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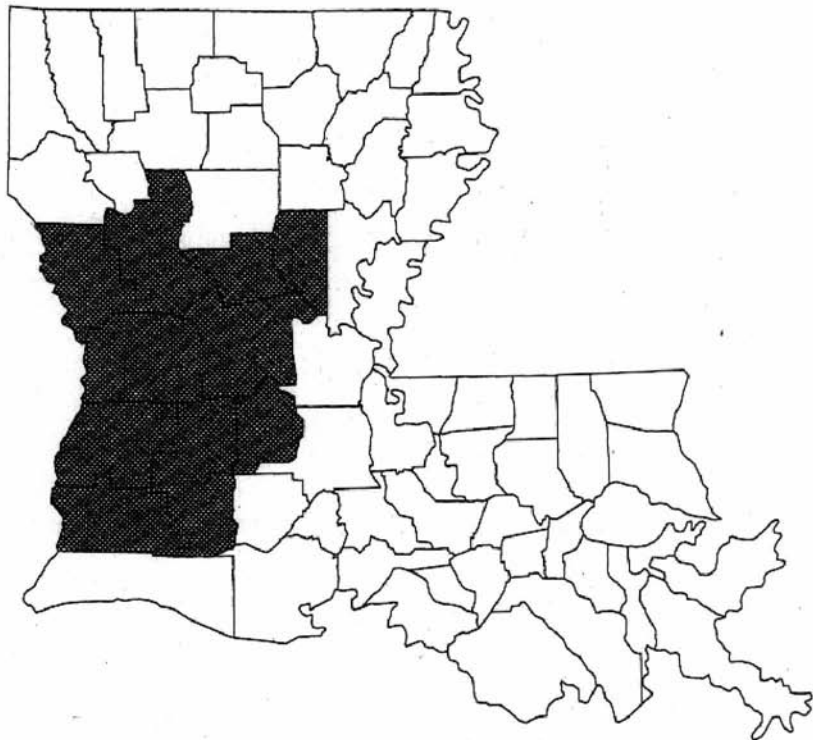
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Forest Statistics for Southwest Louisiana Parishes – 1991

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FOREWORD

The USDA-Forest Service, Southern Forest Experiment Station, Forest Inventory and Analysis unit (SO-FIA), conducts forest inventories covering the States of Alabama, Arkansas, Louisiana, Mississippi, East Oklahoma, Tennessee, and East Texas, and the island of Puerto Rico.

The SO-FIA forest inventories are part of a nationwide effort originally authorized by the McSweeney-McNary Act of 1928. More recent legislation pertinent to the SO-FIA mission includes the Forest and Rangeland Renewable Resources Planning Act of 1974 and the Forest and Rangeland Renewable Resources Research Act of 1978. The SO-FIA mission is to develop, analyze, and maintain forest resource information that is essential for formulation of forest policies and programs.

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¹Core tables are presented in response to the Southern Industrial Forestry Research Council's recommendations. These tables are identical among Forest Inventory and Analysis units in the eastern United States.

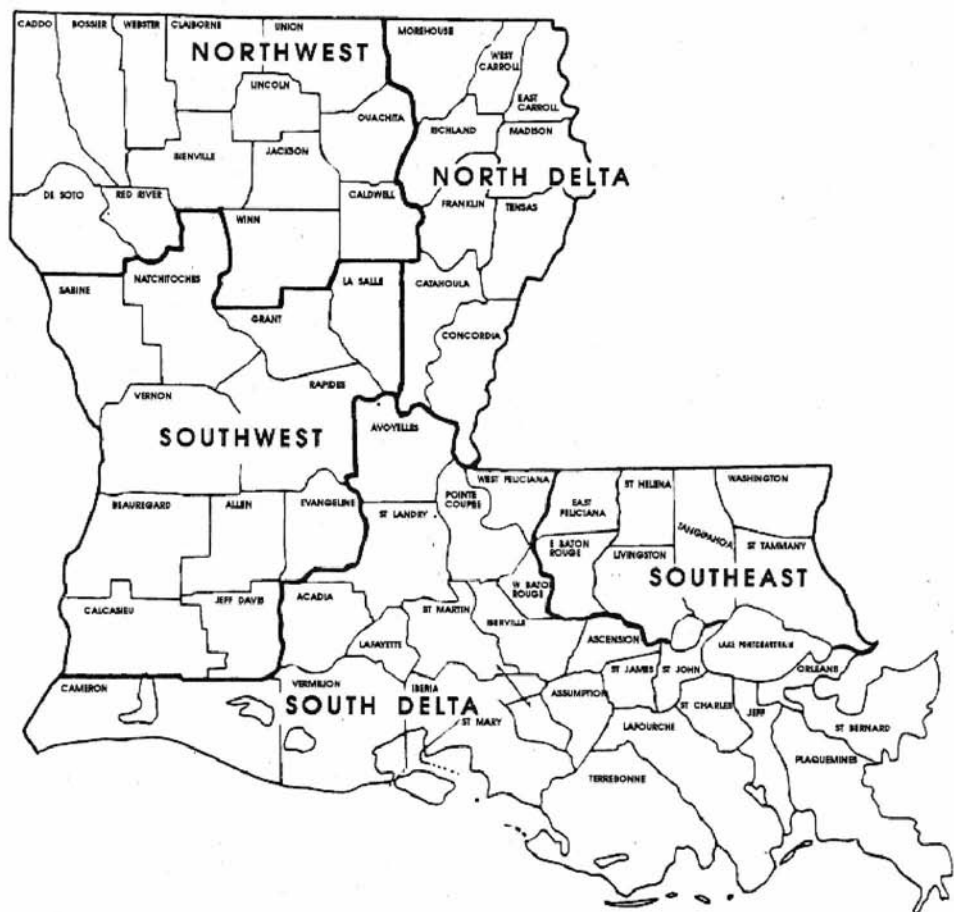


Figure I. - Forest survey regions in Louisiana.

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INTRODUCTION

Tabulated results were derived from data obtained from a 1991 continuous forest inventory of Southwest Louisiana parishes (fig.1). Core tables (1 to 25) are compatible among Forest Inventory and Analysis units in the Eastern U.S. Supplemental tables (26 to 43) provide information beyond that provided by the core tables. All comparisons between the 1991 and 1984 surveys are based upon reprocessed 1984 data.

METHODS

The estimates of timberland area, volume, growth, removals, and mortality for the Southwest Louisiana parishes are based upon the latest and most up-to-date inventory techniques available. There are important differences in the methods used between the 1984 and 1991 inventories. In many cases, improvements in methodology for deriving current estimates can raise concerns about trends between survey periods. Because these differences might appear to cloud the comparisons between 1984 and 1991 results, the major differences in procedures are documented below.

First, the 1984 inventory used 5 satellite points per plot, the 1991 inventory used 10 points. This should affect comparisons of the Southwest Louisiana unit totals very little, but caution should be used when analyzing smaller aggregations of data.

Second, the 1984 survey used regression equations to estimate volume. The coefficients were based upon deterministic tree measurements from a small number of sample plots. Volumes for the 1991 survey were derived from deterministic measurements made on all trees ≥ 5.0 inches diameter at breast height (d.b.h.) on all plots.

Third, the classification of trees into growing-stock, rough, or rotten classes has been modified in two ways to ensure compatibility among the eastern Forest Inventory and Analysis units. (1) Currently, any tree that contains or is capable of producing one 12-foot or two 8-foot logs anywhere in the sawlog portion of the tree is classified as growing stock. The 1984 survey classified growing-stock trees as those that had or were capable of producing a 12-foot log only in the butt 16-foot section. (2) The 1984 survey required that over one-half of the sawlog volume (or prospective volume) had to be utilizable. The current standard is that one-third of the sawlog volume in the sawlog

portion of the tree has to be utilizable in order for the tree to be classed as growing stock.

Using 5 or 10 satellite points per plot has little effect on volume totals for the unit because of the large sample size. Likewise, test runs comparing the results of volume equations and deterministic measurements have also demonstrated very little difference between methods. Here again, a large sample size enhances precision.

The first change in the growing-stock definition (log position) did affect direct comparisons between 1984 and 1991 estimates. To compensate for this definition change, the 1984 inventory data were reprocessed to be compatible with the 1991 growing-stock standard. The total number of trees affected by the definition change is small, and mostly hardwoods because of growth habit. It was not possible to classify all trees by the new growing-stock definition in the 1984 or 1991 data. Some trees died or were cut between measurement periods. Since these trees are gone, cruisers had no way of determining what the classification of these trees would be under the new standard. Therefore, the tree class previously assigned was maintained throughout the compilation process on mortality trees, on rough trees that were cut and not used, and on rotten trees that were cut. All rough trees that were cut and used were reclassified as growing stock.

The second growing-stock definition modification (changing from one-half to one-third sound) had virtually no impact. Only a small number of sawlog-sized sample trees had sound volume in the range of ≥ 33 percent but < 50 percent. Of these, most were reprocessed to resolve log position differences stated earlier. This left only a very few trees that were affected by this definition change, with subsequent little effect on growing-stock trends.

Users interested in trend analysis of growing-stock volume, growth, removals, and mortality between the 1984 and 1991 surveys should be aware of the impact of the growing-stock definition change. The incompatibility arises from trees that were cut or died, impacting growth, removals, and mortality estimates. The magnitude is, most likely, small but not possible to define with certainty.

Growing-stock comparisons between the 1984 reprocessed data and the 1991 data are valid for most general applications. However, in a more rigorous analysis it is important to make sure the changes are real and not due to definition changes. In such instances the comparisons between surveys should be done using all live trees. This procedure eliminates any uncertainties caused by the

Table II—Components of annual change in the volume of live trees by inventory period and species group, Southwest Louisiana Parishes, 1991

Inventory period and species group	Gross growth		
	Net growth	Mortality	Removals
-----Million cubic feet-----			
1974 to 1983:			
Softwoods	228.4	22.6	178.1
Hardwoods	56.2	29.5	64.8
Total	284.6	52.1	242.9
1984 to 1991:			
Softwoods	200.8	37.9	273.7
Hardwoods	71.2	24.5	62.4
Total	271.9	62.4	336.0

Ownership

Nonindustrial private owners account for 41 percent of the timberland, excluding the area leased to forest industry. Forest industry owners account for 38 percent of timberland, but this increases to 47 percent when forest industry-leased land is added to the industry category. Forest industry-owned land has increased 22 percent since 1984.

Stand Size

Sawtimber stands continue to dominate, accounting for 53 percent of timberland. The area occupied by sawtimber stands has changed little since 1984, but sapling-seedling stands have increased by 14 percent and poletimber stands have decreased by 25 percent. A notable increase of 25 percent has occurred for sapling-seedling stands in pine forest types, and is reflected in the trend of artificially regenerated stands.

Artificial Regeneration

There are 1,160.9 thousand acres of pine forest types that originated from artificial regeneration, an increase of 344.5 thousand acres since 1984. These artificially regenerated pine stands now account for 27 percent of the total timberland.

Softwood Volume

Softwood live-tree volume is currently 3,516.2 million cubic feet, a 12-percent decrease since 1984. Most of the change is attributable to loblolly pine, but longleaf pine and shortleaf pine have also decreased. Slash pine and cypress have increased somewhat, but these account for only a small proportion of the total softwood volume.

Hardwood Volume

Hardwood live-tree volume is 2,150.4 million cubic feet, a 9-percent increase since 1984. Increases have occurred

for most major hardwood species, except for species in the other white oaks group which have declined slightly.

Growth

Softwood live-tree gross growth averages 238.7 million cubic feet per year, a decrease of 5 percent from the previous survey period when it averaged 251.0 million cubic feet annually (table II). Softwood gross growth averages 55 cubic feet per acre annually for the current survey in Southwest Louisiana.

Hardwood live-tree gross growth averages 95.7 million cubic feet per year, an increase of 12 percent from the previous survey amount of 85.7 million cubic feet (table II). The per acre average for hardwood gross growth is now 22 cubic feet per year.

Removals

The removal of live-tree softwood volume has increased substantially over the previous survey period. The average for the current survey period is 273.7 million cubic feet, a 54-percent increase from the 178.1 million cubic feet annual average recorded for the previous survey (table II).

Hardwood live-tree removals have changed little since the last survey. They now average 62.4 million cubic feet annually, a slight decrease from 64.8 million cubic feet for the previous survey (table II).

Mortality

Live-tree mortality has increased for softwoods and decreased for hardwoods. Softwood mortality averages 37.9 million cubic feet annually for the current survey which is a 68-percent increase from the previous period. Hardwood live-tree mortality has decreased 17 percent from the previous survey (table II).

Stand Structure

The average basal area of live trees on timberland in Southwest Louisiana has decreased from 79.3 square feet per

acre to 75.5. This decrease is attributable to the change in softwoods, mostly from the sawtimber portion. Average hardwood basal area is essentially unchanged from 1984. Softwoods currently account for a slight majority of average basal area.

The number of live trees has changed only slightly between the survey periods. Total number of live trees has increased 2 percent, with most of the increase resulting from changes in the 2- and 4-inch diameter classes for both softwoods and hardwoods.

APPENDIX

Definition of Terms

Forest Land Classes

Forest land—Land at least 16.7 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest uses. Minimum area considered for classification is one acre. Forest land is divided into a commercial category: timberland; and two noncommercial categories: reserved timberland or woodland.

Timberland—Forest land that is producing, or is capable of producing, crops of industrial wood and not withdrawn from timber utilization. Timberland is synonymous with "commercial forest land" in prior reports.

Reserved timberland—Productive public forest land withdrawn from timber utilization through statute or administrative regulations.

Woodland—Forest land incapable of yielding crops of industrial wood because of adverse site conditions.

Ownership Classes

National Forest land—Federal lands that have been legally designated as National Forests or purchase units and other lands under the administration of the Forest Service, including experimental areas.

Other federal land—Federal lands other than National Forests.

State, county, and municipal lands—Lands owned by States, counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Forest industry land—Lands owned by companies or individuals operating wood-using plants (either primary or secondary).

Farmer-owned land—Lands operated as a unit of 10 acres or more and from which the sale of agricultural products totals \$1,000 or more annually.

Nonindustrial private land (individual)—Lands privately owned by individuals other than forest industries, farmers, or miscellaneous private corporations.

Nonindustrial private land (corporate)—Lands privately owned by private corporations other than forest industries and incorporated farms.

Forest Types

Longleaf-slash pine—Forests in which longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. Common associates include other southern pines, oaks, and gums.

Loblolly-shortleaf pine—Forests in which pines (except longleaf or slash pine) and eastern redcedar singly or in combination, comprise a plurality of the stocking. Common associates include oaks, hickories, and gums.

Oak-pine—Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking, but in which softwoods, except cypress, comprise 25-49 percent of the stocking. Common associates include gums, hickories, and yellow-poplar.

Oak-hickory—Forests in which upland oaks or hickories, singly or in combination, comprise a plurality of the stocking except where pines comprise 25-50 percent in which case the stand would be classified oak-pine. Common associates include yellow-poplar, elms, maples, and black walnut.

Oak-gum-cypress—Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprise a plurality of the stocking except where pines comprise 25-50 percent, in which case the stand would be classified oak-pine. Common associates include cottonwood, willow, ashes, elms, hackberries, and maples.

Elm-ash-cottonwood—Forests in which elms, ashes, or cottonwood, singly or in combination, comprise a plurality of the stocking. Common associates include willow, sycamore, beech, and maples.

Nontyped—Timberland currently unoccupied with any live trees or seedlings, e.g., very recent clearcut areas.

Tree Classes

Commercial species—Tree species currently or potentially suitable for industrial wood products. Excluded are noncommercial species.

Noncommercial species—Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Growing-stock trees—Living trees of commercial species. Trees must have one 12-foot or two 8-foot logs currently or potentially to be classed as growing stock. The log(s) must meet dimension and merchantability standards to qualify. Trees must also have, currently or potentially (if too small to qualify), one-third of the gross board-foot volume in sound wood.

Rough trees—Live trees of commercial species that are unmerchantable for sawlogs currently or potentially because of roughness or poor form in the sawlog section. Also included are all live trees of noncommercial species. See growing-stock definition.

