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Production and Receipts of Veneer Logs in the Southeastern and Midsouth States, 1988

John B. Tansey, Supervisory Forester, Southeastern Forest Experiment
Station, Asheville, NC

Dennis M. May, Research Forester, Southern Forest Experiment Station,
Starkville, MS

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Southeastern Forest Experiment Station
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John B. Tansey, Supervisory Forester, Southeastern Forest Experiment Station, Asheville, NC

Dennis M. May, Research Forester, Southern Forest Experiment Station, Starkville, MS

ABSTRACT

Veneer-log production in the 12 Southern States totaled 4.7 billion board feet in 1988, up 11 percent from 1984. In 1988, 151 mills in the South received 4.7 billion board feet of veneer logs. In 1988, imports of veneer logs into the South exceeded exports by 16 million board feet. Yellow pines make up 90 percent of the South's harvest of veneer logs. Ninety percent of receipts are used in the manufacture of pine plywood.

Keywords: Veneer logs, production, receipts, products, residues.

Background

The USDA Forest Service conducts periodic forest and forest product surveys to provide current information about the Nation's timber and related resources. This report presents findings of a 1988 study of veneer-log harvest, receipts, and log movement between the Midsouth, Southeast, Northeast, and North Central States. The study was conducted by the Southern and Southeastern Forest Inventory and Analysis (FIA) work units. Data were collected primarily by mail, by means of a formal questionnaire. Follow-up phone contacts were made when necessary. Of the 151 veneer mills operating in the 12 Southern States during 1988, 113 provided receipt data by species and county of origin. Information for mills that did not respond was estimated from the available current data, responses from previous canvasses, product and mill directories, and information from other sources. Information on mills in other regions known to be using veneer logs harvested in the South was exchanged with FIA units at other Forest Service Experiment Stations. Comparisons are made with veneer-log production levels for 1984,

the most recent year for which production data for all States within the region have been compiled. The information for 1984 comes from "The South's Fourth Forest: Alternatives for the Future" (USDA 1988) and from individual State analyses. Historical comparisons are made with findings of surveys conducted in 1963, 1969, and 1972.

Veneer Industry History

In the last three decades, veneer-log production and utilization in the South have been characterized by drastic shifts in species use and product manufacture. Thirty years ago, half of the Midsouth's veneer mills produced veneers for use in crates and baskets, and half produced veneers for use in doors, furniture, paneling, and plywood (Christopher and Sternitzke 1964). In the Southeast (SE), veneer logs were consumed primarily by the furniture industry in North and South Carolina, and were used mostly in the manufacture of containers in Georgia and Florida. In Virginia, hardwood face veneer was the principal product. In both the SE and the Midsouth, soft-textured hardwoods were the preferred species. In 1963, bottomland hardwoods provided the bulk of veneer logs produced in the Midsouth; in the SE, sweetgum, blackgum, and tupelo supplied 60 percent of total production and yellow-poplar another 20 percent (Knight 1964). The South's first softwood plywood plant was constructed in 1963. By 1969, pine veneer-log production in the SE was up 36 percent from 1963, while hardwood veneer-log production had decreased 17 percent (Knight 1971). In both the Midsouth and SE, several factors contributed to a decline in the production of hardwood veneer logs. These factors included (1) the scarcity of high-quality

soft hardwood logs, (2) the amount of hardwood plywood and veneer imported from foreign countries, (3) the stiff competition in the packaging industry from plastics and paperboard, and (4) the acceptance and success of southern pine plywood in many building applications. By 1970, more softwood than hardwood veneer logs were being harvested in the Southern States, and most were being used in the production of pine plywood. By 1972, increased softwood production in response to the expanding pine plywood industry had offset the decline in the hardwood sector. In the Midsouth, the veneer-log harvest, which had been composed almost entirely of hardwoods, was by 1972 made up almost exclusively of pine.

Production of Veneer Logs

Veneer-log production, the harvest of logs from timberland for the manufacture of some veneer product, totaled 4.7 billion board feet in 1988, up 11 percent from 1984. Loggers harvested 3.3 billion board feet of veneer logs in the Midsouth, 15 percent more than in 1984, and 1.4 billion board feet in the SE, up only 3 percent from 1984 (table 1).

In the Midsouth--Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas--harvests of softwood and hardwood veneer logs increased, by 14 and 33 percent, respectively. In the SE--Florida, Georgia, North and South Carolina, and Virginia--veneer-log production declined 3 percent, while harvest of hardwood veneer logs increased 31 percent.

In the Midsouth, where softwoods comprise the bulk of veneer-log harvests, softwood veneer logs are used chiefly in the manufacture of pine plywood. Softwoods harvested in five Midsouth States account for almost three-fourths of total softwood production across the South. Louisiana accounts for 23 percent of the South's softwood veneer-log production, Texas for 17 percent, Arkansas for 13 percent, Alabama for 11 percent, and Mississippi for about 10 percent (table 2). In all Midsouth States, softwood veneer-log production increased since 1984 (table 1). Greatest volume increase occurred in Mississippi, where production increased 132 million board feet, or 45 percent. In Louisiana production increased 117 million board feet, a 14-percent rise. Regionwide, production of softwood veneer logs has increased by 49 percent since 1972 (Bertelson 1974).

By 1988, hardwoods comprised only 5 percent of the Midsouth's total production of veneer logs. Still, harvest of hardwood veneer logs did increase significantly between 1984 and 1988 (by 39 million board feet, or 33 percent). About one-third of the hardwood veneer-log volume was used in the manufacture of pine plywood.

The SE produces a greater volume of hardwood veneer logs than does the Midsouth, but production of hardwood veneer logs is again a small portion of total output. Four States in the SE account for two-thirds of the South's hardwood veneer-log harvest. North Carolina accounts for 25 percent of the total, Georgia 18 percent, South Carolina 15 percent, and Virginia 8 percent. Alabama, in the Midsouth, accounts for 17 percent of the harvest.

Southwide, the veneer industry has stabilized after the transition from a primarily hardwood-oriented industry in which many mills manufactured several products to one dominated by utilization of southern yellow pine and the production of pine plywood by a smaller number of large mills. Southern yellow pines make up 90 percent of the timber volume harvested for veneer logs, accounting for 95 percent of production in the Midsouth and almost 78 percent in the SE (table 3). Gums (sweetgum, blackgum, and tupelo grouped) account for about 2 percent of veneer-log production in the Midsouth and 6 percent in the SE. Yellow-poplar accounts for about 2 percent of the annual harvest of veneer logs in the Midsouth and 12 percent of veneer-log production in the SE. This is in sharp contrast to the mid-1960's, when gums and yellow-poplar accounted for 80 percent of the veneer-log harvest in the SE. Oaks now comprise 2 percent of the veneer logs harvested in the SE. Changes between the early 1980's and 1988 in the South are characterized by fluctuating levels of production rather than the significant shifts in species and product mix typical of the 1960's and 1970's.

Veneer-Log Receipts and Wood Movement

In 1988, 151 operating veneer mills in the South had receipts totaling 4.7 billion board feet (table 4). Receipts at mills within region exceeded harvest of veneer logs in southern timberland by 16 million board feet, making the South a net importer of veneer logs from the Northern United States. There is considerable movement of logs between regions, as well as among States within regions.

Harvest of veneer logs (production) exceeded receipts of 3.3 billion board feet at Midsouth mills by 58 million board feet. In 1988, the Midsouth imported a total of 445.6 million board feet of veneer logs from the Southeast and the North (table 5). This estimate may be low due to a poor rate of response by Alabama mills. Exports from the Midsouth to surrounding regions totaled 503.6 million board feet. Exports to States in the SE accounted for about 98 percent of veneer log exports from the Midsouth. Softwood exports from the Midsouth were primarily Alabama logs received and processed at Georgia mills. The bulk of the hardwood veneer-log exports originated in Alabama and Tennessee and was consumed in Georgia and North Carolina by the furniture industry. Exports to other States included logs shipped to Indiana (3% of volume), and Kentucky, Michigan, Ohio, and West Virginia (2% combined). About 2.8 billion board feet, or 85 percent of the Midsouth's veneer-log harvest, was retained for processing within the region.

The SE is also a net importer of veneer logs. Receipts of 1.5 billion board feet exceeded production by about 5 percent; imports of veneer logs from outside the region totaled 267.7 million board feet, exceeding exports of 193.6 million board feet by 38 percent (table 5). Imports came principally from the Midsouth (Alabama, Arkansas, Louisiana, and Tennessee), with a small volume coming from many other Eastern and Midwestern States (Indiana, Kentucky, Maine, Michigan, New Hampshire, New York, Ohio, Pennsylvania, and West Virginia). Exports were primarily to the Midsouth. The estimate of exports to the Midsouth may be deflated due to the poor response by Alabama mills. About 1.2 billion board feet, or 86 percent of the Southeast's production, was retained for processing by mills within the region.

Southern yellow pines account for 90 percent of the receipts at Southern veneer mills (table 6), and logs

used in the production of pine plywood account for almost 100 percent of all softwood receipts (table 7). In the Midsouth, mills manufacturing softwood plywood process 96 percent of the veneer logs harvested. The hardwood sector of the Midsouth veneer industry continues to decline. Only 4 percent of receipts are used in the production of hardwood plywood and paneling, and hardwood logs used in manufacturing containers and specialty products make up less than 1 percent of total receipts. In the SE, hardwoods account for a greater proportion of veneer mill receipts, nearly 24 percent. Of this, 4 percent is used in the manufacture of containers and specialty products. For all species, three-fourths of southeastern receipts are used in the manufacture of pine plywood, 20 percent is used in hardwood plywood and paneling, and about 4 percent is used in the manufacture of containers and specialty products.

Residue Use

The South's veneer industry generated 486.6 million cubic feet, or about 15.6 million tons, of residues. More than 126.6 million cubic feet of bark, 297.1 million cubic feet of coarse residues such as cores, clippings, and fishtails, and 63.0 million cubic feet of fine residue were generated during the processing of veneer logs in 1988 (table 8). Across the Midsouth and the SE more than 99 percent of residues were used. Such complete utilization reduces demand on the standing resource within the region. More than 197 million cubic feet of softwood and 15.7 million cubic feet of hardwood coarse residue were used by the pulp industry for fiber (table 9). Another 61.9 million cubic feet of softwood coarse residue, mostly veneer cores, were processed into standard lumber or landscape timbers. Virtually all bark residues were utilized. Almost all bark was used for industrial boiler fuel, but small amounts were used for mulch and pine bark nuggets. Almost all fine residues were used as industrial boiler fuel, and their use significantly reduced heating and drying costs.

The Future

The southern veneer industry has changed considerably during the last three decades, and additional change is likely. In the early 1960's, when the southern pine plywood industry had its beginnings, about 90 percent of the South's pine volume was in trees growing in natural stands. By the year 2000, more than 56 percent of the region's pine volume will be in plantations. As the quantity of pine timber in natural stands decreases, the size and quality of pine veneer

logs will be affected. Advanced technologies that will make it possible to manufacture plywood efficiently from a changing raw material must be perfected and implemented quickly. The big gain in veneer-log production between 1984 and 1988 was a partial rebound from the depressed level of log production and panel manufacture in 1981-1982, when escalating home mortgage interest rates collapsed housing markets. Future production levels will also be tied to the health of the U.S. economy, and more specifically to the health of the housing industry. Although domestic new home construction is still a major market for structural panels, other markets are consuming an increasing proportion of the panels produced. Remodeling and exports, which are less sensitive to fluctuating interest rates than is new home construction, have since the mid-1960's absorbed a constantly increasing proportion of production. Fortunately, the downturn in new home construction in 1987 was tempered by strong exports and sales in the remodeling market, and softwood and hardwood veneer-log production levels were maintained. Several additional factors will affect future demand for southern veneer products. These include (1) the level of acceptance of plywood in European and Pacific markets; (2) the fate of tropical rain forests, growing concern about harvesting wood from these forests, and a possible slump in the acceptance of tropical rain forest wood and wood products; and (3) uncertainty about the availability of raw material from Western U.S. forests. As environmental constraints and government regulations reduce harvesting of large timber in the West, the South will assume a larger share of panel production for domestic and international consumption. In the West, legislative removal of lands from timber production has a greater impact on panel production than on production of some other products. Veneer logs are most efficiently cut from large trees, and large trees are often the ones withdrawn from commercial timbering when "ancient forests" are set aside for other uses.

Recently developed products, the result of new technologies, are perhaps better adapted to changes in the South's pine resource, and are making inroads into the panel market. Non-veneered structural panels such as OSB and waferboard are continually increasing their share of the market at the expense of plywood.

Performance of the new products is comparable to that of plywood, but the new products cost less to manufacture than plywood does. Oriented strand board capacity made up less than 1 percent of total structural panel capacity in the early 1980's, but more than 10 percent by the mid-1980's. Since the mid-1980's, several additional non-veneer structural panel plants have come on line. Ultimately, the future of the pine plywood industry will depend on its ability to adapt technology to best utilize available raw material, to capitalize on changing markets, and to create a product niche.

Demand for high-quality hardwood veneers for use in furniture and decorative paneling is likely to remain high. These markets are less sensitive than the housing construction market to fluctuations in the economy, and the demand for hardwood veneer in Pacific Rim countries is expected to increase steadily over the next few years.

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Table 1--Veneer-log production from trees in the Midsouth and Southeast by region, State, and species, 1984 and 1988

Region and State	1984 ^a	1988	Percent change
	All species	All species	
<u>Million board feet^b</u>			
Midsouth			
Alabama	494.7	556.5	+12.5
Arkansas	455.2	536.6	+17.9
Louisiana	857.7	989.4	+15.4
Mississippi	320.6	445.8	+39.1
Oklahoma	26.6	34.9	+31.2
Tennessee	5.4	13.5	+150.0
Texas	730.9	741.8	+1.5
Total	<u>2,891.1</u>	<u>3,318.5</u>	+14.8
Southeast			
Florida	162.3	124.4	-23.4
Georgia	471.3	417.1	-11.5
North Carolina	281.3	418.7	+48.8
South Carolina	308.5	339.6	+10.1
Virginia	121.5	83.6	-31.2
Total	<u>1,344.9</u>	<u>1,383.4</u>	+2.9
All States	4,236.0	4,701.9	+11.0

^aSource: "The South's Fourth Forest: Alternatives for the Future" and former production surveys.

^bInternational 1/4-inch rule.

Table 2--Veneer-log production by State and species, 1988

State	Softwood	Hardwood	All species
<u>Thousand board feet^a</u>			
Alabama	475,888	80,637	556,525
Arkansas	531,610	5,057	536,667
Florida	117,579	6,790	124,369
Georgia	335,334	81,786	417,120
Louisiana	967,434	21,989	989,423
Mississippi	424,372	21,360	445,732
North Carolina	304,015	114,728	418,743
Oklahoma	34,733	193	34,926
South Carolina	270,998	68,566	339,564
Tennessee	1	13,523	13,524
Texas	727,696	14,096	741,792
Virginia	45,450	38,111	83,561
All States	4,235,110	466,836	4,701,946

^aInternational 1/4-inch rule.

Table 3--Veneer-log production by species and region, 1988

Species	Midsouth	Southeast	Total South
	<u>Thousand board feet^a</u>		
Southern yellow pine	3,161,733	1,074,509	4,236,242
Other softwoods	1	647	648
Ash	307	2,747	3,054
Basswood	499	1,393	1,892
Bay, magnolia	65	0	65
Beech	0	2,107	2,107
Black cherry	312	586	898
Gum	78,912	88,307	167,219
Walnut	299	445	744
Cottonwood	7,208	1,026	8,234
Elm	568	1,770	2,338
Hickory, pecan	3,022	834	3,856
Oaks	12,413	29,753	42,166
Soft maple	0	2,508	2,508
Hard maple	218	810	1,028
Sassafras	18	0	18
Sycamore	1,090	4,023	5,113
Yellow birch	0	563	563
Yellow-poplar	51,924	164,059	215,983
Other hardwoods	0	7,270	7,270
Foreign	0	0	0
Total species	3,318,589	1,383,357	4,701,946

^aInternational 1/4-inch rule.

Table 4--Veneer-log receipts by State and species, 1988

State	Softwood	Hardwood	All species
	<u>Thousand board feet^a</u>		
Alabama	398,371	77,412	475,783
Arkansas ^b	719,758	7,412	727,170
Florida	140,607	7,500	148,107
Georgia	335,107	95,118	430,225
Louisiana	719,135	14,695	733,830
Mississippi	493,189	12,773	505,962
North Carolina	282,268	143,965	426,233
South Carolina	263,452	74,612	338,064
Tennessee	0	6,555	6,555
Texas	793,230	18,055	811,285
Virginia	89,729	25,090	114,819
All States	4,234,846	483,187	4,718,033

^aInternational 1/4-inch rule.

^bOklahoma and Arkansas combined to avoid disclosure of individual data.

Table 5--Veneer-log movement by region, 1988

Region	Operating plants	Production	Exports	Retained	Imports	Receipts
	Number	Thousand board feet ^a				
Midsouth	72	3,318,589	503,570	2,815,019	445,566	3,260,585
Southeast	79	1,383,357	193,609	1,189,748	267,700	1,457,448

^aInternational 1/4-inch rule.

Table 6--Veneer-log receipts by species and region, 1988

Species	Midsouth	Southeast	Total South
	Thousand board feet ^a		
Southern yellow pine	3,123,683	1,112,295	4,235,978
Other softwoods	0	648	648
Ash	149	3,337	3,486
Bay, magnolia	65	0	65
Basswood	291	1,659	1,950
Beech	0	2,102	2,102
Black cherry	182	1,832	2,014
Gum	78,433	93,102	171,535
Walnut	118	956	1,074
Cottonwood	7,208	1,021	8,229
Elm	568	1,799	2,367
Hickory, pecan	1,173	1,355	2,528
Oaks	10,002	34,891	44,893
Soft maple	0	2,511	2,511
Hard maple	86	1,703	1,789
Sassafras	12	0	12
Sycamore	1,090	4,009	5,099
Yellow birch	0	627	627
Yellow-poplar	37,525	186,062	223,587
Other hardwoods	0	7,408	7,408
Foreign	0	131	131
Total species	3,260,585	1,457,448	4,718,033

^aInternational 1/4-inch rule.

Table 7--Veneer-log receipts at mills in the Midsouth and Southeast by type of product produced, 1988

Product	Midsouth	Southeast	Total South
<u>Thousand board feet^a</u>			
Pine plywood			
Softwood	3,122,237	1,111,163	4,233,400
Hardwood	(b)	(b)	(b)
Total	<u>3,122,237</u>	<u>1,111,163</u>	<u>4,233,400</u>
Hardwood plywood^b and face veneer			
Softwood	1,386	0	1,386
Hardwood	120,075	284,811	404,886
Total	<u>121,461</u>	<u>284,811</u>	<u>406,272</u>
Container and specialty			
Softwood	60	1,780	1,840
Hardwood	16,827	59,694	76,521
Total	<u>16,887</u>	<u>61,474</u>	<u>78,361</u>
All products			
Softwood	3,123,683	1,112,943	4,236,626
Hardwood	136,902	344,505	481,407
Total	<u>3,260,585</u>	<u>1,457,448</u>	<u>4,718,033</u>

^aInternational 1/4-inch rule.

^bSoft hardwood used in manufacture of pine plywood included with hardwood in hardwood plywood category.

Table 8--Volume of wood residues generated, by region and State, 1988

Region and State	Bark		Coarse		Fine	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
<u>Thousand cubic feet</u>						
Midsouth						
Alabama	12,724	1,438	24,739	4,807	1,076	209
Arkansas ^a	22,988	138	44,697	460	1,943	20
Louisiana	22,969	273	44,658	913	1,942	40
Mississippi	15,752	237	30,627	793	1,332	34
Tennessee	0	122	0	407	0	18
Texas	25,335	336	49,260	1,121	2,142	49
Total	99,768	2,544	193,981	8,501	8,435	370
Southeast						
Florida	2,558	150	10,156	367	6,971	388
Georgia	6,024	1,738	23,003	7,599	16,417	4,493
North Carolina	4,085	2,542	24,319	4,385	6,768	2,100
South Carolina	4,166	1,325	16,479	4,361	11,354	3,424
Virginia	1,094	571	2,989	919	1,812	472
Total	17,297	6,326	76,946	17,631	43,322	10,877
All States	117,695	8,870	270,927	26,132	51,757	11,247

^aOklahoma combined with Arkansas to avoid disclosure of individual mill data.

Table 9--Disposition of veneer mill wood residues

Disposition	Softwood			Hardwood		
	Bark	Coarse	Fine	Bark	Coarse	Fine
<u>Thousand cubic feet</u>						
Midsouth						
Fiber	0	153,322	852	2	6,678	(a)
Sawn products, specialty items	0	28,826	0	0	590	0
Industrial fuel	99,438	11,367	7,558	2,541	1,230	370
Bedding mulch	160	136	0	0	0	0
Not used	170	330	25	1	3	(a)
Total	99,768	193,981	8,435	2,544	8,501	370
Southeast						
Fiber	0	43,859	0	0	8,992	0
Sawn products, specialty items	0	33,087	0	0	2,997	0
Industrial fuel	17,748	0	43,322	5,187	4,937	10,224
Domestic fuel	0	0	0	0	176	0
Bedding mulch	179	0	0	316	176	544
Not used	0	0	0	823	353	109
Total	17,927	76,946	43,322	6,326	17,631	10,877
All total	117,695	270,927	51,757	8,870	26,132	11,247

^aLess than 0.5 thousand cubic feet.

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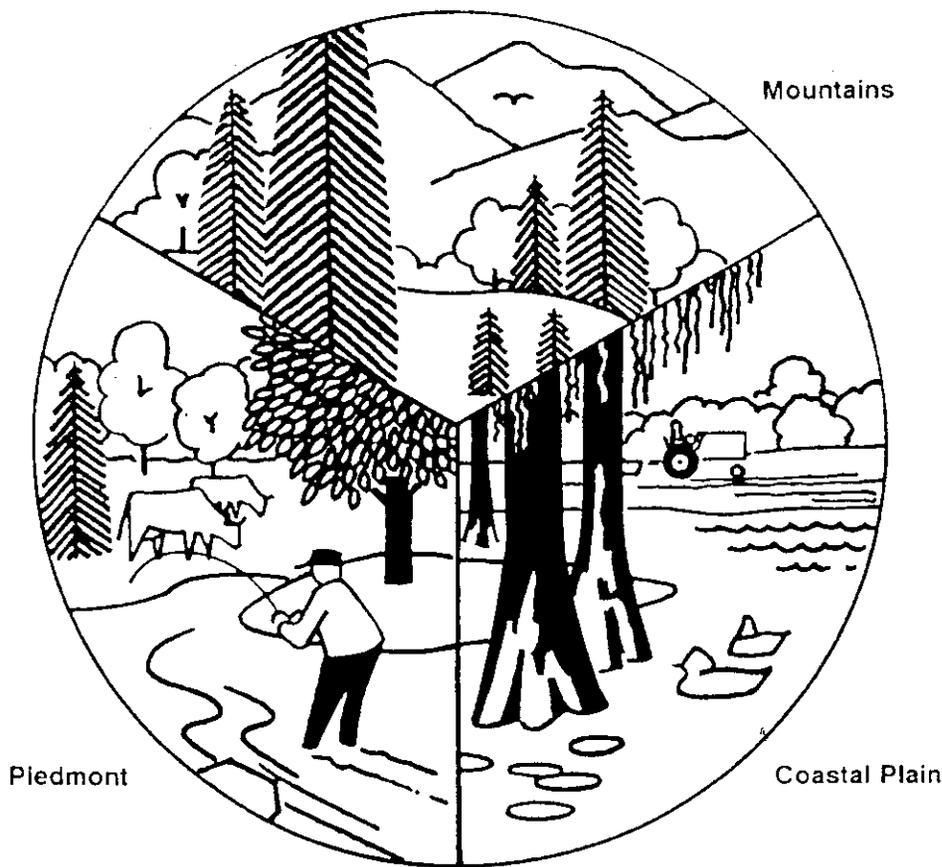
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KEYWORDS: Veneer logs, production, receipts, products, residues.

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Southeastern Forest Experiment Station

Established 1921

The Southeastern Forest Experiment Station, headquartered in Asheville, North Carolina, is one of the eight regional Experiment Stations, and the Forest Products Laboratory, that make up the Forest Service research organization.

RESEARCH MISSION:

To acquire the knowledge, develop the technology, and disseminate the research findings required to manage the Southeast's forest resources in ways that satisfy demands of goods and services while maintaining a quality environment.

RESEARCH LOCATIONS:

Blacksburg, VA
 Research Triangle Park, NC
 Franklin, NC
 Clemson, SC
 Charleston, SC
 Athens, GA
 Macon, GA
 Olustee/Gainesville, FL

EXPERIMENTAL FORESTS:

Chipola, Marianna, FL
 Holt Waiton, Vienna, GA
 Cowetta, Otto, NC
 Bent Creek, Asheville, NC
 Santee, Moncks Corner, SC
 Scull Shoals, Athens, GA
 Hitchiti, Juliette, GA
 Olustee, Olustee, FL