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Alabama's Timber Industry—An Assessment of Timber Product Output and Use, 2003

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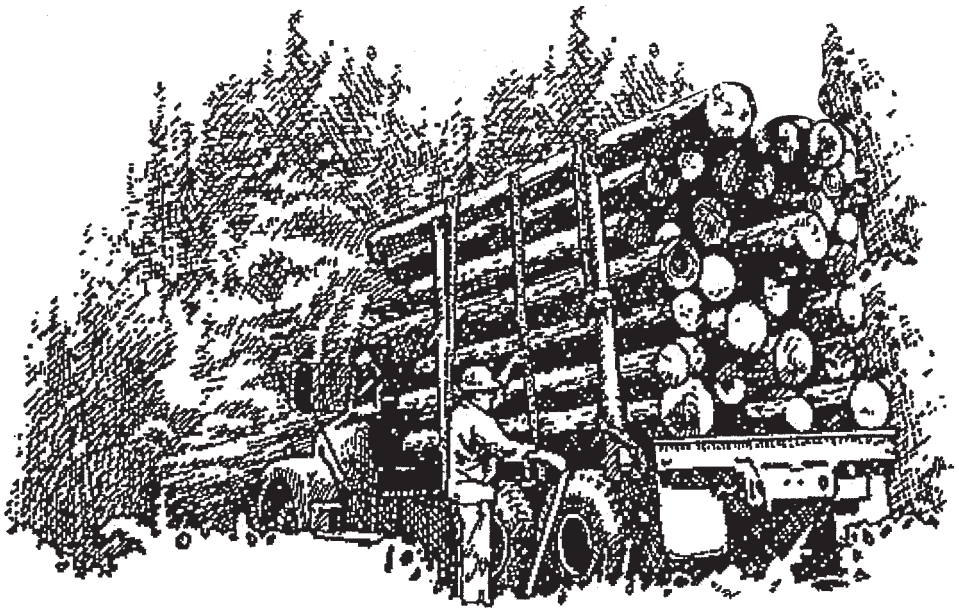

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Foreword

This report contains the findings of a 2003 sample survey of all primary wood-using plants in Alabama, and presents changes in product output and residue use since 1999. It complements the Forest Inventory and Analysis periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain, by county, in 2003 and to determine interstate and cross-regional movement of industrial roundwood. Only primary wood-using mills were canvassed. Primary mills are those that process roundwood in log or bolt form or as chipped roundwood. Examples of industrial roundwood products are saw logs, pulpwood, veneer logs, poles, and logs used for composite board products. Mills producing products from residues generated at primary and secondary processors were not canvassed. Trees chipped in the woods were included in the estimate of timber drain only if they were delivered to a primary domestic manufacturer.

A sampled canvass of all wood processors in Alabama was conducted in 2004 to obtain information for 2003. In addition, roundwood from out-of-State mills known to be using logs or bolts harvested from Alabama timberland was incorporated into Alabama production estimates. Each mill was canvassed by mail or through personal contact at plant locations. Telephone contacts followed mailed questionnaire responses when additional information or clarification of a response was necessary. In the event of a nonresponse, data collected in previous surveys were updated using current data collected for mills of similar size, product type, and location. Surveys for all timber products other than pulpwood began in 1961, and are currently conducted every 2 years.

Pulpwood production data were taken from an annual canvass of all southeastern pulpmills. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

Acknowledgments

The authors thank Brian Hendricks for review and comments; Joe McCollum and Sonja Oswalt for the maps; Anne Jenkins and Sharon Johnson for tables, graphs, and statistical checking; and Paul Smith, Diana Corbin, and Louise Wilde for editorial review, styling, and publication of this report.

The Southern Research Station gratefully acknowledges the cooperation and assistance provided by the Forest-Based Economic Development Services, Inc. and the Alabama Forestry Commission in collecting mill data. Appreciation is also extended to forest industry and mill managers for providing timber products information.

Timber Product Output Database Retrieval System

The Forest Inventory and Analysis Research Work Units (FIA) of the U.S. Department of Agriculture Forest Service developed the Timber Product Output (TPO) Database Retrieval System to help customers answer questions about timber harvesting and use in the United States. This system acts as an interface to a standard set of consistently coded TPO data for each State and county in the region and nation. This regional and national set of TPO data consists of 11 variables that describe for each county the roundwood products harvested, logging residues left in the woods, timber otherwise removed, and wood and bark residues generated by the county's primary wood-using mills. The system is available through the FIA Web site: http://www.ncrs.fs.fed.us/rpa/tpo.

The database is well documented and user friendly. The retrieval system allows the user to select the TPO variables of interest and generate a standard set of timber products, removals, and mill residue tables for the specified resource area or areas. The system has been logically divided into four sections to assist the user in specific data. In section 1, the user will be asked to define the resource area, section 2 generates tables for the specific area. In each section, the user is asked to supply specific inputs that will serve to customize the database retrieval.

There are four options available for defining the geographic area of interest. Each option provides an increasing level of detail. The region, subregion, State, or county defines the area. The user selects the option that best suits the level of detail required. Users who select county as an option should be aware that some counties have been combined due to data sensitivity. These combined counties are identified with asterisks in the output tables.

The TPO contacts are listed for each region to provide additional explanation or clarification.

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[a] All tables in this report are available in Microsoft® Excel workbook files. Upon request, these files will be supplied in the format the customer requests.

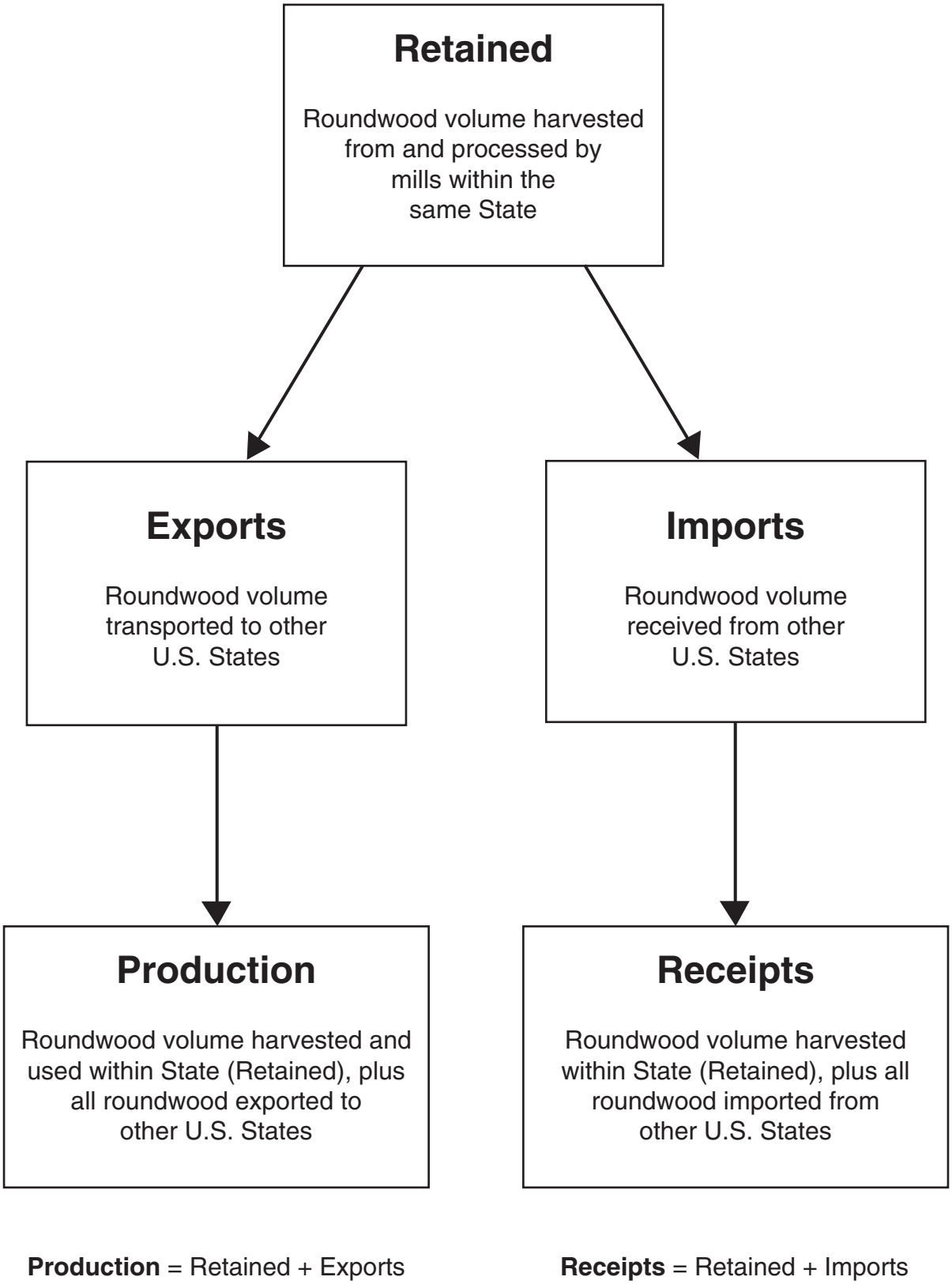

Figure 1—Movement of roundwood exports and imports within the United States.

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Output of Industrial Timber Products

Note: Certain terms used in this report—retained, export, import, production, and receipts—have specialized meanings and relationships unique to the Forest Inventory and Analysis Units across the country that deal with timber product output (TPO) (fig. 1).

All Products

- Between 1999 and 2003, the combined industrial TPO from roundwood and plant byproducts declined from 1.68 billion cubic feet to 1.49 billion cubic feet.
- TPO from roundwood was down 133 million cubic feet, or 11 percent, to 1.08 billion cubic feet, while output of plant byproducts was down 58 million cubic feet to 410 million cubic feet.
- Output of softwood roundwood products declined 10 percent to 806 million cubic feet, while output of hardwood roundwood products declined 15 percent to 272 million cubic feet (fig. 2).
- Figures 3 and 4 display softwood and hardwood county-level intensity of roundwood production for all industrial products across Alabama. The data are depicted in cubic feet produced per acre of census land area. Counties with the highest production intensity are depicted in the darker shades. For softwoods the darkest shade represents more than 40 cubic feet of production per acre, while for hardwoods the darkest shade represents more than 15 cubic feet per acre.
- Pulpwood and saw logs were the principal roundwood products in 2003. Combined output of these products totaled 926 million cubic feet and accounted for 86 percent of Alabama's total roundwood output (fig. 5).

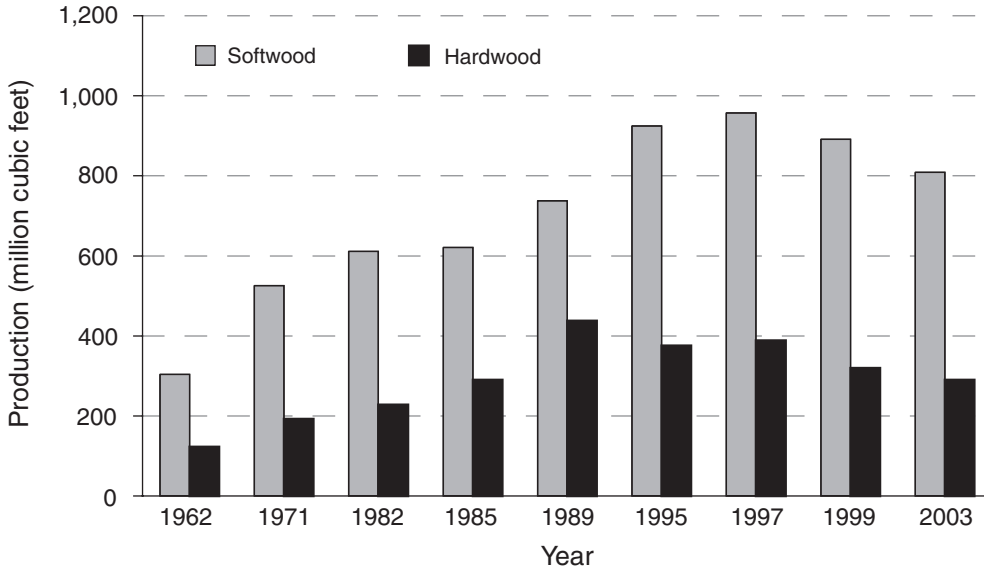

Figure 2—Roundwood production for all products by species group and year (see page 11 for references for individual years).

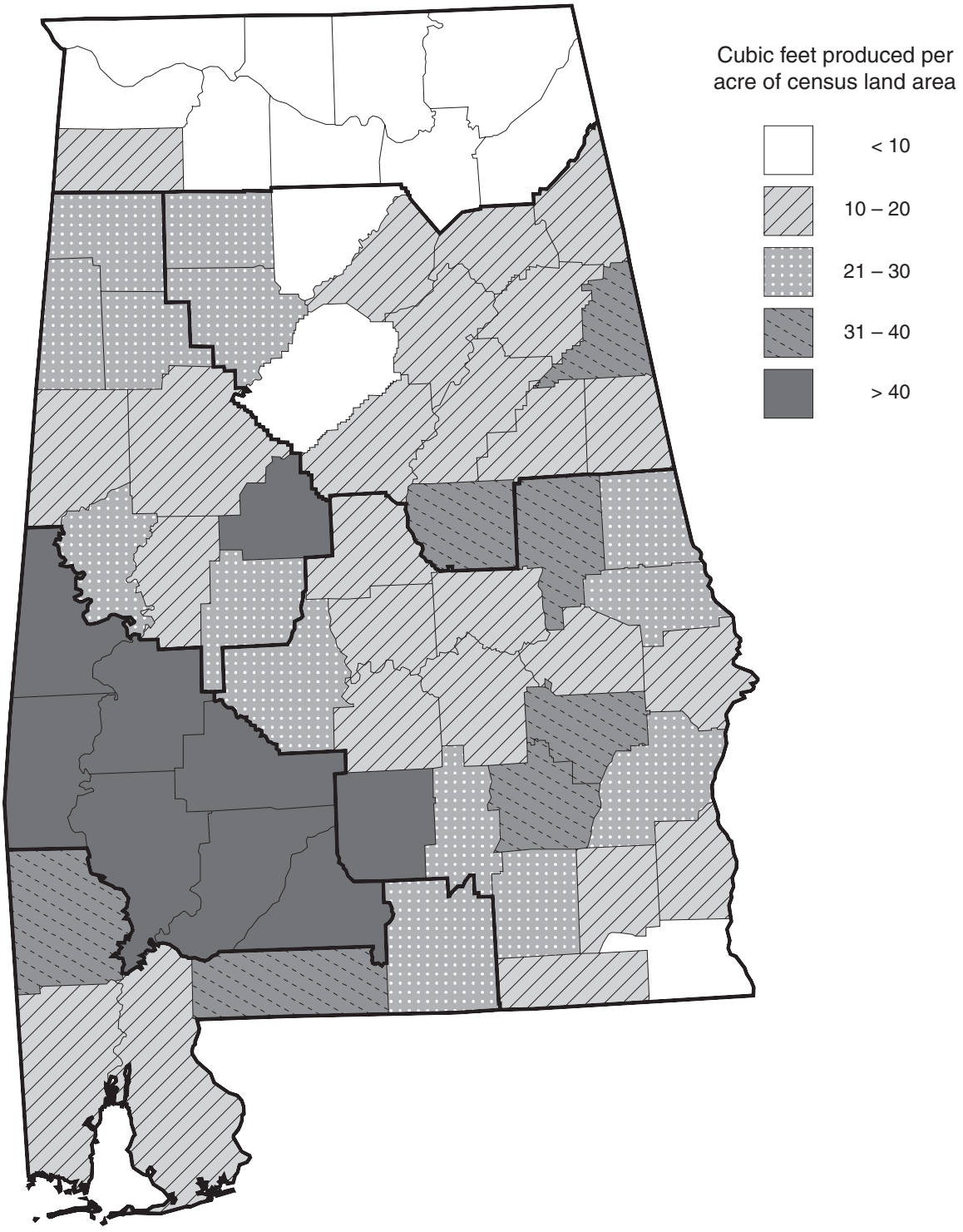

Figure 3—Intensity of roundwood softwood output for all industrial products in Alabama by county, 2003.

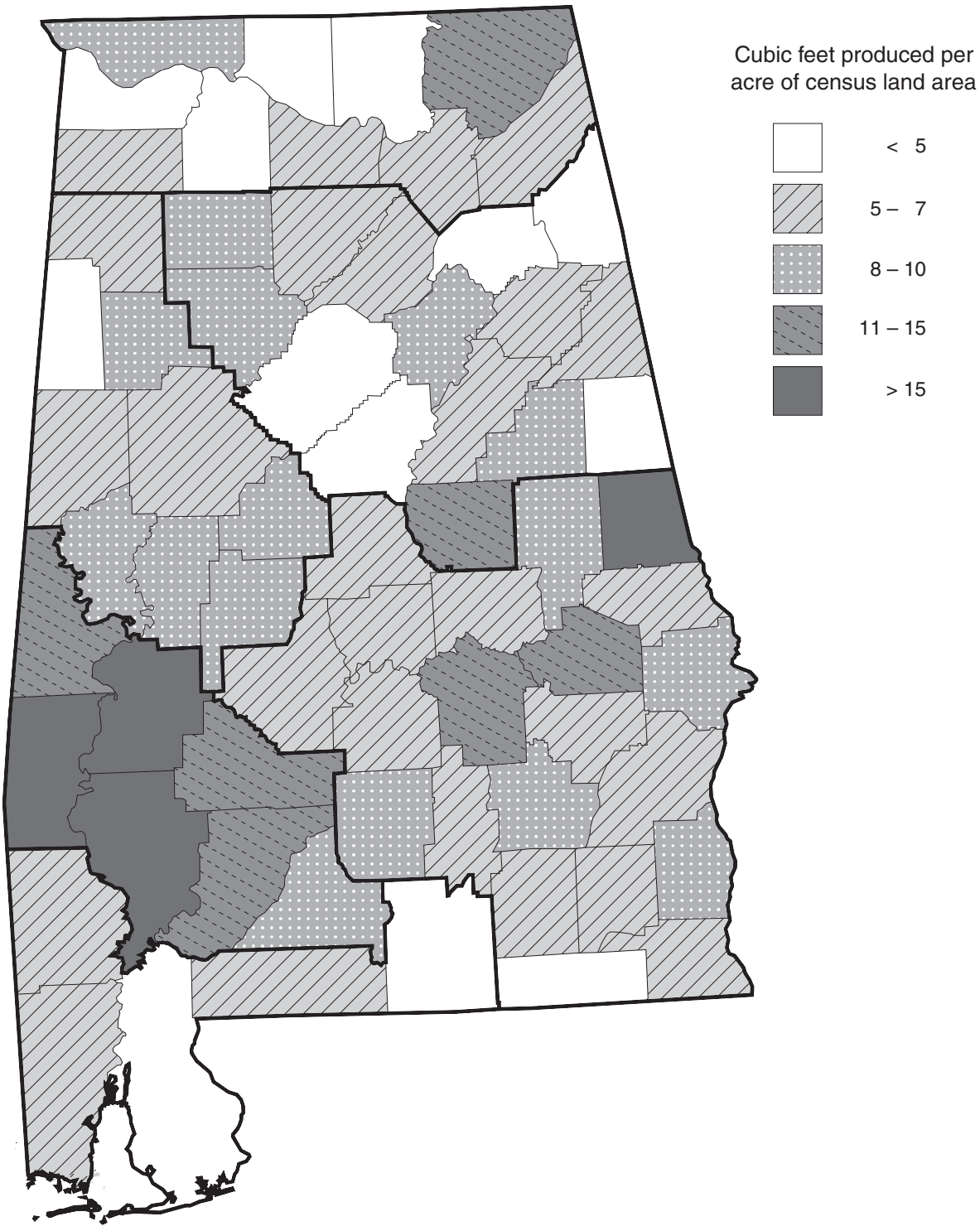

Figure 4—Intensity of roundwood hardwood output for all industrial products in Alabama by county, 2003.

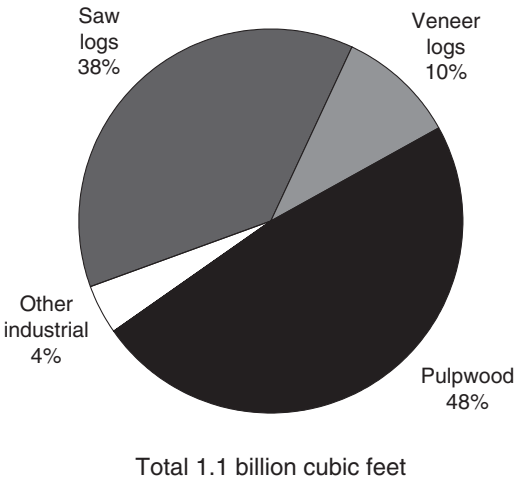

Figure 5—Roundwood production by type of product, 2003.

- Total receipts at Alabama mills, which included roundwood harvested and retained in the State as well as roundwood imported from other States, decreased 14 percent to 1.14 billion cubic feet. The number of primary roundwood-using plants in Alabama totaled 178 in 2003.

Pulpwood

- Total pulpwood production, including chipped roundwood, decreased 120 million cubic feet to 521 million cubic feet (7.03 million cords) and accounted for 48 percent of the State's total roundwood TPO. Softwood output decreased 18 percent to 342 million cubic feet; hardwood output decreased 20 percent to 179 million cubic feet (fig. 6).
- Fourteen pulpmill facilities were operating and receiving roundwood in Alabama in 2003, one fewer than in 1999. Total pulpwood receipts for these mills decreased 176 million cubic feet to 568 million cubic feet, accounting for 50 percent of total receipts for all mills.
- Eighty-four percent of roundwood cut for pulpwood was retained for processing at Alabama pulpmills. Roundwood pulpwood accounted for 54 percent of total known exports and 61 percent of total imports. Roundwood pulpwood imports amounted to 132 million cubic feet, 47 million cubic feet more than was exported.

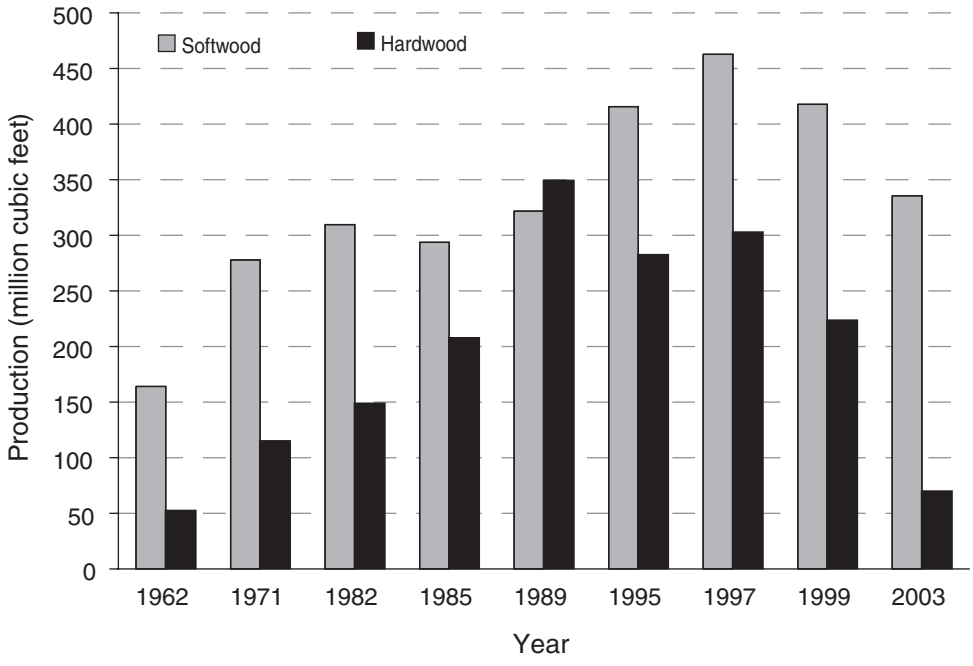

Figure 6—Roundwood pulpwood production by species group and year (see page 11 for references for individual years).

Saw Logs

- Saw logs accounted for 38 percent of the State's total roundwood products. Output of softwood saw logs fell 5 percent to 335 million cubic feet (1.86 billion board feet, International ¼-inch rule), while that of hardwood saw logs decreased 4 percent to 69 million cubic feet (411 million board feet, International ¼-inch rule) (fig. 7).
- In 2003, Alabama had 118 sawmills, a net loss of 3 mills since 1999. Total saw-log receipts declined 22 million cubic feet to 418 million cubic feet. Softwood saw-log receipts were down 6 percent to 348 million cubic feet, while those of hardwoods decreased 3 percent to 70 million cubic feet. Of the operating mills in 2003, 19 percent had receipts of < 1 million board feet, while 36 percent had receipts > 10 million board feet. These 42 mills, however, accounted for 90 percent of total saw-log receipts.
- Alabama retained 87 percent of its saw-log production for domestic manufacture; saw-log imports exceeded exports by 13 million cubic feet in 2003.

Veneer Logs

- Output of veneer logs in 2003 totaled 107 million cubic feet and accounted for 10 percent of the State's total roundwood TPO volume. Softwood veneer production decreased < 1 percent to 85 million cubic feet (496 million board feet, International ¼-inch rule); output of hardwood veneer logs declined 6 percent to 23 million cubic feet (139 million board feet, International ¼-inch rule) (fig. 8).
- Twenty-three veneer mills were operating in Alabama in 2003. Total receipts of veneer logs increased 4 percent to 106 million cubic feet. Softwood veneer receipts increased 4 million cubic feet to 84 million cubic feet.
- Alabama retained 86 percent of its veneer-log production for processing at domestic veneer mills. Imports amounted to 14 million cubic feet, and exports totaled 15 million cubic feet, making the State a net exporter of roundwood veneer logs.

Other Industrial Products

- Roundwood harvested for other industrial uses, such as poles, posts, mulch, firewood, composite panels, and all other industrial products, increased 28 percent to 45 million cubic feet. Other industrial product volume accounted for 4 percent of the State's total TPO volume. Softwood made up 97 percent of the other industrial product volume (fig. 9).
- A total of 23 plants produced other industrial products in 2003. Combined receipts of other industrial products from

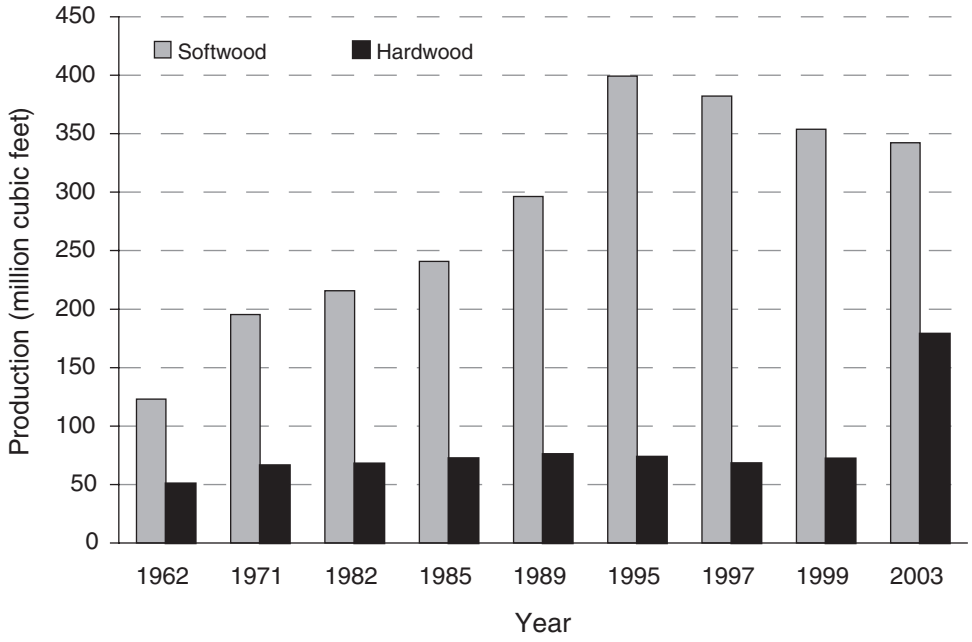

Figure 7—Roundwood saw-log production by species group and year (see page 11 for references for individual years).

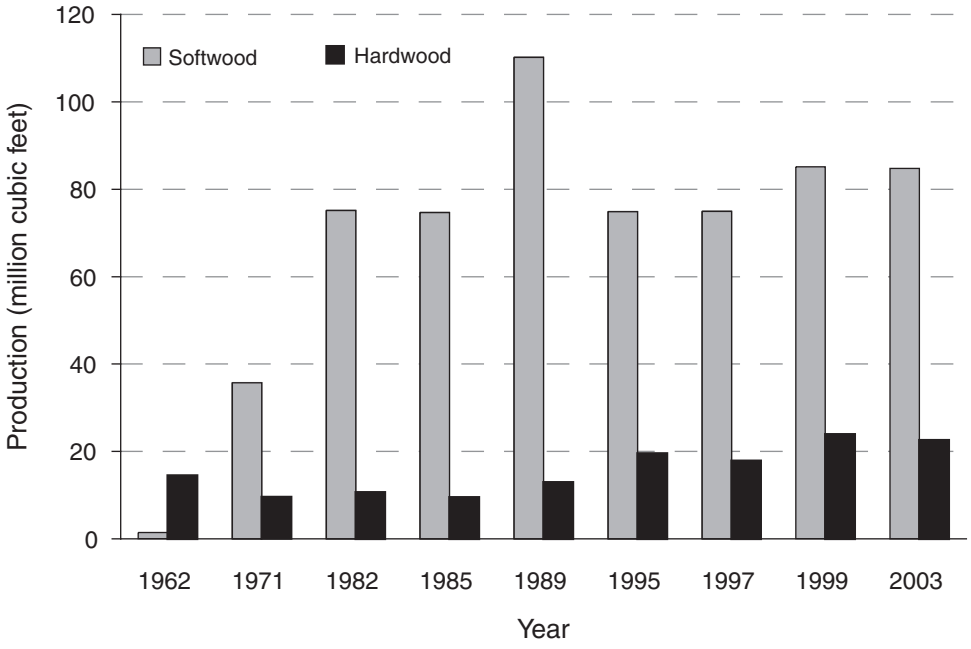

Figure 8—Roundwood veneer-log production by species group and year (see page 11 for references for individual years).

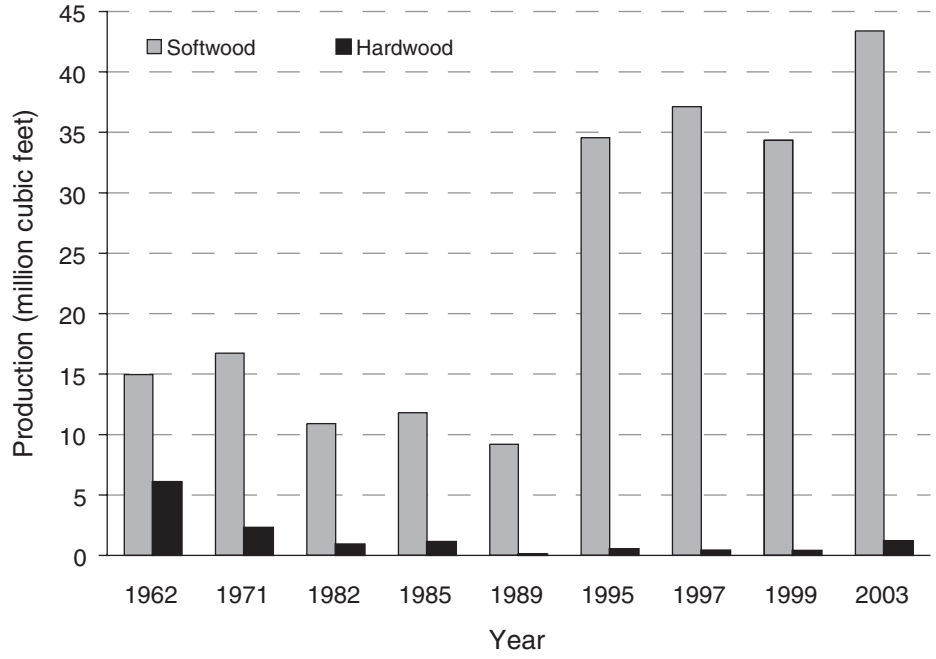

Figure 9—Roundwood production for other industrial products by species group and year (see page 11 for references for individual years).

softwood and hardwood was up 9 percent to 44 million cubic feet.

- Alabama retained 87 percent of its other industrial production for domestic manufacture; other industrial exports exceeded imports by 82 thousand cubic feet in 2003.

Plant Byproducts

- In 2003, processing of primary products in Alabama mills generated 410 million cubic feet of wood and bark residues. Bark residues from all primary products were 145 million cubic feet, while coarse volume totaled 142 million cubic feet. Sawdust and shavings made up 30 percent of total residues, or 123 million cubic feet (fig. 10).
- Virtually all of the wood and bark residues were used for a product; < 1 percent was not used, while 59 percent of the residues were used for industrial fuel (fig. 11). More than 123 million cubic feet, or 87 percent, of the coarse residues were used to manufacture fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, while 76 percent of the sawdust and shavings were used for industrial fuel.
- The processing of saw logs generated 232 million cubic feet of mill residues, accounting for 57 percent of the total residues produced (fig. 12).

Regional Trends

- Output of industrial roundwood products declined in all regions, with the exception being the Southwest North region of Alabama. This region showed a 1-percent increase in product output. The West Central and North Central regions of Alabama had substantial declines at 20 and 19 percent, respectively.

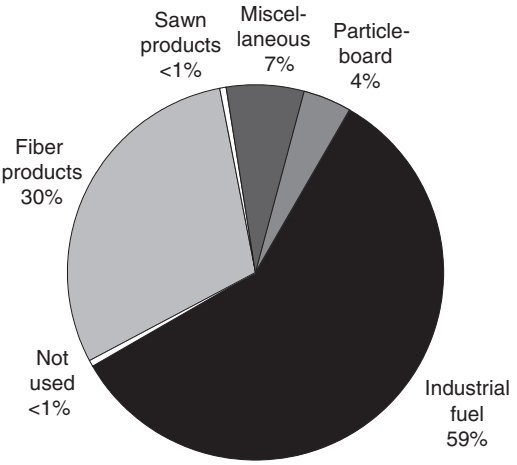

Figure 11—Disposal of residue by product, 2003.

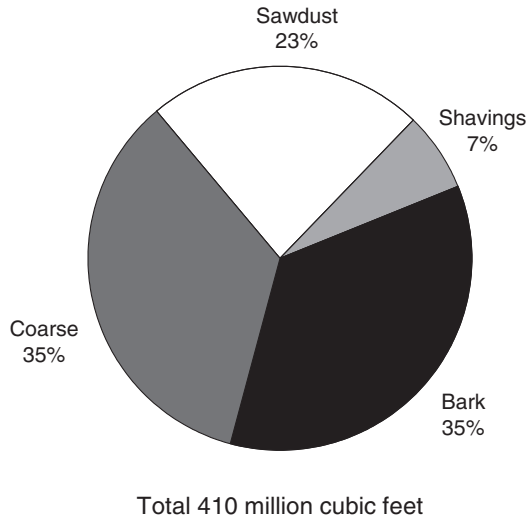

Figure 10—Primary mill residue by residue type, 2003.

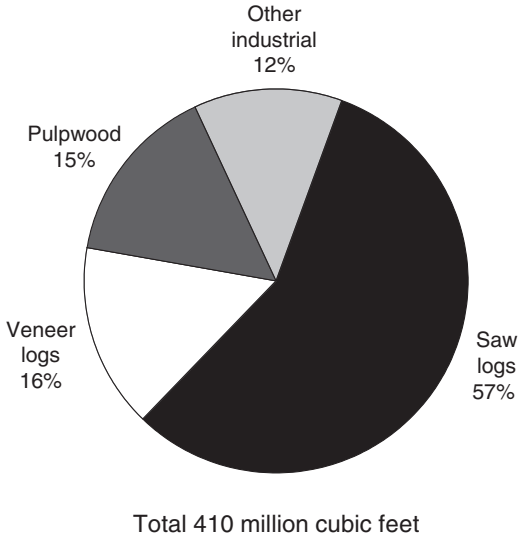

Figure 12—Primary mill residue produced by roundwood type, 2003.

Southwest South Region

- Roundwood output from the Southwest South region totaled 122 million cubic feet in 2003, a 9-percent decline. Softwood output declined 7.6 million cubic feet to 100 million cubic feet; hardwood output declined 15 percent to 23 million cubic feet.
- Saw logs accounted for 42 percent of the region's TPO and 13 percent of the State's roundwood saw-log output. The 49 million cubic feet of pulpwood accounted for 40 percent of the region's TPO and 9 percent of the State's roundwood pulpwood output.
- In the Southwest South region, 17 primary wood-using plants were operating during 2003: 8 sawmills, 1 pulpmill, and 8 other miscellaneous mills (fig. 13). These mills processed 11 percent of the State's total roundwood output.

Southwest North Region

- Three hundred and sixteen million cubic feet of roundwood were produced in the Southwest North region of Alabama, a 1-percent increase. Softwood output increased 7 percent to 244 million cubic feet; hardwood production was down 14 percent to 72 million cubic feet.
- Production of pulpwood at 155 million cubic feet accounted for 49 percent of the region's total roundwood output and 30 percent of the State's roundwood pulpwood output. Saw-log production of 114 million cubic feet accounted for 36 percent of the region's TPO and 28 percent of the State's roundwood saw-log output.
- The 48 mills operating in the Southwest North region in 2003 included 24 sawmills, 9 veneer or plywood mills, 7 pulpmills, and 8 other miscellaneous mills. These mills processed 29 percent of the State's total roundwood output.

Southeast Region

- Roundwood output from the Southeast region totaled 282 million cubic feet in 2003, a 14-percent decline. Softwood production was down 15 percent to 211 million cubic feet; hardwood output declined 11 percent to 71 million cubic feet.
- Pulpwood accounted for 56 percent of the region's TPO and 30 percent of the State's roundwood pulpwood output. The 97 million cubic feet of saw logs accounted for 34 percent of the total roundwood output for the region.
- In the Southeast region, 39 primary wood-using plants were operating during 2003: 24 sawmills, 10 veneer or plywood mills, 3 pulpmills, 1 composite panel mill, and 1 other miscellaneous mill. These mills processed 26 percent of the State's total roundwood output.

West Central Region

- Roundwood output from the West Central region totaled 136 million cubic feet, a 20-percent decline. Softwood decreased 17 percent to 103 million cubic feet; hardwood output was down 28 percent to 34 million cubic feet. Roundwood production from this region accounted for 13 percent of the total roundwood TPO for the State.
- Saw-log production of 66 million cubic feet accounted for 48 percent of the region's total TPO. Pulpwood production of 53 million cubic feet accounted for another 39 percent of the region's total roundwood output.
- The 30 primary wood-using plants operating in the West Central region included 24 sawmills, 3 veneer or plywood mills, and 3 other miscellaneous mills.

North Central Region

- Roundwood output from the North Central region totaled 168 million cubic feet in 2003, a 19-percent decline. Softwood output declined 22 percent from 158 million cubic feet in 1999 to 124 million cubic feet in 2003. Hardwood production declined 10 percent to 44 million cubic feet.
- Production of pulpwood at 79 million cubic feet accounted for 47 percent of the region's total roundwood output. Saw-log production of 54 million cubic feet accounted for 32 percent of the region's total roundwood output.
- In the North Central region, 26 primary wood-using plants were operating during 2003: 22 sawmills, 1 veneer or plywood mill, 1 pulpmill, 1 composite panel mill, and 1 other miscellaneous mill.

North Region

- Roundwood output from the North region totaled 54 million cubic feet, a 10-percent decline since 1999. Softwood output was up 3 percent to 24 million cubic feet; hardwood output declined 18 percent to 29 million cubic feet.
- Saw-log production totaled 21 million cubic feet and accounted for 40 percent of the region's total roundwood output. Pulpwood production of 28 million cubic feet accounted for 52 percent of the region's total TPO.

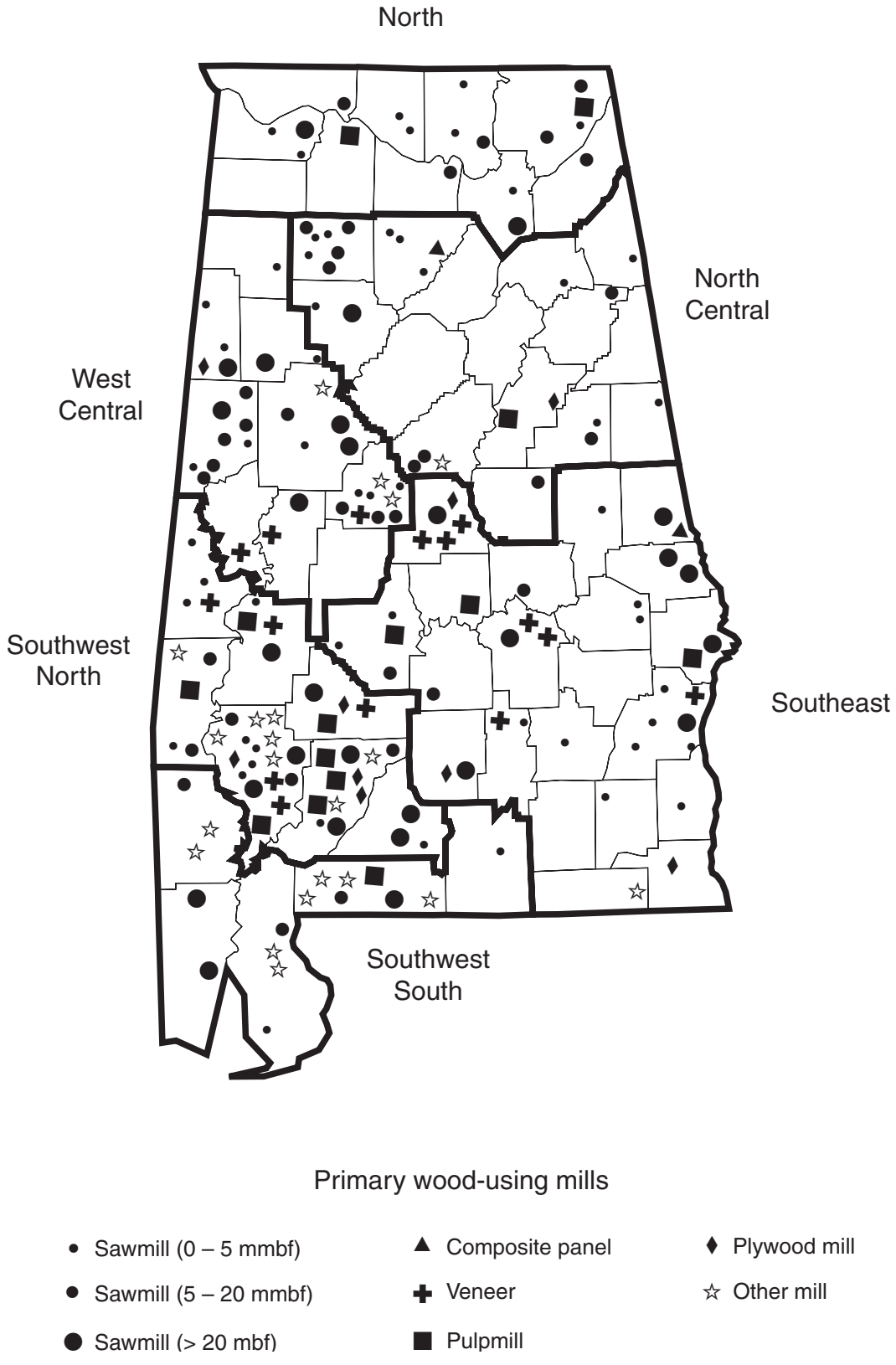

Figure 13—Primary wood-using mills by region, 2003.

- In the North region, 18 primary wood-using plants were operating during 2003: 16 sawmills and 2 pulpmills.

Total Roundwood Output

Using the most recent inventory data for Alabama, product output by source, ownership, and detailed species group was estimated.

Source

- In addition to the 1.08 billion cubic feet of roundwood output for industrial roundwood products, an estimated 21 million cubic feet was harvested for domestic fuelwood, bringing Alabama's total roundwood output to 1.1 billion cubic feet.
- Ninety-three percent of total roundwood output was considered growing-stock volume (sawtimber and pole-timber) from timberland sources. Other sources (such as saplings; stumps, tops, and limbs of trees on timberland; and trees on nonforest land) contributed an estimated 81 million cubic feet, or 7 percent of total roundwood output (fig. 14).

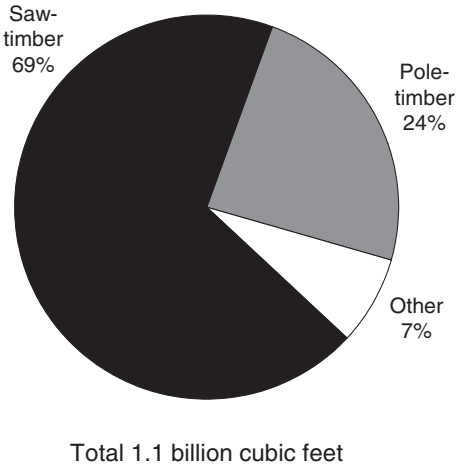

Figure 14—Roundwood output by source, 2003.

Ownership

- An estimated 783 million cubic feet, or 71 percent, of the total roundwood output came from nonindustrial private forest lands. Forest industry lands contributed 299 million cubic feet, or 27 percent of the output. Public lands made up the remaining 2 percent, or 17 million cubic feet (fig. 15).

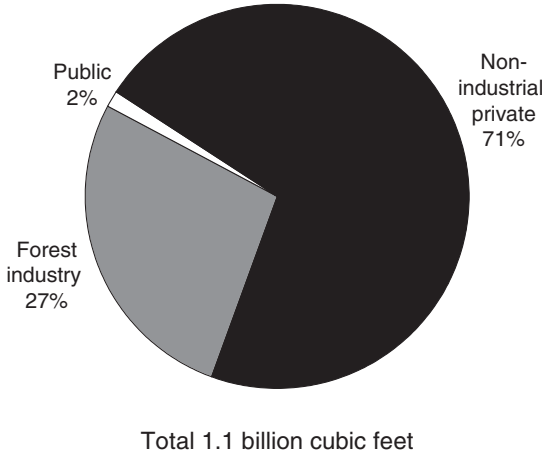

Figure 15—Roundwood output by ownership, 2003.

Species

- The loblolly and shortleaf pine group provided more volume than any other softwood species group, accounting for 80 percent of the total softwood output (fig. 16). The longleaf and slash pine type accounted for 14 percent of the softwood output. The red oak and white oak groups combined accounted for 131 million cubic feet, or 45 percent of total hardwood output (fig. 17).

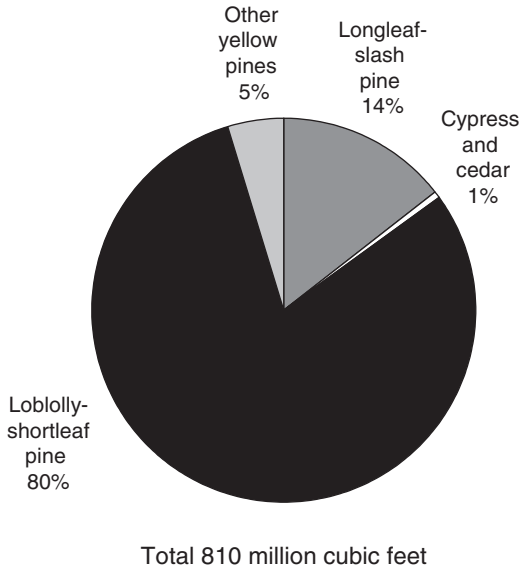

Figure 16—Roundwood output by softwood species group, 2003.

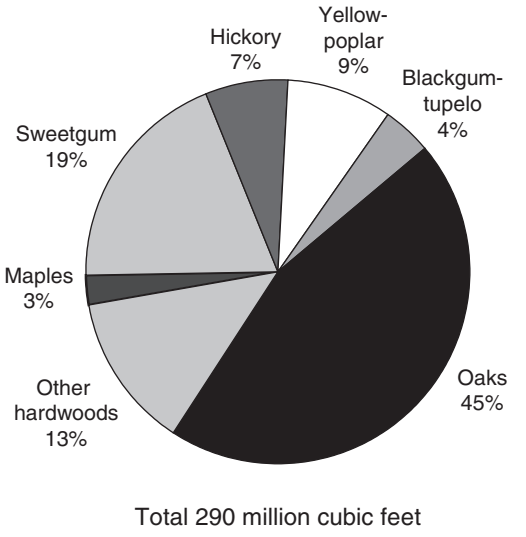

Figure 17—Roundwood output by hardwood species group, 2003.

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Glossary

Board foot. A unit of measure applied to lumber that is 1-foot long, 1-foot wide, and 1-inch thick (or its equivalent) and also associated with roundwood as to its potential yield of such products.

Byproducts. Primary wood products, e.g., pulp chips, animal bedding, and fuelwood, recycled from mill residues.

Composite panels. Roundwood products manufactured into chips, wafers, strands, flakes, shavings, or sawdust and then reconstituted into a variety of panel and engineered lumber products.

Consumption. The quantity of a commodity, such as pulpwood, utilized by a particular mill or group of mills.

Drain. The volume of roundwood removed from any geographic area where timber is grown.

Exports. The volume of domestic roundwood utilized by mills outside the State where timber was cut.

Fiber products. Byproducts used in the manufacture of pulp, paper, paperboard, and composite products, such as chipboard.

Fuelwood production. The volume of roundwood harvested to produce some form of energy, e.g., heat and steam, in residential, industrial or institutional settings.

Growing-stock removals. The growing-stock volume removed from poletimber and sawtimber trees in the timberland inventory. (Note: Includes volume removed for roundwood products, logging residues, and other removals.)

Growing-stock trees. Living trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings. Growing-stock trees must contain at least one 12-foot or two 8-foot logs in the saw-log portion, currently or potentially (if too small to qualify). The log(s) must meet dimension and merchantability standards and have, currently or potentially, one-third of the gross board-foot volume in sound wood.

Growing-stock volume. The cubic-foot volume of sound wood in growing-stock trees at least 5.0 inches d.b.h. from a 1-foot stump to a minimum 4.0-inch top d.o.b. of the central stem.

Hardwoods. Dicotyledonous trees, usually broadleaf and deciduous.

Soft hardwoods. Hardwood species with an average specific gravity of 0.50 or less, such as gums, yellow-poplar, cottonwoods, red maple, basswoods, and willows.

Hard hardwoods. Hardwood species with an average specific gravity > 0.50, such as oaks, hard maples, hickories, and beech.

Imports. The volume of domestic roundwood delivered to a mill or group of mills in a specific State but harvested outside that State.

Industrial fuelwood. A roundwood product, with or without bark, used to generate energy at a manufacturing facility such as a wood-using mill.

Industrial roundwood products. Any primary use of the main stem of a tree, such as saw logs, pulpwood, veneer logs, intended to be processed into primary wood products such as lumber, wood pulp, sheathing, at primary wood-using mills.

International ¼-inch rule. A log rule or formula for estimating the board-foot volume of logs, allowing ½-inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In the form used by FIA, a ¼-inch of kerf is assumed. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Log. A primary forest product harvested in long, primarily 8-, 12-, and 16-foot lengths.

Logging residues. The unused merchantable portion of growing-stock trees cut or destroyed during logging operations.

Merchantable portion. That portion of live trees 5.0 inches d.b.h. and larger between a 1-foot stump and a minimum 4.0-inch top d.o.b. on the central stem. That portion of primary forks from the point of occurrence to a minimum 4.0-inch top d.o.b. is included.

Merchantable volume. Solid-wood volume in the merchantable portion of live trees.

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

Nonforestland. Land that has never supported forests and land formerly forested where timber production is precluded by development for other uses.

Nongrowing-stock sources. The net volume removed from the nongrowing-stock portions of poletimber and sawtimber trees (stumps, tops, limbs, cull sections of central stem) and from any portion of a rough, rotten, sapling, dead, or nonforest tree.

Other forestland. Forestland other than timberland and productive reserved forestland. It includes available and reserved forestland that is incapable of producing annually 20 cubic feet per acre of industrial wood under natural conditions because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other products. A miscellaneous category of roundwood products, e.g., cooperage, excelsior, shingles, and mill residue byproducts (charcoal, bedding, mulch, etc.).

Other removals. The growing-stock volume of trees removed from the inventory by cultural operations such as timber stand improvement, land clearing, and other changes in land use, resulting in the removal of the trees from timberland.

Other sources. (See: Nongrowing-stock sources.)

Ownership. The property owned by one ownership unit, including all parcels of land in the United States.

National forest land. Federal land that has been legally designated as national forests or purchase units, and other land under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III land.

Forest industry land. Land owned by companies or individuals operating primary wood-using plants.

Nonindustrial private forest (NIPF) land. Privately owned land excluding forest industry land.

Corporate. Owned by corporations, including incorporated farm ownerships.

Individual. All lands owned by individuals, including farm operators.

Other public. An ownership class that includes all public lands except national forests.

Miscellaneous Federal land. Federal land other than national forests.

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

Plant residues. Wood material generated in the production of timber products at primary manufacturing plants.

Coarse residues. Material, such as slabs, edgings, trim, veneer cores and ends, which is suitable for chipping.

Fine residues. Material, such as sawdust, shavings, and veneer residue, which is not suitable for chipping.

Plant byproducts. Residues (coarse or fine) used in the further manufacture of industrial products for consumer use, or as fuel.

Unused plant residues. Residues (coarse or fine) that are not used for any product, including fuel.

Poletimber-size trees. Softwoods 5.0 to 8.9 inches d.b.h. and hardwoods 5.0 to 10.9 inches d.b.h.

Posts, poles, and pilings. Roundwood products milled (cut or peeled) into standard sizes (lengths and circumferences) to be put in the ground to provide vertical and lateral support in buildings, foundations, utility lines, and fences. May also include nonindustrial (unmilled) products.

Primary wood-using plants. Industries that convert round-wood products (saw logs, veneer logs, pulpwood, etc.) into primary wood products, such as lumber, veneer or sheathing, wood pulp.

Production. The total volume of known roundwood harvested from land within a State, regardless of where it is consumed. Production is the sum of timber harvested and used within a State, and all roundwood exported to other States.

Pulpwood. A roundwood product that will be reduced to individual wood fibers by chemical or mechanical means.

The fibers are used to make a broad generic group of pulp products that includes paper products, as well as fiberboard, insulating board, and paperboard.

Receipts. The quantity or volume of industrial roundwood received at a mill or by a group of mills in a State, regardless of the geographic source. Volume of roundwood receipts is equal to the volume of roundwood retained in a State plus roundwood imported from other States.

Retained. Roundwood volume harvested from and processed by mills within the same State.

Rotten trees. Live trees of commercial species not containing at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross board-foot tree volume in sound material.

Rough trees. Live trees of commercial species not containing at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross board-foot tree volume in sound material; and live trees of noncommercial species.

Roundwood (roundwood logs). Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer uses.

Roundwood chipped. Any timber cut primarily for industrial manufacture, delivered to nonpulpmills, chipped, and then sold to pulpmills for use as fiber. Includes tops, jump sections, whole trees, and pulpwood sticks.

Roundwood product drain. That portion of total drain used for a product.

Roundwood products. Any primary product, such as lumber, veneer, composite panels, poles, pilings, pulp, or fuelwood that is produced from roundwood.

Salvable dead trees. Standing or downed dead trees that were formerly growing stock and considered merchantable. Trees must be at least 5.0 inches d.b.h. to qualify.

Saplings. Live trees 1.0 to 5.0 inches d.b.h.

Saw log. A roundwood product, usually 8 feet in length or longer, processed into a variety of sawn products such as lumber, cants, pallets, railroad ties, and timbers.

Saw-log portion. The part of the bole of sawtimber trees between a 1-foot stump and the saw-log top.

Saw-log top. The point on the bole of sawtimber trees above which a conventional saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods for FIA standards.

Sawtimber-size trees. Softwoods 9.0 inches d.b.h. and larger and hardwoods 11.0 inches d.b.h. and larger.

Sawtimber volume. Growing-stock volume in the saw-log portion of sawtimber-sized trees in board feet (International ¼-inch rule).

Seedlings. Trees < 1.0 inch d.b.h. and > 1 foot tall for hardwoods, > 6 inches tall for softwoods, and > 0.5 inch in diameter at ground level for longleaf pine.

Select red oaks. A group of several red oak species composed of cherrybark, Shumard, and northern red oaks. Other red oak species are included in the "other red oaks" group.

Select white oaks. A group of several white oak species composed of white, swamp chestnut, swamp white, chinkapin, Durand, and bur oaks. Other white oak species are included in the "other white oaks" group.

Softwoods. Coniferous trees, usually evergreen, having leaves that are needles or scale like.

Standard cord. A unit of measure applied to roundwood, usually bolts or split wood. It is a stack of wood 4 feet high, 4 feet wide, and 8 feet long encompassing 128 cubic feet of wood, bark, and air space. This usually translates to approximately 75.0 to 81.0 cubic feet of solid wood for pulpwood, because pulpwood is more uniform.

Standard unit. A unit measure applied to roundwood timber products. Board feet (International ¼-inch rule) is the standard unit used for saw logs and veneer; cords are used for pulpwood, composite panel, and fuelwood; hundred pieces for poles; thousand pieces for posts; and thousand cubic feet for all other miscellaneous forest products.

Timberland. Forestland capable of producing 20 cubic feet of industrial wood per acre per year and not withdrawn from timber utilization.

Timber product output. The total volume of roundwood products from all sources plus the volume of byproducts recovered from mill residues (equals roundwood product drain).

Timber products. Roundwood products and byproducts.

Timber removals. The total volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use. (Note: Includes roundwood products, logging residues, and other removals.)

Tree. Woody plants having one erect perennial stem or trunk at least 3 inches d.b.h., a more or less definitely formed crown of foliage, and a height of at least 13 feet (at maturity).

Upper-stem portion. The part of the main stem of saw-timber trees above the saw-log top and the minimum top diameter of 4.0 inches outside bark, or to the point where the main stem breaks into limbs.

Utilization studies. Studies conducted on active logging operations to develop factors for merchantable portions of trees left in the woods (logging residues), logging damage, and utilization of the unmerchantable portion of growing-stock trees and nongrowing-stock trees.

Veneer log. A roundwood product either rotary cut, sliced, stamped, or sawn into a variety of veneer products such as plywood, finished panels, veneer sheets, or sheathing.

Weight. A unit of measure for mill residues, expressed as oven-dry tons (2,000 oven-dry pounds).

Metric Equivalents

1 acre = 4,046.86 m^2 or 0.404686 ha

1 cubic foot = 0.028317 m^3

1 inch = 2.54 cm or 0.0254 m

Breast height = 1.4 m above the ground

1 square foot = 929.03 cm^2 or 0.0929 m^2

1 square foot per basal area = 0.229568 m^2/ha

1 pound = 0.454 kg

1 ton = 0.907 MT

Conversion Factors[a]

Saw logs	
Softwood	0.18282 cubic foot = 1 board foot
	5.47 board feet = 1 cubic foot
Hardwood	0.16393 cubic foot = 1 board foot
	6.10 board feet = 1 cubic foot
Veneer logs	
Softwood	0.16129 cubic foot = 1 board foot
	6.20 board feet = 1 cubic foot
Hardwood	0.16000 cubic foot = 1 board foot
	6.25 board feet = 1 cubic foot
Pulpwood[b]	
Softwood	73.3 cubic feet per cord
Hardwood	76.1 cubic feet per cord

[a] Conversion factors vary with stem size (d.b.h.) and species. The factors shown are for trees of average diameters removed in Virginia during the most recent survey period.

[b] Cubic feet of solid wood per cord.

Species List[a]

Common name	Scientific name[b]	Common name	Scientific name[b]
Softwoods		Hardwoods (continued)	
Atlantic white-cedar	*Chamaecyparis thyoides* (L.) B.S.P.	American holly	*Ilex opaca* Ait.
Southern redcedar	*Juniperus silicicola* (Small) Bailey	Black walnut	*Juglans nigra* L.
Eastern redcedar	*J. virginiana* L.	Sweetgum	*Liquidambar styraciflua* L.
Shortleaf pine	*Pinus echinata* Mill.	Yellow-poplar	*Liriodendron tulipifera* L.
Slash pine	*P. elliottii* Engelm.	Osage-orange	*Maclura pomifera* (Raf.) Schneid.
Spruce pine	*P. glabra* Walt.	Cucumbertree	*Magnolia acuminata* L.
Longleaf pine	*P. palustris* Mill.	Southern magnolia	*M. grandiflora* L.
Pond pine	*P. serotina* Michx.	Bigleaf magnolia	*M. macrophylla* Michx.
Eastern white pine	*P. strobus* L.	Sweetbay	*M. virginiana* L.
Loblolly pine	*P. taeda* L.	Apple	*Malus* spp. Mill.
Virginia pine	*P. virginiana* Mill.	Chinaberry	*Melia azedarach* L.
Baldcypress	*Taxodium distichum* (L.) Rich.	White mulberry	*Morus alba* L.
Pondcypress	*T. distichum* var. *nutans*	Red mulberry	*M. rubra* L.
Eastern hemlock	*Tsuga canadensis* (L.) Carr.	Water tupelo	*Nyssa aquatica* L.
		Blackgum	*N. sylvatica* Marsh.
Hardwoods		Swamp tupelo	*N. sylvatica* var. *biflora* (Walt.) Sarg.
Florida maple	*Acer barbatum* Michx.	Eastern hophornbeam	*Ostrya virginiana* (Mill.) K. Koch
Boxelder	*A. negundo* L.	Sourwood	*Oxydendrum arboreum* (L.) DC.
Red maple	*A. rubrum* L.	Redbay	*Persea borbonia* (L.) Spreng.
Silver maple	*A. saccharinum* L.	American sycamore	*Platanus occidentalis* L.
Sugar maple	*A. saccharum* Marsh.	Cottonwood	*Populus* spp. L.
Buckeye	*Aesculus* spp. L.	Black cherry	*Prunus serotina* Ehrh.
Ohio buckeye	*A. glabra* Willd.	White oak	*Quercus* alba L.
Ailanthus	*Ailanthus altissima* (Mill.) Swingle	Scarlet oak	*Q. coccinea* Muenchh.
Tung-oil tree	*Aleurites fordii* Hemsl.	Durand oak	*Q. durandii* Buckl.
Serviceberry	*Amelanchier* spp. Med.	Southern red oak	*Q. falcata* Michx.
River birch	*Betula nigra* L.	Cherrybark oak	*Q. falcata* var. *pagodifolia* Ell.
American hornbeam	*Carpinus caroliniana* Walt.	Bluejack oak	*Q. incana* Bartr.
Hickory	*Carya* spp. Nutt.	Turkey oak	*Q. laevis* Walt.
Water hickory	*C. aquatica* (Michx. f.) Nutt.	Laurel oak	*Q. laurifolia* Michx.
Bitternut hickory	*C. cordiformis* (Wangenh.) K. Koch	Overcup oak	*Q. lyrata* Walt.
Pignut hickory	*C. glabra* (Mill.) Sweet	Swamp chestnut oak	*Q. michauxii* Nutt.
Pecan	*C. illinoensis* (Wangenh.) K. Koch	Chinkapin oak	*Q. muehlenbergii* Engelm.
Shellbark hickory	*C. laciniosa* (Michx. f.) Loud.	Water oak	*Q. nigra* L.
Nutmeg hickory	*C. myristiciformis* (Michx. f.) Nutt.	Nuttall oak	*Q. nuttallii* Palmer
Shagbark hickory	*C. ovata* (Mill.) K. Koch	Pin oak	*Q. palustris* Muenchh.
Black hickory	*C. texana* Buckl.	Willow oak	*Q. phellos* L.
Mockernut hickory	*C. tomentosa* (Poir.) Nutt.	Chestnut oak	*Q. prinus* L.
Allegheny chinkapin	*Castanea pumila* Mill.	Northern red oak	*Q. rubra* L.
Chinkapin	*Castanopsis* (D. Don) Spach	Shumard oak	*Q. shumardii* Buckl.
Catalpa	*Catalpa* spp. Scop.	Post oak	*Q. stellata* Wangenh.
Sugarberry	*Celtis laevigata* Willd.	Black oak	*Q. velutina* Lam.
Hackberry	*C. occidentalis* L.	Live oak	*Q. virginiana* Mill.
Eastern redbud	*Cercis canadensis* L.	Black locust	*Robinia pseudoacacia* L.
Flowering dogwood	*Cornus florida* L.	Willow	*Salix* spp. L.
Hawthorn	*Crataegus* spp. L.	Sassafras	*Sassafras albidum* (Nutt.) Nees
Common persimmon	*Diospyros virginiana* L.	American basswood	*Tilia americana* L.
American beech	*Fagus grandifolia* Ehrh.	White basswood	*T. heterophylla* Vent.
White ash	*Fraxinus americana* L.	Winged elm	*Ulmus alata* Michx.
Pumpkin ash	*F. profunda* (Bush) Bush	American elm	*U. americana* L.
Blue ash	*F. quadrangulata* Michx.	Cedar elm	*U. crassifolia* Nutt.
Waterlocust	*Gleditsia aquatica* Marsh.	Slippery elm	*U. rubra* Muhl.
Honeylocust	*G. triacanthos* L.	September elm	*U. serotina* Sarg.
Kentucky coffeetree	*Gymnocladus dioicus* (L.) K. Koch	Rock elm	*U. thomasii* Sarg.

[a] Scientific and common names of tree species > 1.0 inch in d.b.h. occurring in the FIA sample.

[b] Nomenclature (Little 1979).

Appendix

Index of Tables

Table A.1—Output of industrial products by product and species group, Alabama, 1999 and 2003

Product and species group	Year		Change	Change
	1999	2003		
	thousand cubic feet			*percent*
Saw logs				
Softwood	353,832	335,571	-18,261	-5.2
Hardwood	71,945	69,046	-2,899	-4.0
Total	425,777	404,617	-21,160	-5.0
Veneer logs				
Softwood	85,120	84,767	-353	-0.4
Hardwood	23,903	22,595	-1,308	-5.5
Total	109,023	107,362	-1,661	-1.5
Pulpwood[a]				
Softwood	417,631	342,360	-75,271	-18.0
Hardwood	223,048	178,737	-44,311	-19.9
Total	640,679	521,097	-119,582	-18.7
Other industrial				
Softwood	34,348	43,386	9,038	26.3
Hardwood	315	1,138	823	261.3
Total	34,663	44,524	9,861	28.4
All industrial				
Softwood	890,931	806,084	-84,847	-9.5
Hardwood	319,211	271,516	-47,695	-14.9
Total	1,210,142	1,077,600	-132,542	-11.0
Byproduct output				
Softwood	371,896	330,945	-40,951	-11.0
Hardwood	96,095	78,598	-17,497	-18.2
Total	467,991	409,543	-58,448	-12.5
Total output				
Softwood	1,262,827	1,137,029	-125,798	-10.0
Hardwood	415,306	350,114	-65,192	-15.7
Total	1,678,133	1,487,143	-190,990	-11.4

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (13,815,000 cubic feet in 1999 and 12,395,000 cubic feet in 2003).

Table A.2—Roundwood receipts by product and species group, Alabama, 1999 and 2003

Product and species group	Year 1999	2003	Change	Change
	thousand cubic feet			*percent*
Saw logs				
Softwood	367,685	347,571	-20,114	-5.5
Hardwood	72,405	70,442	-1,963	-2.7
Total	440,090	418,013	-22,077	-5.0
Veneer logs				
Softwood	80,395	83,533	3,138	3.9
Hardwood	21,711	22,493	782	3.6
Total	102,106	106,026	3,920	3.8
Pulpwood[a]				
Softwood	420,900	346,664	-74,236	-17.6
Hardwood	323,212	221,800	-101,412	-31.4
Total	744,112	568,464	-175,648	-23.6
Other industrial				
Softwood	40,430	43,471	3,041	7.5
Hardwood	281	971	690	245.6
Total	40,711	44,442	3,731	9.2
Total output				
Softwood	909,410	821,239	-88,171	-9.7
Hardwood	417,609	315,706	-101,903	-24.4
Total	1,327,019	1,136,945	-190,074	-14.3

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (17,657,000 cubic feet in 1999 and 14,584,000 cubic feet in 2003).

Table A.3—Number of primary wood-using plants by industry, Alabama, 1951 to 2003

Industry	Year 1951	1962	1971	1982	1985	1995	1997	1999	2003
					number				
Sawmills	1,450	555	323	239	250	148	145	121	118
Veneer mills	42	34	32	28	28	23	26	23	23
Pulpmills	7	9	15	16	16	16	16	15	14
Composite panel mills	0	0	0	0	0	1	1	1	2
Other mills	71	47	36	35	47	23	24	21	21
All plants	1,570	645	406	318	341	211	212	181	178

Table A.4—Roundwood receipts by sawmill size, Alabama, 1999 and 2003

Sawmill size class[a]	1999			2003		
	Mills	Volume		Mills	Volume	
mmbf	*number*	*mbf*	*percent*	*number*	*mbf*	*percent*
< 1.0	23	5,015	0	22	4,363	0
1.0 – 4.99	26	65,379	3	33	86,123	4
5.0 – 9.99	23	163,007	7	21	152,584	6
10.0 – 49.99	29	651,268	26	21	418,840	18
> 50	20	1,588,985	64	21	1,688,756	72
Total	121	2,473,654	100	118	2,350,666	100

[a] Based on volume received as opposed to actual capacity.

Table A.5—Roundwood receipts by species and type of mill, Alabama, 2003

Species	All mills	Type of mill				
			Veneer mills			
		Sawmills	Pine plywood	Other veneer	Pulpmills[a]	Other mills
		thousand cubic feet				
Softwood						
Yellow pine	473,781	346,777	83,533	0	NA	43,471
White pine	0	0	0	0	NA	0
Cedar	688	688	0	0	NA	0
Cypress	106	106	0	0	NA	0
Other softwood	0	0	0	0	NA	0
Unclassified	346,664	0	0	0	346,664	0
Total softwoods	821,239	347,571	83,533	0	346,664	43,471
Hardwood						
Blackgum and tupelo	1,396	240	1,075	81	NA	0
Soft maple	551	317	33	8	NA	193
Sweetgum	11,054	3,903	2,830	3,932	NA	389
Yellow-poplar	17,797	10,006	2,326	5,076	NA	389
Other soft hardwood	1,525	423	888	214	NA	0
Hickory	1,444	1,355	33	56	NA	0
Red oak	41,369	36,879	77	4,413	NA	0
White oak	15,288	14,200	33	1,055	NA	0
Other hard hardwood	3,482	3,119	22	341	NA	0
Unclassified	221,800	0	0	0	221,800	0
Total hardwoods	315,706	70,442	7,317	15,176	221,800	971
All species	1,136,945	418,013	90,850	15,176	568,464	44,442

NA = not applicable.

[a] Only collected by softwood and hardwood and includes roundwood chipped.

Table A.6—Industrial roundwood movement by year and species group, Alabama, 1999 and 2003

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
			thousand cubic feet		
			Softwood		
1999	890,931	130,432	760,499	148,911	909,410
2003	806,084	128,250	677,834	143,405	821,239
			Hardwood		
1999	319,211	27,130	292,081	125,528	417,609
2003	271,516	28,314	243,202	72,504	315,706
			All species		
1999	1,210,142	157,562	1,052,580	274,439	1,327,019
2003	1,077,600	156,564	921,036	215,909	1,136,945

Table A.7—Industrial roundwood movement by product and species group, Alabama, 2003

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
			thousand cubic feet		
Saw logs					
Softwood	335,571	43,655	291,916	55,655	347,571
Hardwood	69,046	7,135	61,911	8,531	70,442
Total	404,617	50,790	353,827	64,186	418,013
Veneer logs					
Softwood	84,767	11,249	73,518	10,015	83,533
Hardwood	22,595	3,801	18,794	3,699	22,493
Total	107,362	15,050	92,312	13,714	106,026
Pulpwood[a]					
Softwood	342,360	67,728	274,632	72,032	346,664
Hardwood	178,737	17,211	161,526	60,274	221,800
Total	521,097	84,939	436,158	132,306	568,464
Other industrial					
Softwood	43,386	5,618	37,768	5,703	43,471
Hardwood	1,138	167	971	0	971
Total	44,524	5,785	38,739	5,703	44,442
All products					
Softwood	806,084	128,250	677,834	143,405	821,239
Hardwood	271,516	28,314	243,202	72,504	315,706
Total	1,077,600	156,564	921,036	215,909	1,136,945

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills.

Table A.8—Saw-log volume by destination, source, and species group, Alabama, 2003

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Alabama (retained)	353,827	291,916	61,911
Exports to			
Florida	3,372	3,332	40
Georgia	7,370	6,372	998
Mississippi	35,798	33,761	2,037
Tennessee	4,250	190	4,060
Total	50,790	43,655	7,135
Imports from			
Florida	7,766	7,662	104
Georgia	27,240	26,154	1,086
Kentucky	75	75	0
Mississippi	20,775	14,313	6,462
Tennessee	8,330	7,451	879
Total	64,186	55,655	8,531

Table A.9—Veneer volume by destination, source, and species group, Alabama, 2003

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Alabama (retained)	92,312	73,518	18,794
Exports to			
Georgia	5,679	2,319	3,360
Mississippi	9,371	8,930	441
Total	15,050	11,249	3,801
Imports from			
Florida	3,294	3,175	119
Georgia	1,331	1,156	175
Mississippi	8,178	5,396	2,782
Tennessee	911	288	623
Total	13,714	10,015	3,699

Table A.10—Pulpwood volume by destination, source, and species group, Alabama, 2003[a]

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Alabama (retained)	436,158	274,632	161,526
Exports to			
Florida	22,870	11,192	11,678
Georgia	31,554	28,804	2,750
Louisiana	437	399	38
Mississippi	18,018	17,407	611
North Carolina	1,084	0	1,084
Ohio	377	377	0
Tennessee	10,599	9,549	1,050
Total	84,939	67,728	17,211
Imports from			
Florida	14,112	12,663	1,449
Georgia	49,696	38,899	10,797
Kentucky	12	12	0
Louisiana	58	49	9
Mississippi	34,478	11,771	22,707
Tennessee	33,950	8,638	25,312
Total	132,306	72,032	60,274

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills.

Table A.11—Other industrial volume by destination, source, and species group, Alabama, 2003[a]

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Alabama (retained)	38,739	37,768	971
Exports to			
Florida	158	158	0
Georgia	82	82	0
Kentucky	22	22	0
Mississippi	5,245	5,082	163
Tennessee	151	147	4
Virginia	127	127	0
Total	5,785	5,618	167
Imports from			
Florida	5,184	5,184	0
Mississippi	519	519	0
Total	5,703	5,703	0

[a] Includes composite panels, poles, posts, mulch, firewood, log homes, charcoal, and all other industrial products.

Table A.12—Primary mill residue volume by roundwood type, species group, and residue type, Alabama, 2003

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
		thousand cubic feet			
Saw logs					
Softwood	196,425	31,312	86,307	52,108	26,698
Hardwood	35,933	8,049	12,383	14,781	720
Total	232,358	39,361	98,690	66,889	27,418
Veneer logs					
Softwood	48,797	7,923	19,281	21,593	0
Hardwood	14,812	2,651	5,313	6,848	0
Total	63,609	10,574	24,594	28,441	0
Pulpwood					
Softwood	35,236	35,236	0	0	0
Hardwood	27,766	27,766	0	0	0
Total	63,002	63,002	0	0	0
Other industrial[a]					
Softwood	50,754	31,939	18,815	0	0
Hardwood	251	251	0	0	0
Total	51,005	32,190	18,815	0	0
Total					
Softwood	331,212	106,410	124,403	73,701	26,698
Hardwood	78,762	38,717	17,696	21,629	720
Total	409,974	145,127	142,099	95,330	27,418

[a] Includes poles, pilings, posts, and other industrial products.

Table A.13—Disposal of residue at primary wood-using plants by product, species group, and type of residue, Alabama, 1999 and 2003

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1999	2003	1999	2003	1999	2003	1999	2003	1999	2003
	thousand cubic feet									
Fiber products										
Softwood	123,697	106,956	0	0	120,310	106,909	102	0	3,285	47
Hardwood	17,603	16,254	0	0	17,588	16,254	0	0	15	0
Total	141,300	123,210	0	0	137,898	123,163	102	0	3,300	47
Particleboard										
Softwood	25,790	17,031	0	0	3,013	151	6,613	4,580	16,164	12,300
Hardwood	522	197	0	0	442	197	0	0	80	0
Total	26,312	17,228	0	0	3,455	348	6,613	4,580	16,244	12,300
Sawn products										
Softwood	2,295	0	0	0	2,295	0	0	0	0	0
Hardwood	959	25	0	0	959	25	0	0	0	0
Total	3,254	25	0	0	3,254	25	0	0	0	0
Fuel										
Softwood	191,811	181,687	100,328	92,866	24,146	16,632	60,194	62,772	7,143	9,417
Hardwood	72,500	59,986	49,790	37,411	2,311	1,174	19,086	20,855	1,313	546
Total	264,311	241,673	150,118	130,277	26,457	17,806	79,280	83,627	8,456	9,963
Miscellaneous										
Softwood	28,303	25,271	15,920	13,401	552	658	8,587	6,343	3,244	4,869
Hardwood	4,511	2,136	1,645	1,291	10	10	2,588	661	268	174
Total	32,814	27,407	17,565	14,692	562	668	11,175	7,004	3,512	5,043
Not used										
Softwood	692	267	162	143	65	53	400	6	65	65
Hardwood	132	164	6	15	13	36	113	113	0	0
Total	824	431	168	158	78	89	513	119	65	65
All products										
Softwood	372,588	331,212	116,410	106,410	150,381	124,403	75,896	73,701	29,901	26,698
Hardwood	96,227	78,762	51,441	38,717	21,323	17,696	21,787	21,629	1,676	720
Total	468,815	409,974	167,851	145,127	171,704	142,099	97,683	95,330	31,577	27,418

Table A.14—Roundwood timber product output by product and species group, Southwest South region of Alabama, 1999 and 2003

Product and species group	Year			
	1999	2003	Change	Change
	thousand cubic feet			*percent*
Saw logs				
Softwood	45,657	49,154	3,497	7.7
Hardwood	4,516	2,720	-1,796	-39.8
Total	50,173	51,874	1,701	3.4
Veneer logs				
Softwood	6,914	14,196	7,282	105.3
Hardwood	1,525	2,100	575	37.7
Total	8,439	16,296	7,857	93.1
Pulpwood[a]				
Softwood	48,199	30,873	-17,326	-35.9
Hardwood	20,519	17,701	-2,818	-13.7
Total	68,718	48,574	-20,144	-29.3
Other industrial				
Softwood	6,631	5,496	-1,135	-17.1
Hardwood	0	0	0	—
Total	6,631	5,496	-1,135	-17.1
All industrial				
Softwood	107,401	99,719	-7,682	-7.2
Hardwood	26,560	22,521	-4,039	-15.2
Total	133,961	122,240	-11,721	-8.7

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (468,000 cubic feet in 1999 and 783,000 cubic feet in 2003).

Table A.15—Roundwood timber product output by county, product, and species group, Southwest South region of Alabama, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Baldwin	20,959	3,588	10,169	255	1,504	488	7,499	2,845	1,787	0
Covington	16,986	3,252	6,027	838	2,579	473	7,597	1,941	783	0
Escambia	23,957	4,704	8,699	725	5,770	107	8,181	3,872	1,307	0
Mobile	12,020	5,848	6,947	466	1,747	532	2,454	4,850	872	0
Washington	25,797	5,129	17,312	436	2,596	500	5,142	4,193	747	0
All counties	99,719	22,521	49,154	2,720	14,196	2,100	30,873	17,701	5,496	0

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (783,000 cubic feet in 2003).

Table A.16—Roundwood timber product output by product and species group, Southwest North region of Alabama, 1999 and 2003

Product and species group	Year		Change	Change
	1999	2003		
	- - - - - - thousand cubic feet - - - - - -			*percent*
Saw logs				
Softwood	95,661	100,737	5,076	5.3
Hardwood	19,830	13,611	-6,219	-31.4
Total	115,491	114,348	-1,143	-1.0
Veneer logs				
Softwood	30,924	33,313	2,389	7.7
Hardwood	6,875	8,628	1,753	25.5
Total	37,799	41,941	4,142	11.0
Pulpwood[a]				
Softwood	98,031	105,486	7,455	7.6
Hardwood	56,285	49,483	-6,802	-12.1
Total	154,316	154,969	653	0.4
Other industrial				
Softwood	4,527	4,431	-96	-2.1
Hardwood	0	0	0	—
Total	4,527	4,431	-96	-2.1
All industrial				
Softwood	229,143	243,967	14,824	6.5
Hardwood	82,990	71,722	-11,268	-13.6
Total	312,133	315,689	3,556	1.1

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,078,000 cubic feet in 1999 and 2,080,000 cubic feet in 2003).

Table A.17—Roundwood timber product output by county, product, and species group, Southwest North region of Alabama, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Choctaw	36,383	10,717	13,430	1,159	3,600	1,251	18,752	8,307	601	0
Clarke	48,893	20,683	20,324	2,831	6,131	2,986	21,285	14,866	1,153	0
Conecuh	35,416	5,887	11,614	1,953	10,308	0	13,044	3,934	450	0
Marengo	29,135	11,955	14,961	4,584	3,967	1,413	9,866	5,958	341	0
Monroe	39,831	9,687	15,359	1,719	5,422	1,344	18,113	6,624	937	0
Sumter	25,863	6,502	15,028	550	1,916	826	8,640	5,126	279	0
Wilcox	28,446	6,291	10,021	815	1,969	808	15,786	4,668	670	0
All counties	243,967	71,722	100,737	13,611	33,313	8,628	105,486	49,483	4,431	0

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,080,000 cubic feet in 2003).

Table A.18—Roundwood timber product output by product and species group, Southeast region of Alabama, 1999 and 2003

Product and species group	Year		Change	Change
	1999	2003		
	- - - - - thousand cubic feet - - - - - -			*percent*
Saw logs				
Softwood	69,853	76,823	6,970	10.0
Hardwood	12,328	20,242	7,914	64.2
Total	82,181	97,065	14,884	18.1
Veneer logs				
Softwood	24,061	17,068	-6,993	-29.1
Hardwood	8,156	7,466	-690	-8.5
Total	32,217	24,534	-7,683	-23.8
Pulpwood[a]				
Softwood	151,448	114,784	-36,664	-24.2
Hardwood	58,670	42,936	-15,734	-26.8
Total	210,118	157,720	-52,398	-24.9
Other industrial				
Softwood	2,549	2,340	-209	-8.2
Hardwood	0	0	0	—
Total	2,549	2,340	-209	-8.2
All industrial				
Softwood	247,911	211,015	-36,896	-14.9
Hardwood	79,154	70,644	-8,510	-10.8
Total	327,065	281,659	-45,406	-13.9

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (4,313,000 cubic feet in 1999 and 4,818,000 cubic feet in 2003).

Table A.19—Roundwood timber product output by county, product, and species group, Southeast region of Alabama, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Autauga	7,956	2,254	1,303	857	0	85	6,624	1,312	29	0
Barbour	15,011	4,230	6,073	645	0	396	8,938	3,189	0	0
Bullock	14,332	2,319	6,862	840	772	972	6,698	507	0	0
Butler	29,464	4,111	10,791	388	6,534	1,148	11,620	2,575	519	0
Chambers	9,174	6,386	5,417	1,793	370	540	3,387	4,053	0	0
Chilton	8,194	2,420	2,533	793	1,317	73	4,217	1,554	127	0
Coffee	10,267	2,224	3,416	54	865	0	5,980	2,170	6	0
Crenshaw	9,934	3,051	2,122	1,166	991	208	6,739	1,677	82	0
Dale	5,005	2,640	3,008	319	0	456	1,997	1,865	0	0
Dallas	15,288	3,803	6,430	895	340	115	8,478	2,793	40	0
Elmore	6,215	2,104	361	895	614	328	5,240	881	0	0
Geneva	5,040	756	344	53	0	121	4,141	582	555	0
Henry	4,693	3,174	1,670	288	0	413	2,472	2,473	551	0
Houston	3,080	2,124	785	185	0	745	1,882	1,194	413	0
Lee	8,507	2,702	4,939	1,011	174	0	3,394	1,691	0	0
Lowndes	6,939	3,081	2,373	1,274	1,224	404	3,336	1,403	6	0
Macon	5,921	5,074	3,112	3,644	263	332	2,546	1,098	0	0
Montgomery	5,602	6,212	1,643	2,565	804	526	3,149	3,121	6	0
Pike	15,080	3,791	5,095	668	1,093	364	8,886	2,759	6	0
Russell	8,490	4,347	3,617	1,265	0	51	4,873	3,031	0	0
Tallapoosa	16,823	3,841	4,929	644	1,707	189	10,187	3,008	0	0
All counties	211,015	70,644	76,823	20,242	17,068	7,466	114,784	42,936	2,340	0

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (4,818,000 cubic feet in 2003).

Table A.20—Roundwood timber product output by product and species group, West Central region of Alabama, 1999 and 2003

Product and species group	Year			
	1999	2003	Change	Change
	- - - - - thousand cubic feet - - - - -			*percent*
Saw logs				
Softwood	73,747	55,031	-18,716	-25.4
Hardwood	13,530	10,987	-2,543	-18.8
Total	87,277	66,018	-21,259	-24.4
Veneer logs				
Softwood	6,680	3,150	-3,530	-52.8
Hardwood	3,758	2,134	-1,624	-43.2
Total	10,438	5,284	-5,154	-49.4
Pulpwood[a]				
Softwood	37,494	32,469	-5,025	-13.4
Hardwood	28,768	20,225	-8,543	-29.7
Total	66,262	52,694	-13,568	-20.5
Other industrial				
Softwood	6,422	12,278	5,856	91.2
Hardwood	0	210	210	—
Total	6,422	12,488	6,066	94.5
All industrial				
Softwood	124,343	102,928	-21,415	-17.2
Hardwood	46,056	33,556	-12,500	-27.1
Total	170,399	136,484	-33,915	-19.9

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (3,756,000 cubic feet in 1999 and 2,439,000 cubic feet in 2003).

Table A.21—Roundwood timber product output by county, product, and species group, West Central region of Alabama, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Bibb	17,019	4,101	6,421	1,196	542	456	5,160	2,449	4,896	0
Fayette	9,023	3,657	5,538	1,128	161	103	2,126	2,348	1,198	78
Greene	10,709	3,993	7,364	846	703	629	2,467	2,518	175	0
Hale	8,314	3,729	4,311	844	336	359	3,483	2,526	184	0
Lamar	10,404	1,810	5,473	1,512	161	34	1,641	258	3,129	6
Marion	10,959	2,646	3,552	638	48	34	6,366	1,877	993	97
Perry	13,325	3,884	4,405	832	424	248	7,773	2,804	723	0
Pickens	10,400	3,106	8,160	1,755	517	237	1,518	1,114	205	0
Tuscaloosa	12,775	6,630	9,807	2,236	258	34	1,935	4,331	775	29
All counties	102,928	33,556	55,031	10,987	3,150	2,134	32,469	20,225	12,278	210

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,439,000 cubic feet in 2003).

Table A.22—Roundwood timber product output by product and species group, North Central region of Alabama, 1999 and 2003

Product and species group	Year		Change	Change
	1999	2003		
	- - - - - thousand cubic feet - - - - - -			*percent*
Saw logs				
Softwood	59,820	43,508	-16,312	-27.3
Hardwood	8,956	10,510	1,554	17.4
Total	68,776	54,018	-14,758	-21.5
Veneer logs				
Softwood	15,706	16,318	612	3.9
Hardwood	3,266	2,030	-1,236	-37.8
Total	18,972	18,348	-624	-3.3
Pulpwood[a]				
Softwood	69,455	48,673	-20,782	-29.9
Hardwood	36,277	30,629	-5,648	-15.6
Total	105,732	79,302	-26,430	-25.0
Other industrial				
Softwood	13,434	15,542	2,108	15.7
Hardwood	301	759	458	152.2
Total	13,735	16,301	2,566	18.7
All industrial				
Softwood	158,415	124,041	-34,374	-21.7
Hardwood	48,800	43,928	-4,872	-10.0
Total	207,215	167,969	-39,246	-18.9

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,819,000 cubic feet in 1999 and 2,019,000 cubic feet in 2003).

Table A.23—Roundwood timber product output by county, product, and species group, North Central region of Alabama, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Blount	5,443	2,502	1,879	134	521	0	215	2,211	2,828	157
Calhoun	4,751	2,755	1,166	99	1,532	0	1,648	2,637	405	19
Cherokee	6,409	1,178	2,001	425	722	0	3,333	734	353	19
Clay	6,884	3,170	1,935	916	1,274	0	3,675	2,254	0	0
Cleburne	12,253	2,262	3,399	329	3,063	148	5,555	1,776	236	9
Coosa	14,067	5,591	4,684	1,854	2,545	333	6,645	3,395	193	9
Cullman	3,914	3,058	1,421	1,119	0	0	726	1,841	1,767	98
Etowah	4,954	1,311	1,955	141	722	0	846	1,092	1,431	78
Jefferson	6,591	2,617	3,598	1,046	103	233	1,132	1,280	1,758	58
Randolph	7,287	1,806	1,800	228	1,526	148	3,961	1,430	0	0
St. Clair	8,301	3,592	2,656	175	1,161	0	1,821	3,270	2,663	147
Shelby	10,115	2,236	4,994	808	464	207	3,455	1,202	1,202	19
Talladega	9,301	2,974	1,874	1,057	2,518	961	3,283	868	1,626	88
Walker	14,759	4,938	5,898	808	64	0	8,070	4,091	727	39
Winston	9,012	3,938	4,248	1,371	103	0	4,308	2,548	353	19
All counties	124,041	43,928	43,508	10,510	16,318	2,030	48,673	30,629	15,542	759

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (2,019,000 cubic feet in 2003).

Table A.24—Roundwood timber product output by product and species group, North region of Alabama, 1999 and 2003

Product and species group	Year 1999	2003	Change	Change
	- - - - - thousand cubic feet - - - -			*percent*
Saw logs				
Softwood	9,094	10,318	1,224	13.5
Hardwood	12,785	10,976	-1,809	-14.1
Total	21,879	21,294	-585	-2.7
Veneer logs				
Softwood	835	722	-113	-13.5
Hardwood	323	237	-86	-26.6
Total	1,158	959	-199	-17.2
Pulpwood[a]				
Softwood	13,004	10,075	-2,929	-22.5
Hardwood	22,529	17,763	-4,766	-21.2
Total	35,533	27,838	-7,695	-21.7
Other industrial				
Softwood	785	3,299	2,514	320.3
Hardwood	14	169	155	1,107.1
Total	799	3,468	2,669	334.0
All industrial				
Softwood	23,718	24,414	696	2.9
Hardwood	35,651	29,145	-6,506	-18.2
Total	59,369	53,559	-5,810	-9.8

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (381,000 cubic feet in 1999 and 256,000 cubic feet in 2003).

Table A.25—Roundwood timber product output by county, product, and species group, North region of Alabama, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet									
Colbert	3,764	1,855	1,432	494	0	0	2,332	1,361	0	0
De Kalb	4,319	3,173	1,651	1,099	722	53	1,063	1,972	883	49
Franklin	4,191	2,189	1,582	308	0	0	2,609	1,881	0	0
Jackson	3,059	7,818	938	3,286	0	150	1,294	4,348	827	34
Lauderdale	2,181	3,679	1,837	1,808	0	34	344	1,837	0	0
Lawrence	1,459	2,000	231	529	0	0	1,052	1,462	176	9
Limestone	883	1,679	142	1,074	0	0	741	605	0	0
Madison	1,381	1,431	1,054	1,038	0	0	151	384	176	9
Marshall	1,773	2,574	964	598	0	0	102	1,937	707	39
Morgan	1,404	2,747	487	742	0	0	387	1,976	530	29
All counties	24,414	29,145	10,318	10,976	722	237	10,075	17,763	3,299	169

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (256,000 cubic feet in 2003).

Table A.26—Total roundwood output by product, species group, and source of material, Alabama, 2003

Product and species group	All sources	Growing-stock trees			Other sources
		Total	Sawtimber	Poletimber	
	thousand cubic feet				
Saw logs					
Softwood	335,571	324,269	304,365	19,904	11,302
Hardwood	69,046	67,429	64,057	3,371	1,617
Total	404,617	391,698	368,422	23,276	12,919
Veneer logs and bolts					
Softwood	84,767	82,198	78,046	4,153	2,569
Hardwood	22,595	22,205	22,205	0	390
Total	107,362	104,403	100,250	4,153	2,959
Pulpwood					
Softwood	342,360	307,902	159,061	148,840	34,458
Hardwood	178,737	157,253	81,382	75,871	21,484
Total	521,097	465,155	240,443	224,711	55,942
Poles and posts					
Softwood	20,501	19,668	18,895	773	833
Hardwood	0	0	0	0	0
Total	20,501	19,668	18,895	773	833
Other miscellaneous					
Softwood	22,885	20,259	11,834	8,425	2,626
Hardwood	1,138	1,007	588	419	131
Total	24,023	21,267	12,423	8,844	2,756
Total industrial products					
Softwood	806,084	754,297	572,201	182,095	51,787
Hardwood	271,516	247,893	168,232	79,661	23,623
Total	1,077,600	1,002,190	740,434	261,757	75,410
Fuelwood					
Softwood	2,847	1,294	882	412	1,553
Hardwood	18,247	14,033	12,227	1,806	4,214
Total	21,094	15,327	13,109	2,218	5,767
All products					
Softwood	808,931	755,590	573,083	182,507	53,341
Hardwood	289,763	261,927	180,460	81,467	27,836
Total	1,098,694	1,017,517	753,543	263,974	81,177

Numbers in rows and columns may not add due to rounding.

Table A.27—Total roundwood output by species group, survey region, and ownership class, Alabama, 2003

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
		thousand cubic feet		
Softwoods				
Southwest South	100,071	853	24,072	75,146
Southwest North	244,828	6,122	79,000	159,706
Southeast	211,761	1,107	75,496	135,158
West Central	103,292	1,051	33,589	68,652
North Central	124,479	2,841	27,664	93,974
North	24,500	326	3,664	20,509
Total softwoods	808,931	12,300	243,485	553,146
Hardwoods				
Southwest South	24,035	175	9,063	14,797
Southwest North	76,542	561	20,006	55,975
Southeast	75,390	201	12,482	62,707
West Central	35,813	1,211	6,151	28,450
North Central	46,880	1,080	6,826	38,974
North	31,103	1,245	890	28,967
Total hardwoods	289,763	4,473	55,418	229,871
All species	1,098,694	16,773	298,904	783,017

Table A.28—Total roundwood output by species group, detailed species group, and product, Alabama, 2003

Species group and detailed species group	Total	Product					
		Saw logs	Veneer logs	Pulpwood	Poles and posts	Other miscellaneous	Fuelwood
		thousand cubic feet					
Softwood							
Cedar	3,045	1,396	281	1,277	50	30	11
Longleaf-slash pine	117,158	51,098	16,145	43,749	5,361	392	412
Loblolly-shortleaf pine	650,683	266,819	65,523	281,700	14,454	19,897	2,290
Other yellow pines	37,446	15,955	2,765	15,442	587	2,565	132
Cypress	599	303	53	192	49	0	2
Total softwoods	808,931	335,571	84,767	342,360	20,501	22,885	2,847
Hardwood							
Soft maple	6,578	1,597	486	4,049	0	31	414
Hard maple	633	218	18	354	0	2	40
Other birch	1,097	449	72	499	0	7	69
Hickory	20,557	6,239	1,261	11,642	0	121	1,295
Beech	1,201	322	104	689	0	10	76
Ash	4,399	917	435	2,764	0	5	277
Sweetgum	55,169	12,952	4,908	33,699	0	135	3,474
Yellow-poplar	25,473	6,563	1,930	15,278	0	97	1,604
Blackgum-tupelo	12,509	2,076	1,088	8,532	0	25	788
Sycamore	1,686	518	176	883	0	2	106
Black cherry	1,929	580	122	1,086	0	20	121
Select white oaks	24,463	6,564	1,237	15,000	0	122	1,540
Other white oaks	18,823	4,380	986	12,115	0	156	1,185
Select red oaks	7,767	1,582	672	4,972	0	52	489
Other red oaks	80,031	18,294	6,347	50,043	0	308	5,040
Basswood	418	127	34	229	0	1	26
Elm	3,599	852	420	2,093	0	7	227
Other Eastern hardwoods	23,431	4,814	2,298	14,807	0	35	1,476
Total hardwoods	289,763	69,046	22,595	178,737	0	1,138	18,247
All species	1,098,694	404,617	107,362	521,097	20,501	24,023	21,094

Numbers in rows and columns may not add due to rounding.

Table A.29—Total roundwood output by species group, detailed species group, and ownership class, Alabama, 2003

Species group and detailed species group	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
		thousand cubic feet		
Softwood				
Cedar	3,045	79	739	2,227
Longleaf-slash pine	117,158	1,046	36,019	80,094
Loblolly-shortleaf pine	650,683	10,334	199,106	441,243
Other yellow pines	37,446	831	7,438	29,177
Cypress	599	11	183	405
Total softwoods	808,931	12,300	243,485	553,146
Hardwood				
Soft maple	6,578	67	1,209	5,302
Hard maple	633	21	18	595
Other birch	1,097	38	114	945
Hickory	20,557	352	2,758	17,447
Beech	1,201	8	180	1,013
Ash	4,399	92	1,135	3,172
Sweetgum	55,169	684	11,644	42,840
Yellow-poplar	25,473	331	4,607	20,534
Blackgum-tupelo	12,509	122	4,719	7,668
Sycamore	1,686	6	504	1,176
Black cherry	1,929	6	230	1,692
Select white oaks	24,463	495	3,179	20,790
Other white oaks	18,823	487	2,902	15,435
Select red oaks	7,767	231	1,311	6,226
Other red oaks	80,031	1,319	14,071	64,641
Basswood	418	0	115	303
Elm	3,599	37	817	2,745
Other Eastern hardwoods	23,431	177	5,907	17,347
Total hardwoods	289,763	4,473	55,418	229,871
All species	1,098,694	16,773	298,904	783,017

Numbers in rows and columns may not add due to rounding.

The Forest Service, U.S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

Bentley, J.W.; Cartwright, W.E. 2006. Alabama's timber industry—an assessment of timber product output and use, 2003. Resour. Bull. SRS–107. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 45 p.

In 2003, roundwood output from Alabama's forests totaled 1.08 billion cubic feet. Mill byproducts generated from primary manufacturers amounted to 410 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Pulpwood was the leading roundwood product at 521 million cubic feet; saw logs ranked second at 404 million cubic feet; veneer logs were third at 107 million cubic feet. The number of primary processing plants was 178. Total receipts amounted to 1.1 billion cubic feet.

Keywords: FIA, pulpwood, residues, roundwood, saw logs, veneer logs, wood movement.

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