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LOUISIANA'S SIXTH FOREST SURVEY

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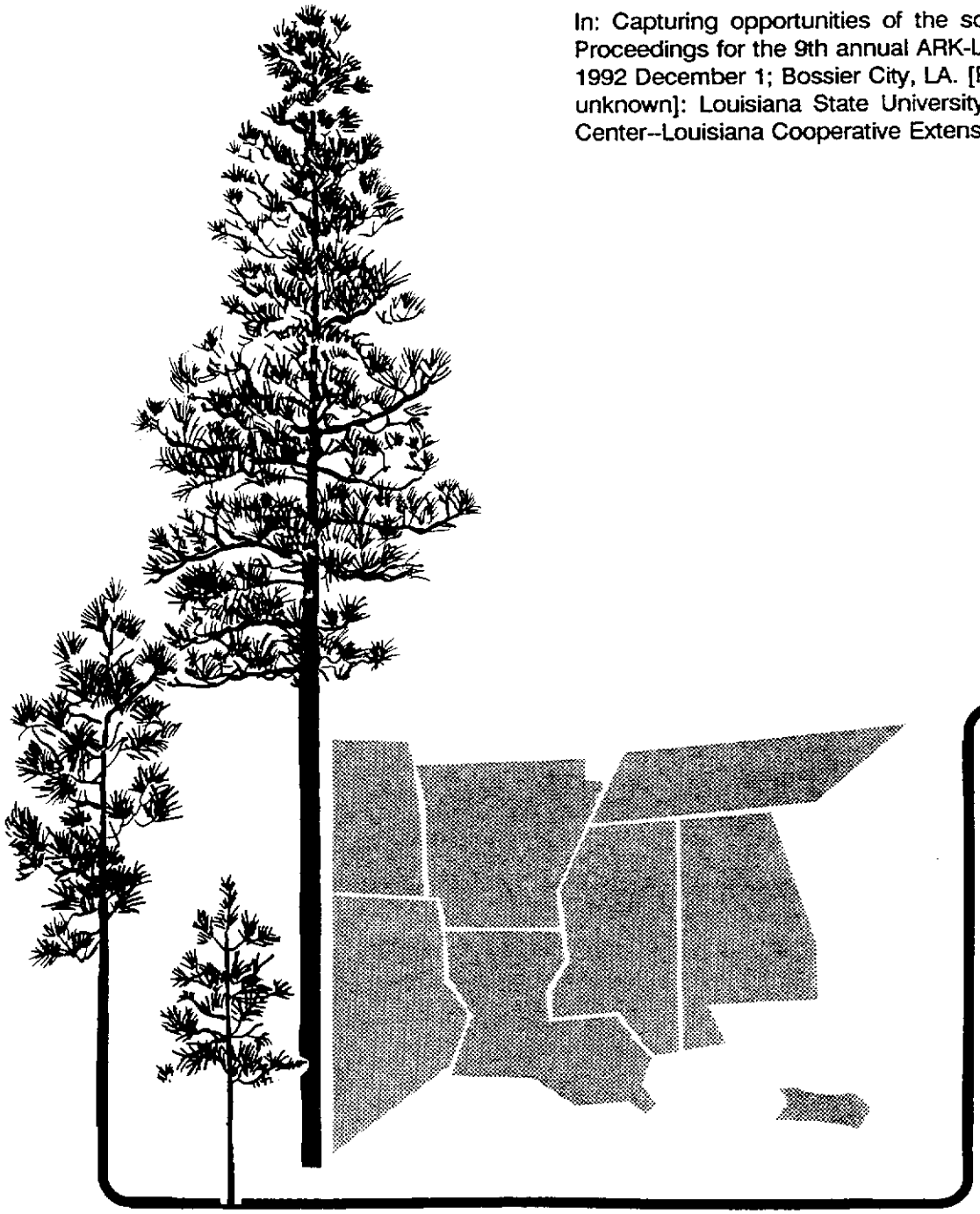

Southern Forest Experiment Station

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LOUISIANA'S SIXTH FOREST SURVEY

BY

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Introduction

The sixth Louisiana forest survey was completed in November 1991. Field measurements were made between October 1990 and November 1991. A total of 4,117 permanent sample plots spaced on a 3-mile square grid were visited by field crews; tree measurements were made on 2,413 forested plots. Previous surveys were done in 1935, 1954, 1964, 1974, and 1984.

Louisiana lies within the administrative boundaries of the U.S. Department of Agriculture, Southern Forest Experiment Station, headquartered in New Orleans, Louisiana. The Forest Inventory and Analysis (FIA) work unit, located in Starkville, Mississippi, conducts the survey. The other states administered by the Southern Station are Alabama, Arkansas, Mississippi, Oklahoma, Tennessee, and Texas.

Information derived from the forest survey has become more and more detailed and comprehensive since the first survey in 1935 as a direct result of enhanced sampling techniques, expanded administrative budgets, and the development of computer technology. Therefore, acknowledging the potential wealth of information but being mindful of the need for a reasonable time frame, this presentation will cover only arbitrarily chosen highlights of the sixth Louisiana forest survey. Important topics to be covered are changes in timberland area, softwood and hardwood volume, growth, mortality, removals, and precommercial-sized softwoods.

The Southern Station forest survey normally publishes three types of documents detailing resource information for each State in the Midsouth region: unit reports, a county (parish) statistical report, and a State analytical report. All five unit reports and the parish statistical report have been published for the 1991 Louisiana survey; the State analytical report is in process.

Timberland Area

There are 13,783.0 thousand acres of timberland in Louisiana, a decline of 89.6 thousand acres since the 1984 survey. Although the acreage decline is small, the number

does not reflect the real dynamics of land use changes. A total of 505.6 thousand acres of timberland was diverted to agriculture and other nonforest categories, while another 416.0 thousand acres reverted to timberland.

Most Louisiana timberland (62 percent) is held by nonindustrial private owners (NIPF). NIPF timberland has declined by 365.9 thousand acres, while forest industry timberland has increased by 295.2 thousand acres. Only 9 percent of Louisiana timberland is publicly owned.

The predominant forest type in Louisiana is oak-gum-cypress, 4,349.9 thousand acres. The loblolly-shortleaf pine forest type is second in dominance with 4,153.6 thousand acres.

Most of Louisiana's timberland, 8,148.1 thousand acres, is in sawtimber stands. There are 3,403.4 thousand acres in sapling-seedling sized stands and 2,161.5 thousand acres in poletimber sized stands. Since 1984, sapling-seedling stands have increased by 191.2 thousand acres, while poletimber stands have decreased by 357.2 thousand acres. Sawtimber stands increased slightly, by 95.2 thousand acres.

Stand Volume

Louisiana's live-tree softwood volume has declined by 965.7 million cubic feet to 10,122.2 million cubic feet. Heaviest declines were in the southwest and northwest areas of the State. Hardwood volume has increased by 89.1 million cubic feet to 10,616.1 million cubic feet.

The softwood sawtimber resource has declined by 3,255.2 million board feet to 44,944.0 million board feet. In contrast, the hardwood sawtimber resource has increased by 2,980.7 million board feet to 30,581.2 million board feet.

There are four species in the State with 1.0 billion (or more) cubic feet of live-tree volume: loblolly pine (7.0 billion), sweetgum (2.1 billion), baldcypress (1.6 billion), and water oak (1.0 billion). Together, these four species account for 50 percent of the live-tree volume in the State (for trees greater than 1.0 inch d.b.h.).

Growth, Mortality, Removals

Softwood, live-tree removals exceeded growth by 143.6 million cubic feet per year during the survey period. This figure is in sharp contrast to the 1974 to 1984 survey period, during which softwood growth exceeded removals by 137.1 million cubic feet per year. Factors contributing to this trend reversal include a 62.3 million cubic feet per year decrease in growth and a 27.9 million cubic feet per year increase in mortality. However, the major factor was the large increase in removals (from 450.3 cubic feet per year in the 1984 survey period to 668.8 million cubic feet in the 1991 survey period).

Although the gap is narrowing, hardwood growth still exceeds removals by 1.14:1.0. In 1984, hardwood live-tree growth exceeded removals by 60.3 million cubic feet per year;

in 1991 hardwood live-tree growth exceeded removals by only 40.8 million cubic feet per year. Between the survey periods, net growth increased by 22.8 million cubic feet per year, mortality decreased by 15.4 million cubic feet per year, and removals increased only slightly, by 42.5 million cubic feet per year. Current levels of hardwood net growth, mortality, and removals are 325.7, 146.1, and 285.1 million cubic feet per year, respectively.

Precommercial-sized Softwoods

The sharp increase in softwood removals and subsequent removals exceeding growth have raised concern about the long-term sustainability of Louisiana's softwood resource. A study underway (Rosson, in process a) has assessed the status of precommercial-sized softwoods in the State. Highlights of this study reveal several important points.

There are 1,258.1 and 1,639.0 thousand acres in seedling- and sapling-sized upland timberland, respectively, in Louisiana. This is 21 percent of all timberland. The study shows that 952.5 thousand seedling-sized acres and 765.8 thousand sapling-sized acres are less than 60 percent stocked with softwoods (roughly equivalent to fewer than 360 trees per acre). Most of the lower stocked acreage is on NIPF lands and in naturally regenerated stands. To ensure an uninterrupted supply of the softwood resource it is important that regenerating stands by adequately stocked.

A similar study, currently underway, deals with the status of Louisiana timberland harvested between 1975 and 1991 (Rosson, in process b). Preliminary results have shown that 2,562.0 thousand acres were clearcut during that period, most of it in pine types (1,996.4 thousand acres).

Of the 1,996.4 thousand clearcut acres of longleaf-slash pine, loblolly-shortleaf pine, and oak-pine forest types, 1,483.1 thousand acres remained in a pine type after harvest, but 513.3 thousand acres have been converted to the oak-hickory type (as of the 1991 survey). Since forest type computations are based on species dominance, tracking forest type from the time just before harvest to the date of the current survey gives an indication of the relative level of softwood stocking. If softwood stocking makes up less than 25 percent of total stand stocking, then the forest stand will be classified into a hardwood type. In this instance 513.3 thousand acres had sample dominance predominantly in hardwood, indicating relatively low stocking of softwoods in these regenerating stands.

Softwood regeneration on clearcut pine type timberland needs to be maximized if Louisiana is to maintain inventories that will satisfy expected higher demand. It is taking approximately 6 to 7 years after harvest for substantial amounts of softwoods to reach the 3.0 to 4.9 inch diameter class. The length of time between harvest and stand establishment might be a contributing factor. In addition, many of the stands surveyed are far below the survey stocking standard. Although there is evidence of management favoring pine establishment, volumes for 15 years after harvest are averaging approximately 1,000 cubic feet per acre. A lengthy regeneration lag time and low softwood stocking levels are two of the reasons for this volume shortfall.

Considering harvesting rates revealed in the 1991 survey, it is important that timberland be regenerated as quickly as possible and that softwood stocking densities be at least 400 trees per acre to ensure timely rotations and a buffer against drought, poor stand establishment, and mortality from competition.

Conclusions

Louisiana's timberland base has remained relatively stable since the last survey, with a decline of only 89.6 thousand acres. The oak-gum-cypress forest type remains the dominant type in the State. Sawtimber-sized stands make up 59 percent of timberland.

Softwood volume declined by almost 1.0 billion cubic feet since the last survey, while hardwood volume increased slightly. Current softwood and hardwood live-tree volumes are 10.1 and 10.6 billion cubic feet, respectively. Softwood removals are exceeding growth by 1.26:1.0, raising concern about the future sustainability of the softwood resource.

In spite of the heavy drain on the softwood resource during the survey period, Louisiana still ranks high in many categories. Of the seven Midsouth States, Louisiana ranks first in softwood sawtimber volume and second in softwood growing-stock volume. This is particularly impressive considering that Louisiana ranks fifth in timberland area. Louisiana also ranks fifth in hardwood sawtimber and growing-stock volume.

In the latest surveys, all Midsouth States (except Tennessee) have shown softwood removals exceeding growth. Louisiana ranks last with a removal-to-growth ratio of 1.26:1.0; the Midsouth average is 1.09:1.0.

The long-term supply of the softwood resource can be enhanced by timely stand establishment after harvest and by maintaining adequate stocking levels through all stages of stand development. The latest Louisiana survey shows 761.0 acres of sawtimber stands with less than 60 square feet of basal area per acre. Adding 600 cubic feet per acre to these stands alone would have cut in half the 965.7 million cubic feet decline that was reported for the softwood inventory. Many such opportunities exist to enhance Louisiana's long-term management of all forest resources.

Literature Cited

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