	39,600	100	39,700	14.1
Shelby	44,600	200	44,800	13.9
Sullivan	60,400	200	60,600	14.5
Worth	16,100	100	16,200	9.5
All Counties	1,864,100	20,600	1,884,700	14.5

TABLE 13b -- FOREST LAND AREA BY COUNTY, SOUTHWESTERN
PRAIRIE SUBREGION OF MISSOURI, 1959

County	Commercial Forest	Non- Commercial	Total Forest	Percent of Land Area
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>
Barton	35,900	200	36,100	9.5
Bates	71,900	400	72,300	13.4
Cass	50,000	300	50,300	11.3
Cooper	64,300	400	64,700	18.0
Dade	70,800	400	71,200	22.1
Greene	85,600	500	86,100	19.9
Henry	73,300	400	73,700	15.6
Jackson	53,000	300	53,300	13.8
Jasper	61,300	400	61,700	15.0
Johnson	73,100	3,600	76,700	14.5
Lafayette	38,500	200	38,700	9.5
Lawrence	77,400	500	77,900	19.7
Pettis	64,300	400	64,700	14.9
Saline	60,100	800	60,900	12.5
Vernon	87,000	500	87,500	16.3
All Counties	966,500	9,300	975,800	14.9

TABLE 14a -- COMMERCIAL FOREST LAND AREA BY COUNTY AND STAND-SIZE CLASS,
 NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959
 (ACRES)

County	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Adair	66,000	29,000	16,100	4,100	6,400	10,400
Andrew	36,100	12,500	8,000	3,300	2,800	9,500
Atchison	31,400	11,400	7,000	2,300	3,400	7,300
Audrain	47,600	22,900	10,600	4,000	3,000	7,100
Buchanan	37,400	16,300	9,200	2,400	1,900	7,600
Caldwell	34,900	12,700	6,700	3,000	2,400	10,100
Carroll	48,700	21,400	10,400	4,000	4,000	8,900
Chariton	65,000	35,300	10,100	2,600	3,100	13,900
Clark	64,300	21,400	14,800	6,600	7,000	14,500
Clay	25,200	10,200	5,200	1,500	3,000	5,300
Clinton	22,500	12,700	4,200	1,300	1,500	2,800
Daviess	49,400	15,900	10,900	4,900	4,400	13,300
DeKalb	27,700	13,100	5,700	2,400	2,100	4,400
Gentry	41,300	13,000	7,900	3,900	2,900	13,600
Grundy	36,000	13,100	6,200	3,200	3,000	10,500
Harrison	49,300	18,000	10,000	3,600	5,600	12,100
Holt	38,400	14,200	8,500	2,700	2,900	10,100
Knox	40,900	17,900	11,900	3,100	2,200	5,800
Lewis	56,000	21,000	13,500	6,900	3,900	10,700
Lincoln	95,300	38,900	20,100	8,600	9,200	18,500
Linn	44,400	17,300	9,100	3,000	4,200	10,800
Livingston	55,500	22,600	10,300	4,200	5,100	13,300
Macon	91,500	39,200	19,000	7,000	8,300	18,000
Marion	50,300	17,800	17,900	5,700	2,800	6,100
Mercer	31,500	9,200	5,400	2,500	3,000	11,400
Monroe	65,400	24,200	15,400	6,900	6,500	12,400
Nodaway	50,200	16,400	12,200	4,500	4,300	12,800
Pike	108,300	37,100	28,000	11,500	10,000	21,700
Platte	48,400	19,600	11,400	3,300	3,600	10,500
Putnam	53,900	16,200	9,700	4,700	7,600	15,700
Ralls	56,500	20,000	12,500	6,200	5,500	12,300
Randolph	53,200	17,100	12,700	4,400	5,600	13,400
Ray	56,400	21,200	13,900	4,500	6,400	10,400
Schuyler	24,500	8,000	4,600	1,600	2,600	7,700
Scotland	39,600	16,900	6,700	2,200	5,700	8,100
Shelby	44,600	14,900	12,100	4,900	3,800	8,900
Sullivan	60,400	26,000	12,300	4,500	5,100	12,500
Worth	16,100	6,000	2,500	1,500	1,500	4,600
All Counties	1,864,100	720,600	412,700	157,500	166,300	407,000

TABLE 14b -- COMMERCIAL FOREST LAND AREA BY COUNTY AND STAND-SIZE CLASS,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959
(ACRES)

County	All Stands	Sawtimber	Poletimber	Seedlings and Saplings		Nonstocked
				Satisfactorily Stocked	Poorly Stocked	
Barton	35,900	13,400	4,800	6,700	2,500	8,500
Bates	71,900	27,000	8,000	12,100	8,700	16,100
Cass	50,000	20,500	10,500	8,100	2,600	8,300
Cooper	64,300	23,000	12,900	9,400	5,600	13,400
Dade	70,800	18,200	13,500	15,800	4,200	19,100
Greene	85,600	24,100	15,700	16,200	6,100	23,500
Henry	73,300	23,600	8,000	11,900	8,600	21,200
Jackson	53,000	14,800	9,100	14,400	6,200	8,500
Jasper	61,300	18,200	11,900	11,800	5,200	14,200
Johnson	73,100	23,800	11,700	16,300	7,100	14,200
Lafayette	38,500	13,700	3,900	7,800	4,500	8,600
Lawrence	77,400	17,400	18,900	21,900	2,600	16,600
Pettis	64,300	23,200	13,100	7,600	4,200	16,200
Saline	60,100	24,300	7,800	10,500	8,000	9,500
Vernon	87,000	35,200	30,000	7,300	-	14,500
All Counties	966,500	320,400	179,800	177,800	76,100	212,400

TABLE 15a -- COMMERCIAL FOREST LAND AREA BY COUNTY AND TYPE,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959
(ACRES)

County	Forest Type						All Types
	Black-Scarlet Oak	White Oak	Post-Blackjack Oak	Lowland Oak	Elm-Ash- Cottonwood	Maple Beech	
Adair	20,900	12,400	900	4,600	26,300	900	66,000
Andrew	6,100	1,000	800	3,200	24,300	700	36,100
Atchison	8,500	2,800	600	2,600	16,400	500	31,400
Audrain	6,800	1,900	700	5,100	31,700	1,400	47,600
Buchanan	4,800	1,400	300	3,300	26,500	1,100	37,400
Caldwell	9,100	3,500	400	2,700	18,500	700	34,900
Carroll	12,200	5,600	1,200	4,800	23,500	1,400	48,700
Chariton	9,500	2,400	500	27,200	24,600	800	65,000
Clark	22,100	9,400	500	4,900	26,200	1,200	64,300
Clay	5,900	1,900	300	2,000	14,500	600	25,200
Clinton	5,200	2,700	-	1,800	12,100	700	22,500
Daviess	14,900	6,000	500	3,400	22,700	1,900	49,400
DeKalb	7,900	3,200	300	1,900	13,700	700	27,700
Gentry	10,700	4,000	500	2,900	22,600	600	41,300
Grundy	9,000	3,800	300	2,700	19,600	600	36,000
Harrison	15,800	7,200	300	3,400	21,700	900	49,300
Holt	5,200	1,100	600	3,500	27,000	1,000	38,400
Knox	4,800	1,900	200	3,200	29,800	1,000	40,900
Lewis	17,000	6,600	600	4,500	26,300	1,000	56,000
Lincoln	27,600	15,800	1,700	6,900	41,500	1,800	95,300
Linn	10,400	3,700	800	3,900	24,500	1,100	44,400
Livingston	14,600	5,900	300	4,600	28,700	1,400	55,500
Macon	28,100	12,600	800	8,000	40,000	2,000	91,500
Marion	19,000	8,600	800	4,400	16,000	1,500	50,300
Mercer	7,900	2,900	600	2,500	17,100	500	31,500
Monroe	24,300	12,500	500	4,100	23,100	900	65,400

TABLE 15a (cont'd)

County	Forest Type						All Types
	Black-Scarlet Oak	White Oak	Post-Blackjack Oak	Lowland Oak	Elm-Ash- Cottonwood	Maple Beech	
Nodaway	10,400	3,300	800	4,200	30,500	1,000	50,200
Pike	39,600	18,100	900	6,700	41,300	1,700	108,300
Platte	8,200	2,600	500	4,500	31,100	1,500	48,400
Putnam	19,700	8,500	100	2,900	21,900	800	53,900
Ralls	21,500	9,900	400	3,100	20,900	700	56,500
Randolph	19,500	8,200	500	2,900	21,400	700	53,200
Ray	21,100	9,200	300	4,000	20,800	1,000	56,400
Schuyler	7,700	3,500	200	1,700	11,000	400	24,500
Scotland	13,400	6,100	200	1,700	17,800	400	39,600
Shelby	16,200	6,600	500	2,600	18,100	600	44,600
Sullivan	18,700	9,900	600	4,200	25,900	1,100	60,400
Worth	4,700	1,500	200	1,100	8,300	300	16,100
All Counties	529,000	228,200	20,200	161,700	887,900	37,100	1,864,100

TABLE 15b -- COMMERCIAL FOREST LAND AREA BY COUNTY AND TYPE,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959
(ACRES)

County	Forest Type ^{1/}					All Types
	Hardwood- Redcedar	Black-Scarlet Oak	White Oak	Post-Blackjack Oak	Elm-Ash Cottonwood	
Barton	300	11,100	1,000	3,500	20,000	35,900
Bates	300	10,300	1,100	4,100	56,100	71,900
Cass	300	17,200	1,500	5,600	25,400	50,000
Cooper	700	23,300	4,300	10,100	25,900	64,300
Dade	1,500	37,200	3,300	9,700	19,100	70,800
Greene	1,600	39,600	5,200	12,100	27,100	85,600
Henry	1,100	20,400	2,200	6,500	43,100	73,300
Jackson	300	17,700	1,800	4,800	28,400	53,000
Jasper	500	28,100	1,400	9,300	22,000	61,300
Johnson	900	25,100	1,700	7,200	38,200	73,100
Lafayette	300	7,600	1,000	3,800	25,800	38,500
Lawrence	1,200	45,600	5,600	11,700	13,300	77,400
Pettis	600	22,800	3,900	10,200	26,800	64,300
Saline	-	10,200	2,400	7,000	40,500	60,100
Vernon	-	7,200	7,200	13,600	59,000	87,000
All Counties	9,600	323,400	43,600	119,200	470,700	966,500

^{1/} No acreage of pine, redcedar, oak-pine, lowland oak, or maple-beech types.

TABLE 16a -- NET TIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES GROUP AND KIND OF MATERIAL,
NORTHERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species Groups by Counties	Growing Stock (thousand cords)			Sawtimber Volume (million bd. ft.)	Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees			
<u>Adair</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	68.2	20.1	48.1	23.8	22.1	44.0
Hard Hardwoods	219.8	101.1	118.7	58.0	40.2	111.7
Total	288.0	121.2	166.8	81.8	62.5	155.7
<u>Andrew</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	46.4	14.9	31.5	15.6	16.3	28.9
Hard Hardwoods	86.2	39.1	47.1	23.1	21.1	44.5
Total	132.6	54.0	78.6	38.7	37.4	73.4
<u>Atchison</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	34.7	10.7	24.0	11.9	12.1	22.0
Hard Hardwoods	85.6	39.7	45.9	22.3	18.8	43.0
Total	120.3	50.4	69.9	34.2	30.9	65.0
<u>Audrain</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	79.0	23.5	55.5	27.5	23.9	50.9
Hard Hardwoods	136.2	59.1	77.1	37.5	27.9	72.2
Total	215.2	82.6	132.6	65.0	51.8	123.1
<u>Buchanan</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	58.2	18.1	40.1	19.8	18.6	36.6
Hard Hardwoods	101.7	45.2	56.5	27.5	22.0	53.0
Total	159.9	63.3	96.6	47.3	40.6	89.6
<u>Caldwell</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	38.7	11.2	27.5	13.6	13.4	25.1
Hard Hardwoods	92.5	42.2	50.3	24.5	20.8	47.2
Total	131.2	53.4	77.8	38.1	34.4	72.3
<u>Carroll</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	60.1	16.9	43.2	21.4	19.1	39.6
Hard Hardwoods	146.2	65.8	80.4	39.3	29.3	75.7
Total	206.3	82.7	123.6	60.7	48.6	115.3
<u>Chariton</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	115.7	31.7	84.0	41.6	33.8	77.0
Hard Hardwoods	187.6	73.8	113.8	55.5	39.1	106.9
Total	303.3	105.5	197.8	97.1	73.1	183.9
<u>Clark</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	57.2	17.5	39.7	19.7	20.7	36.4
Hard Hardwoods	180.4	87.1	93.3	45.5	38.4	87.6
Total	237.6	104.6	133.0	65.2	59.3	124.0
<u>Clay</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	30.6	9.0	21.6	10.7	10.4	19.8
Hard Hardwoods	70.0	31.2	38.8	19.0	15.2	36.6
Total	100.6	40.2	60.4	29.7	25.6	56.4
<u>Clinton</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	33.4	9.1	24.3	12.1	9.8	22.4
Hard Hardwoods	75.5	30.9	44.6	21.9	13.8	42.2
Total	108.9	40.0	68.9	34.0	23.6	64.6
<u>Daviess</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	45.8	13.8	32.0	15.9	16.7	29.3
Hard Hardwoods	132.1	63.2	68.9	33.6	29.6	64.7
Total	177.9	77.0	100.9	49.5	46.5	94.0
<u>DeKalb</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	35.4	10.0	25.4	12.6	10.9	23.3
Hard Hardwoods	86.8	37.9	48.9	23.9	16.8	46.0
Total	122.2	47.9	74.3	36.5	27.7	69.3

TABLE 16a (cont'd)

Species Groups by Counties	Growing Stock (thousand cords)			Sawtimber Volume (million bd. ft.)	Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees			
<u>Gentry</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	42.4	12.8	29.6	14.6	15.6	27.0
Hard Hardwoods	100.1	46.5	53.6	26.2	24.4	50.5
Total	142.5	59.3	83.2	40.8	40.2	77.5
<u>Grundy</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	40.0	11.4	28.6	14.1	13.9	26.1
Hard Hardwoods	92.7	41.4	51.3	25.1	21.5	48.4
Total	132.7	52.8	79.9	39.2	35.6	74.5
<u>Harrison</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	46.6	13.9	32.7	16.2	16.6	30.0
Hard Hardwoods	140.7	64.4	76.3	37.3	29.7	71.8
Total	187.3	78.3	109.0	53.5	46.5	101.8
<u>Holt</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	52.8	16.6	36.2	17.9	18.3	33.1
Hard Hardwoods	93.7	42.2	51.5	25.1	22.6	48.4
Total	146.5	58.8	87.7	43.0	40.9	81.5
<u>Knox</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	67.0	21.5	45.5	22.4	20.8	41.4
Hard Hardwoods	115.1	53.4	61.7	30.1	23.7	58.0
Total	182.1	74.9	107.2	52.5	44.5	99.4
<u>Lewis</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	62.9	19.0	43.9	21.7	20.5	40.1
Hard Hardwoods	159.9	76.2	83.7	40.8	33.1	78.6
Total	222.8	95.2	127.6	62.5	53.8	118.7
<u>Lincoln</u>						
Softwoods	1/	1/	1/	1/	0.3	-
Soft Hardwoods	100.1	29.1	71.0	35.2	33.1	65.1
Hard Hardwoods	288.7	131.1	157.6	76.9	57.5	148.1
Total	388.8	160.2	228.6	112.1	90.9	213.2
<u>Linn</u>						
Softwoods	1/	1/	1/	1/	0.1	-
Soft Hardwoods	52.6	15.5	37.1	18.3	18.0	33.9
Hard Hardwoods	121.1	54.6	66.5	32.5	26.6	62.6
Total	173.7	70.1	103.6	50.8	44.7	96.5
<u>Livingston</u>						
Softwoods	1/	1/	1/	1/	0.1	-
Soft Hardwoods	64.8	18.4	46.4	22.9	21.6	42.4
Hard Hardwoods	155.3	68.4	86.9	42.5	33.5	81.9
Total	220.1	86.8	133.3	65.4	55.2	124.3
<u>Macon</u>						
Softwoods	1/	1/	1/	1/	0.3	-
Soft Hardwoods	102.9	29.4	73.5	36.4	33.0	67.4
Hard Hardwoods	279.2	125.5	153.7	75.2	55.2	144.9
Total	382.1	154.9	227.2	111.6	88.5	212.3
<u>Marion</u>						
Softwoods	0.9	0.5	0.4	0.1	0.2	-
Soft Hardwoods	45.2	14.9	30.3	14.9	15.0	27.6
Hard Hardwoods	164.9	86.7	78.2	37.9	30.3	73.0
Total	211.0	102.1	108.9	52.9	45.5	100.6
<u>Mercer</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	30.6	9.4	21.2	10.4	11.7	19.2
Hard Hardwoods	72.4	33.1	39.3	19.1	18.6	36.8
Total	103.0	42.5	60.5	29.5	30.3	56.0
<u>Monroe</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	56.5	16.6	39.9	19.8	19.5	36.6
Hard Hardwoods	202.9	97.2	105.7	51.6	39.5	99.4
Total	259.4	113.8	145.6	71.4	59.2	136.0

TABLE 16a (cont'd)

Species Groups by Counties	Growing Stock (thousand cords)			Sawtimber Volume (million bd. ft.)	Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees			
<u>Nodaway</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	58.7	19.0	39.7	19.6	21.0	36.3
Hard Hardwoods	124.9	59.6	65.3	31.8	29.4	61.3
Total	183.6	78.6	105.0	51.4	50.6	97.6
<u>Pike</u>						
Softwoods	1/	1/	1/	1/	0.3	-
Soft Hardwoods	92.7	28.6	64.1	31.7	33.1	58.7
Hard Hardwoods	326.1	160.8	165.3	80.5	65.1	155.1
Total	418.8	189.4	229.4	112.2	98.5	213.8
<u>Platte</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	66.7	20.7	46.0	22.7	22.2	42.0
Hard Hardwoods	130.3	58.7	71.6	35.0	28.6	67.4
Total	197.0	79.4	117.6	57.7	50.8	109.4
<u>Putnam</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	40.1	11.9	28.2	13.9	15.9	25.7
Hard Hardwoods	141.2	65.9	75.3	36.8	32.1	70.9
Total	181.3	77.8	103.5	50.7	48.2	96.6
<u>Ralls</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	48.0	14.0	34.0	16.8	16.8	31.1
Hard Hardwoods	168.2	80.3	87.9	42.9	33.9	82.7
Total	216.2	94.3	121.9	59.7	50.9	113.8
<u>Randolph</u>						
Softwoods	1/	1/	1/	1/	.2	-
Soft Hardwoods	44.5	13.4	31.1	15.4	16.4	28.5
Hard Hardwoods	152.4	75.2	77.2	37.6	31.8	72.4
Total	196.9	88.6	108.3	53.0	48.4	100.9
<u>Ray</u>						
Softwoods	1/	1/	1/	1/	.2	-
Soft Hardwoods	51.9	15.3	36.6	18.0	17.6	33.3
Hard Hardwoods	174.8	84.1	90.7	44.2	34.0	85.1
Total	226.7	99.4	127.3	62.2	51.8	118.4
<u>Schuyler</u>						
Softwoods	1/	1/	1/	1/	1/	-
Soft Hardwoods	21.0	6.1	14.9	7.5	8.1	13.9
Hard Hardwoods	65.7	30.7	35.0	17.0	14.7	32.8
Total	86.7	36.8	49.9	24.5	22.8	46.7
<u>Scotland</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	40.3	11.4	28.9	14.3	13.3	26.5
Hard Hardwoods	120.0	51.3	68.7	33.6	24.0	64.7
Total	160.3	62.7	97.6	47.9	37.5	91.2
<u>Shelby</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	39.5	12.3	27.2	13.6	14.1	25.2
Hard Hardwoods	133.0	66.9	66.1	32.1	26.7	61.8
Total	172.5	79.2	93.3	45.7	41.0	87.0
<u>Sullivan</u>						
Softwoods	1/	1/	1/	1/	0.2	-
Soft Hardwoods	63.9	18.1	45.8	22.7	20.9	42.0
Hard Hardwoods	188.9	84.5	104.4	51.0	36.6	98.3
Total	252.8	102.6	150.2	73.7	57.7	140.3
<u>Worth</u>						
Softwoods	-	1/	1/	1/	1/	-
Soft Hardwoods	18.1	5.0	13.1	6.4	6.1	11.8
Hard Hardwoods	41.7	18.3	23.4	11.5	9.6	22.2
Total	59.8	23.3	36.5	17.9	15.7	34.0
<u>All Counties</u>						
Softwoods	0.9	0.5	0.4	0.1	5.1	-
Soft Hardwoods	2,053.2	610.8	1,442.4	713.6	690.9	1,320.2
Hard Hardwoods	5,354.5	2,473.3	2,881.2	1,405.9	1,115.7	2,708.4
Total	7,084.6	3,084.6	4,324.0	2,119.6	1,811.7	4,028.6

1/ Insignificant amount.

TABLE 16b -- NET TIMBER VOLUME ON COMMERCIAL FOREST LAND BY SPECIES GROUP AND KIND OF MATERIAL,
SOUTHWESTERN PRAIRIE SUBREGION OF MISSOURI, 1959

Species Groups by Counties	Growing Stock (thousand cords)			Sawtimber Volume (million bd. ft.)	Cull Trees (thousand cords)	Hardwood Limbs (thousand cords)
	Total	Poletimber Trees	Sawtimber Trees			
<u>Barton</u>						
Soft Hardwoods	38.9	12.0	26.9	13.3	13.7	24.8
Hard Hardwoods	93.4	42.1	51.3	24.8	29.1	48.1
Total	132.3	54.1	78.2	38.1	42.8	72.9
<u>Bates</u>						
Soft Hardwoods	104.5	33.2	71.3	35.3	36.0	65.9
Hard Hardwoods	160.8	68.2	92.6	44.4	57.6	86.2
Total	265.3	101.4	163.9	79.7	93.6	152.1
<u>Cass</u>						
Soft Hardwoods	55.0	18.6	36.4	18.0	18.3	33.6
Hard Hardwoods	151.2	71.5	79.7	38.5	40.9	74.7
Total	206.2	90.1	116.1	56.5	59.2	108.3
<u>Cooper</u>						
Soft Hardwoods	57.6	18.4	39.2	19.4	20.0	36.2
Hard Hardwoods	186.1	92.3	93.8	45.3	51.9	87.9
Total	243.7	110.7	133.0	64.7	71.9	124.1
<u>Dade</u>						
Soft Hardwoods	40.5	13.9	26.6	13.2	15.6	24.6
Hard Hardwoods	182.1	95.0	87.1	42.1	55.4	81.7
Total	222.6	108.9	113.7	55.3	71.0	106.3
<u>Greene</u>						
Soft Hardwoods	55.2	18.4	36.8	18.4	21.2	34.3
Hard Hardwoods	224.7	114.5	110.2	53.1	67.5	103.1
Total	279.9	132.9	147.0	71.5	88.7	137.4
<u>Henry</u>						
Soft Hardwoods	77.4	24.4	53.0	26.2	28.6	48.9
Hard Hardwoods	166.4	74.5	91.9	44.2	58.0	85.8
Total	243.8	98.9	144.9	70.4	86.6	134.7
<u>Jackson</u>						
Soft Hardwoods	46.3	15.9	30.4	15.1	18.7	28.2
Hard Hardwoods	126.0	62.1	63.9	30.8	42.2	59.8
Total	172.3	78.0	94.3	45.9	60.9	88.0
<u>Jasper</u>						
Soft Hardwoods	46.7	15.6	31.1	15.4	16.8	28.7
Hard Hardwoods	163.0	83.0	80.0	38.7	48.7	75.1
Total	209.7	98.6	111.1	54.1	65.5	103.8
<u>Johnson</u>						
Soft Hardwoods	80.3	25.4	54.9	27.2	26.9	50.8
Hard Hardwoods	177.8	86.3	91.5	44.0	57.9	85.4
Total	258.1	111.7	146.4	71.2	84.8	136.2
<u>Lafayette</u>						
Soft Hardwoods	47.4	14.4	33.0	16.4	16.9	30.6
Hard Hardwoods	88.0	38.4	49.6	23.8	30.8	46.2
Total	135.4	52.8	82.6	40.2	47.7	76.8
<u>Lawrence</u>						
Soft Hardwoods	34.7	13.0	21.7	10.8	13.4	20.2
Hard Hardwoods	208.7	117.3	91.4	44.2	60.2	85.8
Total	243.4	130.3	113.1	55.0	73.6	106.0
<u>Pettis</u>						
Soft Hardwoods	61.2	19.6	41.6	20.7	20.5	38.6
Hard Hardwoods	185.5	92.3	93.2	44.9	51.8	87.2
Total	246.7	111.9	134.8	65.6	72.3	125.8
<u>Saline</u>						
Soft Hardwoods	81.5	24.5	57.0	28.2	27.3	52.6
Hard Hardwoods	153.7	68.3	85.4	41.1	49.0	79.8
Total	235.2	92.8	142.4	69.3	76.3	132.4
<u>Vernon</u>						
Soft Hardwoods	129.0	48.9	80.1	39.8	40.8	74.3
Hard Hardwoods	271.0	142.0	129.0	62.0	70.0	120.4
Total	400.0	190.9	209.1	101.8	110.8	194.7
<u>All Counties</u>						
Soft Hardwoods	956.2	316.2	640.0	317.4	334.7	592.3
Hard Hardwoods	2,538.4	1,247.8	1,290.6	621.9	771.0	1,207.2
Total	3,494.6	1,564.0	1,930.6	939.3	1,105.7	1,799.5

TABLE 17 -- GUIDE FOR JUDGING ACCURACY BY
 SIZE OF AREA, PRAIRIE REGION OF
 MISSOURI, 1959

Commercial Forest Land (thousand acres)	Standard Error of Sampling	
	Area	Total Volume
	<u>Percent</u>	<u>Percent</u>
2,831	5.8	6.5
1,000	9.8	10.9
500	13.8	15.4
100	30.9	34.8
50	43.8	48.9
25	61.9	69.1
10	97.8	109.2
5	138.4	154.5
2	218.8	244.3

TABLE 18 -- GUIDE FOR JUDGING VOLUME
 ACCURACY, PRAIRIE REGION OF
 MISSOURI, 1959

Growing-Stock Volume (thousand cords)	Sampling Error (Percent)
6.5	10,903
21.4	1,000
30.3	500
67.8	100
95.9	50
135.6	25
214.4	10
303.3	5
479.5	2