

HARDWOOD GRADE TREE RESOURCES AND THE HARDWOOD GRADE LUMBER INDUSTRY IN EAST TEXAS

Weihuan Xu, Ph.D. Principal Economist, John Boyette, Resource Development Forester, Texas Forest Service, October 2002

At the request of the City of Jasper and the Jasper Economic Development Corporation, the Texas Forest Service conducted an assessment of grade hardwood tree resources and the grade lumber industry in East Texas. The grade hardwood tree information was obtained from the 1992 Forest Inventory & Analysis (FIA) survey and the grade hardwood lumber industry information was based on a recent telephone survey of all the hardwood sawmills in East Texas.

HARDWOOD GRADE TREES IN EAST TEXAS

There were a total of 14.4 billion cubic feet of hardwood resources in East Texas under private ownership according to the 1992 FIA survey (Miles, etc. 2000). Grade trees¹ made up 64% of the total volume and non-grade trees made up 36% of the total volume. Of the grade trees, 12% is Tree Grade 1, 17% is Tree Grade 2 and 35% is Tree Grade 3.

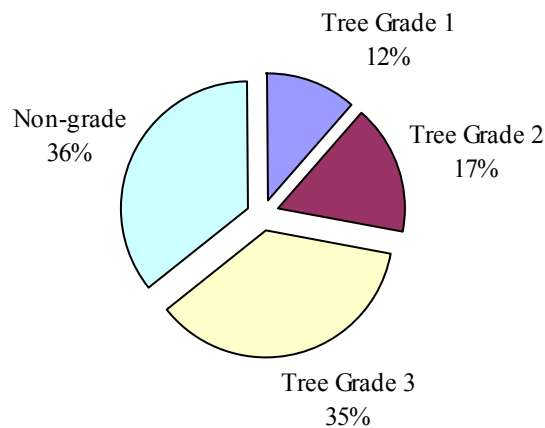


Figure 1. Hardwood Tree Grade Percentages in Texas, 1992.

¹ Hardwood tree grading, log grading and lumber grading are fairly complicated matters. Interested readers may refer to (Hanks, 1976) for hardwood tree grading, (Kenna, 1981) for hardwood log grading, and (NHLA, 1994) for hardwood lumber grading.

Oak species made up 62% of the total hardwood inventory in East Texas. The percentages were 7%, 6%, 13% and 36% for select white oaks, select red oaks, other white oaks and other red oaks, respectively. Sweetgum (17%) had the largest share besides oaks, followed by Tupelo and blackgum (5%), hickory (4%) and ash (3%). Other species accounted for the rest (9%) of the total inventory (Figure 2).

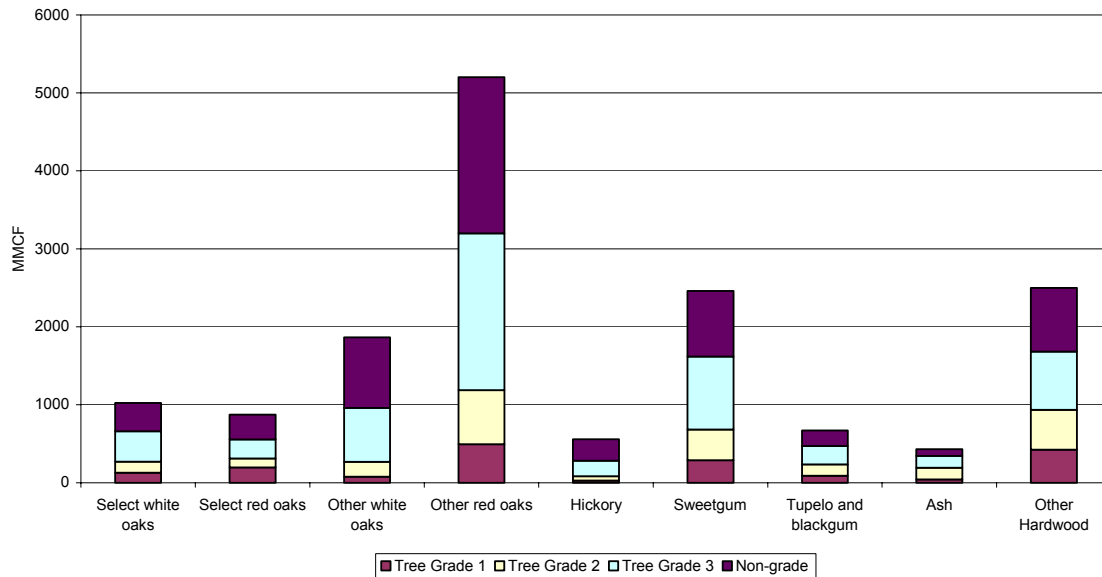


Figure 2. Species and Tree Grade Composition of Hardwood in Texas, 1992.

Figure 3 shows the geographic distribution of grade hardwood tree resources in East Texas under private ownership in 1992. Cass County had the most grade hardwood tree resources: 700 million cubic feet (mmcf). Sixteen counties had 250-500 mmcf of grade hardwood trees. They were Tyler, Shelby, Liberty, Jasper, Cherokee, Red River, Newton, Panola, Montgomery, Harrison, Trinity, Nacogdoches, Polk, Leon, Houston and Hardin. Seven counties had 150-250 mmcf of grade hardwood trees: Anderson, Angelina, Bowie, San Augustine, San Jacinto, Walker and Rusk. Fifteen counties had 50-150 mmcf of grade hardwood trees: Wood, Orange, Upshur, Van Zandt, Henderson, Smith, Harris, Marion, Gregg, Grimes, Jefferson, Waller, Madison, Sabine and Morris. Four counties (Camp, Titus, Franklin and Chambers) had less than 50 mmcf of grade hardwood trees.

Since 1992, hardwood removal in Texas has primarily been between 150-200 mmcf per year and estimated hardwood growth in Texas has been more than 200 mmcf per year during the same period (Xu, 2001) (Figure 4). However, due to regulatory constraints on national forests and environmental conservation on private forests, more and more hardwood resources in Texas became unavailable for commercial harvest. The exact extent of such constraints is not clear.

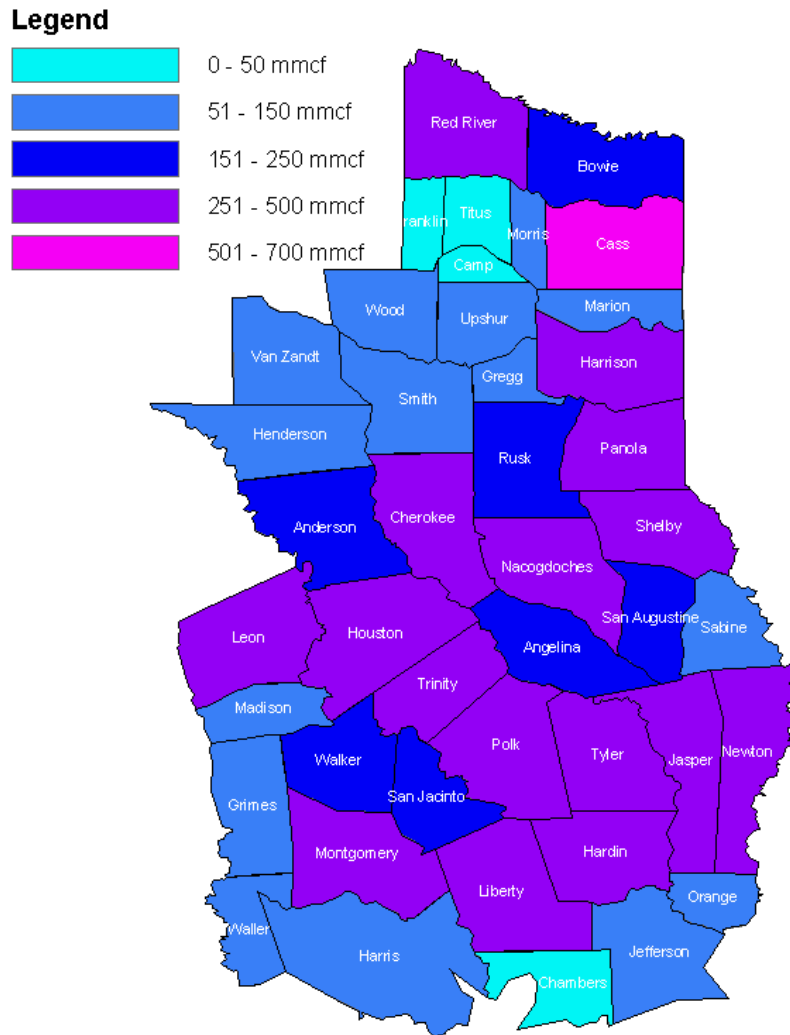


Figure 3. Hardwood Grade Tree Inventory in East Texas under Private Ownership, 1992.

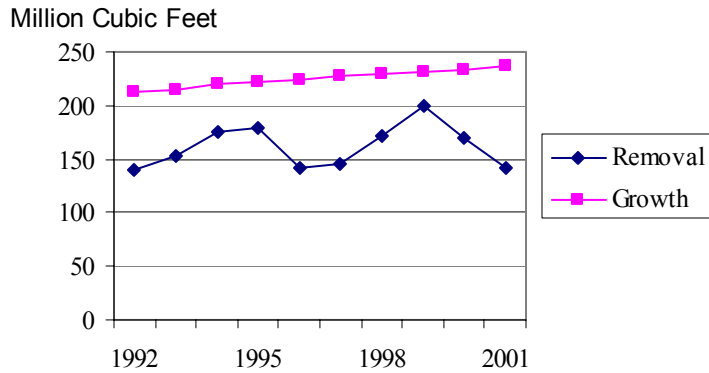


Figure 4. Hardwood Growth and Removal in East Texas, 1992-2001.

HARDWOOD GRADE LUMBER INDUSTRY IN EAST TEXAS

According to Harvest Trends 2001 (Xu, 2002), East Texas produced a total of 226.8 million board feet (mmbf) of hardwood lumber in 2001. Annual hardwood lumber production in Texas from 1985 to 2001 is presented in Figure 5. A telephone survey was conducted recently on thirty-four hardwood sawmills in East Texas. The mills were surveyed for their total production and the percentages of grade lumber in 2001. They were also asked about the potential for producing more grade lumber and the factors affecting grade lumber production.

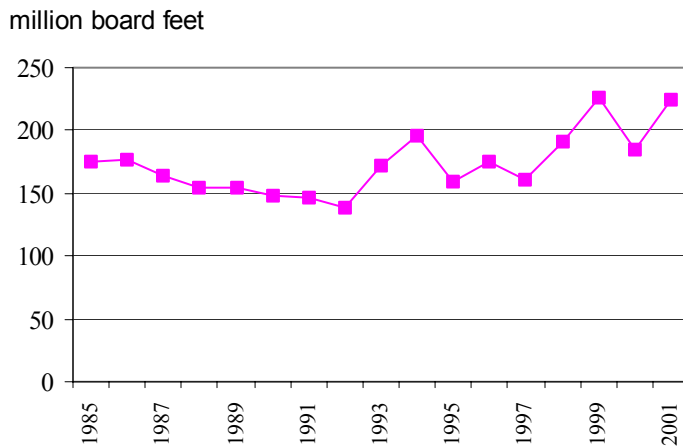


Figure 5. Hardwood Lumber Production in Texas, 1985-2001

Twenty-eight mills responded to the survey (Figure 6). The survey results are summarized in Table 1. The 28 mills produced 208.7 mmbf of hardwood lumber in 2001, 92% of the state total. Fifteen of those mills produced some grade lumber² and

² Grade lumber production in Table 1 includes all grades based on NHLA lumber grading rules.

thirteen mills did not produce any grade lumber in 2001. The total production of the fifteen mills that produced some grade lumber in 2001 made up 51% of the total production of the twenty-eight mills.

Among the fifteen mills that produced some grade lumber, four mills have 10.1-25 mmbf capacity each, four mills have 5.1-10 mmbf capacity each and seven of them have 0.5-5 mmbf capacity each. Four mills produced 40% or more grade lumber and the others produced 20% or less grade lumber. On average, the fifteen mills produced 19% of their total production in the form of grade lumber in 2001. Texas mills produced a total of 20 mmbf of grade lumber in that year. The remainder of their production went into railroad ties, pallet stock, board road, and other such products. For the thirteen mills that did not produce any grade lumber in 2001, four of them have 10.1-25 mmbf capacity each, one of them has 5.1-10 mmbf capacity, and eight of them have 0.5-5 mmbf capacity each.

Table 1. Summary of Hardwood Sawmill Survey.

Mill Type	Mill Capacity	Number of Mills	Lumber Production in 2001 (MBF)		
			Grade	Non-grade	Total
Producing Grade Lumber	10.1-25 MMBF	4	10,943	50,621	61,564
	5.1-10 MMBF	4	4,425	27,575	32,000
	0.5-5 MMBF	7	4,818	8,493	13,310
	All	15	20,186	86,688	106,874
Non-grade	10.1-25 MMBF	4	-	70,833	70,833
	5.1-10 MMBF	1	-	8,320	8,320
	0.5-5 MMBF	8	-	22,667	22,667
	All	13	-	101,820	101,820
All	10.1-25 MMBF	8	10,943	121,454	132,397
	5.1-10 MMBF	5	4,425	35,895	40,320
	0.5-5 MMBF	15	4,818	31,159	35,977
	All	28	20,186	188,508	208,694

Many mills produced less than 20% grade lumber although they might be able to produce about 20% grade lumber or more if more favorable markets exist for it. Currently, most of the hardwood sawmills in Texas sell their green grade lumber to dry kilns outside of Texas. There is no mid- to large-size modern hardwood drying facility in East Texas. Many of the mill owners do not feel that they have received fair prices for the quality of their green lumber. Mill owners also expressed concerns about the continuing availability of quality grade logs and stain problems in the hardwood lumber.

Due to the small percentage of grade green lumber produced in Texas and the relatively low prices the mills receive for it, hardwood sawlog stumpage prices are substantially lower in Texas than in neighboring states. Figure 7 shows hardwood sawlog stumpage prices east and west of the Sabine River. The prices on the east side of the Sabine River are from the average annual stumpage price of hardwood sawlogs in Louisiana Area 3 reported by the Louisiana Department of Agriculture and Forestry. The prices on the west

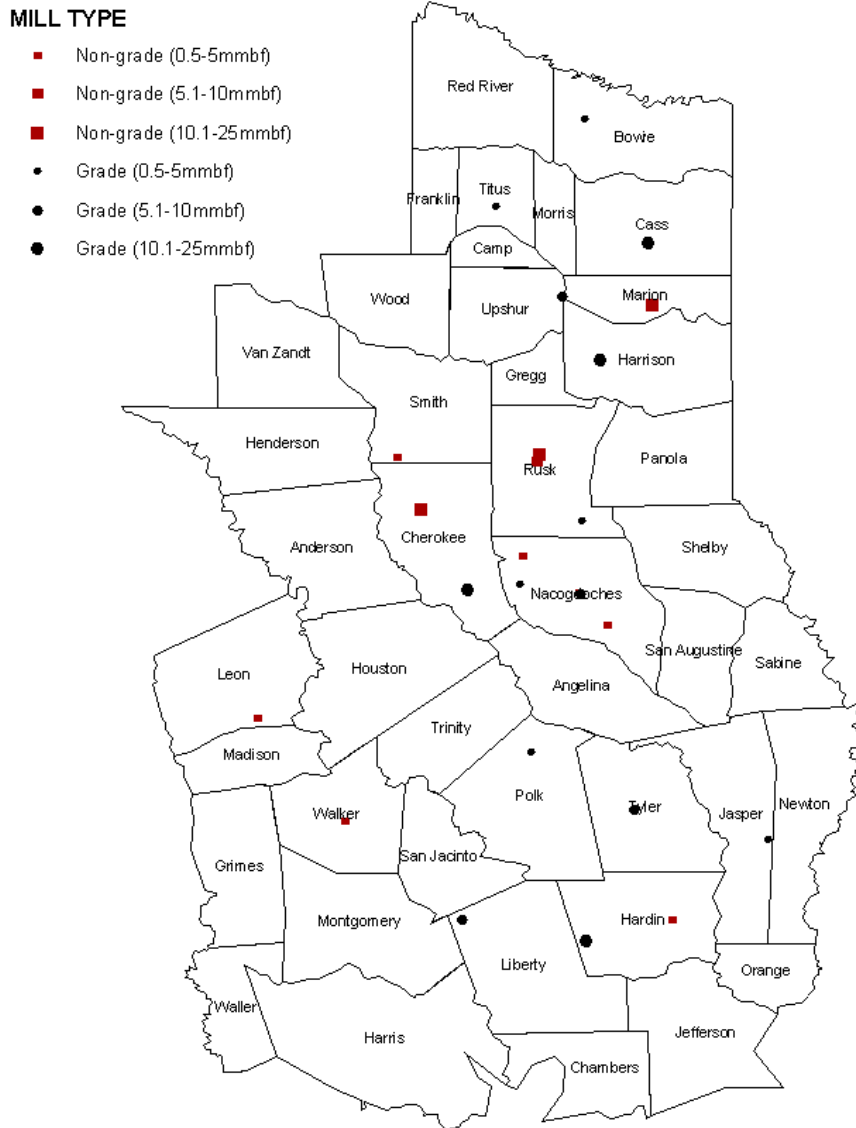


Figure 6. Hardwood Sawmills Surveyed in East Texas

side of the Sabine River are from the average annual stumpage price of hardwood sawlogs in Southeast Texas reported by the Texas Forest Service. In the mid- 1980's, the hardwood sawlog stumpage prices from the two sides of the Sabine River were about the same, but by the mid 1990's, the hardwood sawlog stumpage prices from the east side (Louisiana) were substantially higher than that of the west side (Texas). In some years, the price differences were more than 50%. Lack of a competitive green grade lumber market in Texas could have hurt the hardwood timberland owners in Texas.

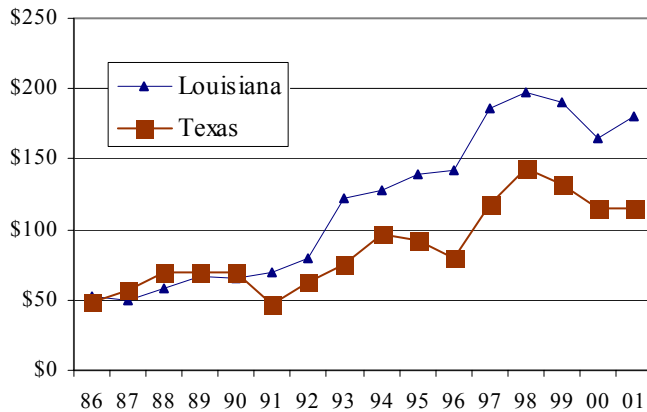


Figure 7. Hardwood Sawlog Stumpage Prices East (Louisiana) and West (Texas) of the Sabine River

SUMMARY

Lack of a competitive market for green grade hardwood lumber in East Texas decreases the economic returns of both hardwood sawmills and landowners. Landowners are reluctant to invest in growing more quality hardwood resources for the future because of low returns from hardwood timberlands. Environmental conservation and land conversion reduce the availability of hardwood resources for commercial uses. Further research on modern wood drying technology, hardwood markets, and the hardwood resource in East Texas is necessary for the development of a healthy Texas hardwood industry.

REFERENCES

- Hanks, Leland F. 1976. Hardwood Tree Grades for Factory Lumber. USDA Forest Service Research Paper NE-333.
- Kenna, Karen M. 1981. Grading Hardwood Logs for Standard Lumber: Forest Service Standard Grades for Hardwood Factory Lumber Logs. Formerly Publication No. D1737-A, Forest Products Laboratory, USDA Forest Service. Revised 1981.
- NHLA. 1994. An Introduction to Grading Hardwood Lumber. National Hardwood Lumber Association, Memphis, Tennessee.
- Xu, Weihuan. 2002. Harvest Trends, 2001. Texas Forest Service. College Station, Texas.
- Miles, Patrick D. etc. 2000. Forest Inventory Mapmaker Version 1.0.
<http://www.ncrs.fs.fed.us/4801/FIADB/index.htm>.