

New timber assessments identify future supply problems in the area

Midsouth's Changing Hardwood Forests

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Significant changes have occurred in the Midsouth's hardwood resources over the past quarter century. Prime hardwood acreage has declined alarmingly in some areas due to expansion of soybean cropland. Selective cutting and lack of forest management have diminished the overall quality of available hardwood, too.

A newly completed assessment of timber resources by the U.S. Forest Service provides preliminary statistics which allow examination of some of these changes.

In the following appraisal of the hardwood resource, comparisons are made with data collected in 1952, the earliest year for which comparable information is available. Midsouth, as used here, refers only to states that adjoin the lower Mississippi River: Arkansas, Louisiana, Mississippi and Tennessee.

Forest Land

The area of Midsouth forests available and suitable for growing crops of industrial wood comprises more than 62 million acres. About three-fourths of this acreage is in commercial hardwood forest types containing a wide variety of species. The Forest Service has grouped the Midsouth's hardwood forests into five major types:

Midsouth hardwood forest type groups	Area (1,000 Acres)
Oak-hickory	23,586
Oak-gum-cypress	11,562
Elm-ash-cottonwood	1,322
Oak-pine	9,817
Maple-beech-birch	84
All types	46,371

Most of these lands are controlled by small nonindustrial owners whose land-use decisions have serious implications for the hardwood forest products industry.

The present forest area in the region is about two percent less than in 1952. Areawide, clearing has almost been offset by land reverting to forest, but the impact

At age seven these sycamores measure 6.6 inches d.b.h. and 49 feet in height

of such changes on hardwood supplies is greater than is suggested by the modest decrease in acreage.

On the vast flood plain of the lower Mississippi River, for example, prime hardwood acreage has declined alarmingly because of widespread clearing for soybean production. The most recent Forest Service inventory of the alluvial parishes of Louisiana showed that 80 percent of forest land cleared for crops during the past decade was sown to soybeans, which are highly profitable for export. Preliminary indications from a re-survey of Arkansas forests that is still underway point to continuing declines of wooded acreage within the alluvial counties of that state also. Only about 30 percent of timber removed in clearing operations is sold for industrial use. The rest is simply bulldozed into windrows and burned.

Public support of farm prices, flood control and major drainage projects favors the development of croplands over much of the lower Mississippi Valley. Losses in forest area, therefore, are likely to continue for some time. The remaining woodland will consist primarily of acreage rendered unsuitable for farming by poor drainage or other soil conditions. Most of the future forests in the area will probably be on difficult sites in back-water basins like the Yazoo, in deep swamps such as those around Lake Maurepas and Lake Ponchartrain in south Louisiana, and on the batture, which lies between the watercourses and the levees and hence is unprotected from flooding.

In some sections of the Midsouth, notably in Arkansas and Tennessee, thousands of acres of upland hardwood stands have been converted to pasture for beef cattle. Other land-use changes which have an adverse effect on timber production are occurring in the Coastal Plain, including areas where reservoirs have flooded choice lands capable of producing sweetgum, tupelo, sycamore and other preferred hardwood species. Though such impoundments are a boon to sport fishing and other water based recreation, they usually flood acres which have above-average potential for producing hardwoods and which are also prime habitat for many wildlife species. The resulting fragmentation of timber holdings, moreover, greatly increases logging costs.

The overall quality of hardwood stands has been diminishing for many years. Recurrent harvests have removed the largest and often the best trees. The practice of cutting only merchantable trees to a threshold diameter at breast height (d.b.h.) of 16 to 18 inches has been commonplace. Even where stands have been selectively cut on an individual tree basis, some high grading has taken place due to market demands for quality timber. The problem

now is to bring such cutover stands back into full production. The major stumbling block is limited markets for hardwood pulpwood and low-quality trees. Silvicultural treatment for patches of from one to several acres in many present-day stands would be to harvest slow-growing, poor-quality, short-bole trees left from prior cuts and start over with a vigorous new stand.

Frequent harvests of only sawtimber have substantially reduced annual value production. Low board-foot volumes per

acre has made the biggest gain during the past 25 years, and Arkansas has made the least.

The changing species composition of Midsouth's hardwood forests is evident in the precipitous decline in hardwood veneer output that has occurred in recent years. It has been particularly severe among soft-textured species such as sweetgum, tupelo and cottonwood, which grow best on alluvial soils. This development reflects the adverse impact that land clearing in the bottomlands has had upon

Opportunities for hardwood production focus on nonindustrial private lands. Neither the forest products industry nor public agencies control enough good hardwood acreage to influence greatly future supply

acre can be compared to a low-balance savings account. Even at relatively high rates of interest, returns are modest. Stands should be allowed time to develop a base volume of at least 5,000 board feet per acre. An annual growth of seven to eight percent, which is obtainable in well-stocked managed stands, amounts to \$25 to \$30 per acre more annually at today's prices than the two to three percent return on the average unmanaged stands that have only about 1,500 board feet per acre.

Timber Volume

Because of forestry programs such as fire protection, the inventory in sound, well-formed hardwoods at least five inches in diameter (called growing stock) has increased about one-fifth since 1952 to more than 36 billion cubic feet. Tennes-

ssee has made the biggest gain during the past 25 years, and Arkansas has made the least. The changing species composition of Midsouth's hardwood forests is evident in the precipitous decline in hardwood veneer output that has occurred in recent years. It has been particularly severe among soft-textured species such as sweetgum, tupelo and cottonwood, which grow best on alluvial soils. This development reflects the adverse impact that land clearing in the bottomlands has had upon

A slow but evident change is occurring in species composition of new hardwood stands. On good hardwood sites where oak overstories are often predominant, oak reproduction is scarce. Conversely, sugarcane, green ash and other shade-

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An alarming amount of prime hardwood forest is being converted to cropland in the Midsouth

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tolerant species are increasing. This change is due in part to past cutting practices but also to natural succession. In many stands the cycle has gone too far to increase the proportion of oak through manipulation of the overstory. In such stands, oaks will have to be planted. Ongoing research at the U.S. Forest Service's hardwood laboratory at Stoneville, Mississippi has shown that oaks can be successfully planted over a range of sites, as can a number of other commercially important species.

As the relative availability of different species has declined, the spectrum of salable species has gradually widened. Pecan, for example, is apparently filling the void left by black walnut, and even sugarberry and water hickory are marketable today. Traditional ideas about quality also appear to be changing as consumers begin to accept the concept that sound knots are character marks rather than blemishes in furniture face woods.

Trends in inventory provide but one measure of the changing timber supply situation. Another useful index is the relationship between current net annual growth and annual removals. In addition to log harvests, removals include timber

lost by land clearing, cultural operations and transfer of forest land to suburbs, roads and other nontimber uses. Annual growth of Midsouth hardwoods totals 1.7 billion cubic feet, or more than double the amount of removals. The margin of excess growth, however, is smaller for sawtimber than for growing stock. Much of the growth is on trees of small diameter, whereas hardwood removal is weighted toward the larger diameters. In terms of merchantable sawlog trees, hardwood growth exceeds removal by about one-third.

Outlook

Hardwood acreage in the Midsouth is expected to continue its decline in the immediate future. Upland acres with a low hardwood potential will be converted to pine in response to rising softwood demands. At the same time, the economic advantages of growing soybeans and raising beef will encourage further inroads on prime hardwood sites. During the next few years at least, land clearing will continue to be most apparent on the flood plain of the Mississippi River and its tributaries.

Analysts generally agree that, under intensive management, America's hardwood forests can grow enough timber to meet anticipated demands for several decades. The biggest single improvement would probably come from finding uses for culls and inferior growing stock. In addition, stands should be harvested so as to insure prompt establishment of preferred species. Under certain conditions, planting may provide an attractive economic alternative. As most states are growing useable wood at only half their potential, opportunities for increasing hardwood supplies through intensive management are widespread. Much can also be done to increase and extend timber supplies through research.

Hardwood plantations are new to the Midsouth. Even the earliest cottonwood plantings are only about 15 years old, and 90 percent are younger than 10 years. To date, between 40,000 and 50,000 acres of cottonwood have been planted in the Midsouth. Most are on extremely productive sites in the Mississippi River batture. They have replaced stands of relatively low-value species, primarily boxelder, that were growing at about one-fourth the rate of planted cottonwood. Research at Stoneville shows that 10 years after planting with average stock, cottonwood will produce about 300 cubic feet per acre per year in trees more than five inches d.b.h. In 15 years, cottonwoods planted on a 16 by 18 foot spacing can produce about 6,000 board feet per acre.

Using techniques developed for cottonwood, wood-using industries of the Midsouth have planted several thousand acres

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of both sycamore and sweetgum. Green ash is also becoming a popular species for planting. None of the commercial or research planting is yet old enough to provide long-term yield information, however. Early results indicate that on good sites sycamore may average about two-thirds and green ash and sweetgum about one-half the annual volume production of cottonwood.

Lack of good yield information has not deterred industry from planting hardwoods. According to a recent survey, 10 companies in the Midsouth have an active hardwood plantation program, and several more have research or pilot plantings. Industry has planted and will continue to plant about 10,000 acres of hardwoods annually in the Midsouth. The four species already mentioned account for about 95 percent of those plantings.

Because of high costs and as yet unproven returns, nonindustrial landowners are not yet planting hardwoods. Should wood become an important source of energy, though, many smaller landowners could become interested in short-rotation plantings that could offer returns in less than five-year intervals.

Both problems and opportunities for hardwood production are greatest on nonindustrial private lands. Neither the forest products industry nor public resource management agencies, singly or jointly, control enough good hardwood acreage to greatly influence future supplies. Furthermore, important modifications are likely to be made in future management practices on publicly-owned forest lands to favor nontimber goods and services such as recreation and wildlife.

The outlook for the nonindustrial sector has been given a strong boost by the federal Forestry Incentives Program. It calls for public cost-sharing of essential forestry practices with owners of small, nonindustrial forests. This program may well provide important impetus needed to increase substantially hardwood timber management in the years immediately ahead. □