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**Southern
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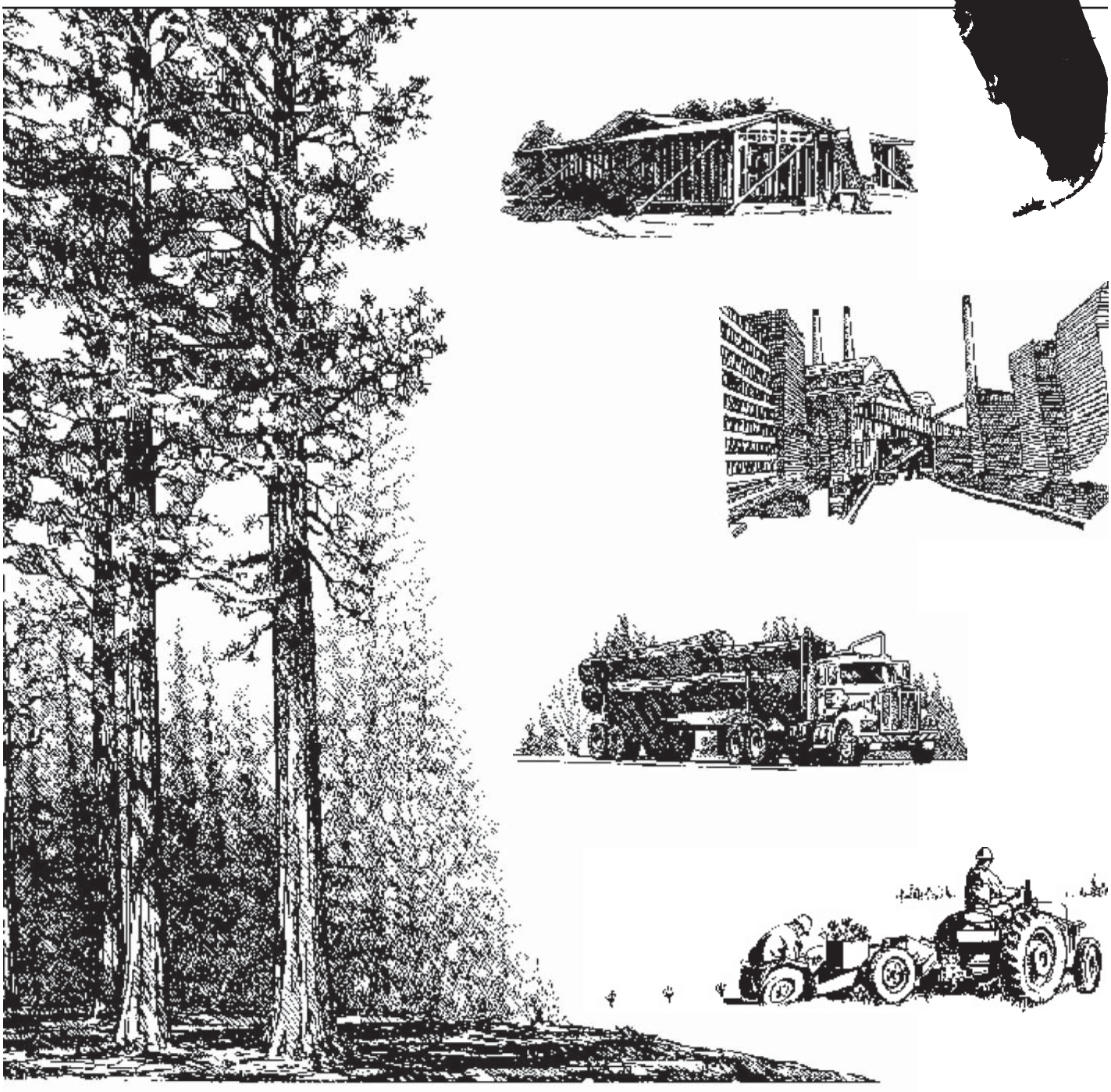
Florida's Timber Industry—An Assessment of Timber Product Output and Use, 2003

James W. Bentley, Michael Howell, and Tony G. Johnson



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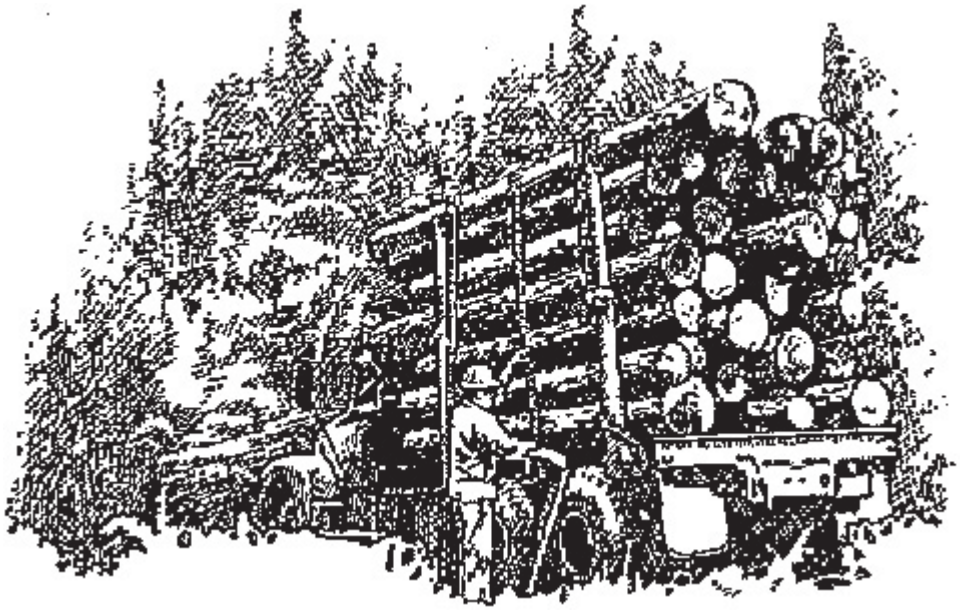

July 2006

Southern Research Station
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Foreword

This report contains the findings of a 2003 canvass of all primary wood-using plants in Florida, and presents changes in product output and residue use since 1999. It complements the Forest Inventory and Analysis (FIA) 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 100-percent canvass of all wood processors in Florida 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 Florida timberland was incorporated into Florida 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 1958, 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.

For inventory and reporting purposes, FIA divides Florida into four survey regions: Northeast, Northwest, Central, and South. Because output of industrial roundwood products from the South region is much smaller than output from the other regions, the Central and South regions were combined for reporting purposes in this bulletin and are referred to as "Central and South Florida."

Acknowledgments

The authors thank Britton Evans for review and comments; Joe McCollum and Sonja Oswalt for the maps; Anne Jenkins, Sharon Johnson, Charlene Walker, and Janet Griffin for tables, graphs, and statistical checking; 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 University of Florida and Florida Department of Agriculture and Consumer Services, Division of Marketing and Utilization 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 (FIA) Research Work Unit of the U.S. Department of Agriculture Forest Service (USDA Forest Service) developed the Timber Product Output (TPO) Database Retrieval System to help customers answer questions about timber harvesting and use in the Southern region. 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://srsfia2.fs.fed.us/php/tpo2/tpo.php.

The database is well documented and easy to use. 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 two sections to assist the user in making specific data requests. In section 1, the user is asked to define the resource area, and section 2 generates tables for the specified area. In each section, the user is asked to supply specific input 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 an 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 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.

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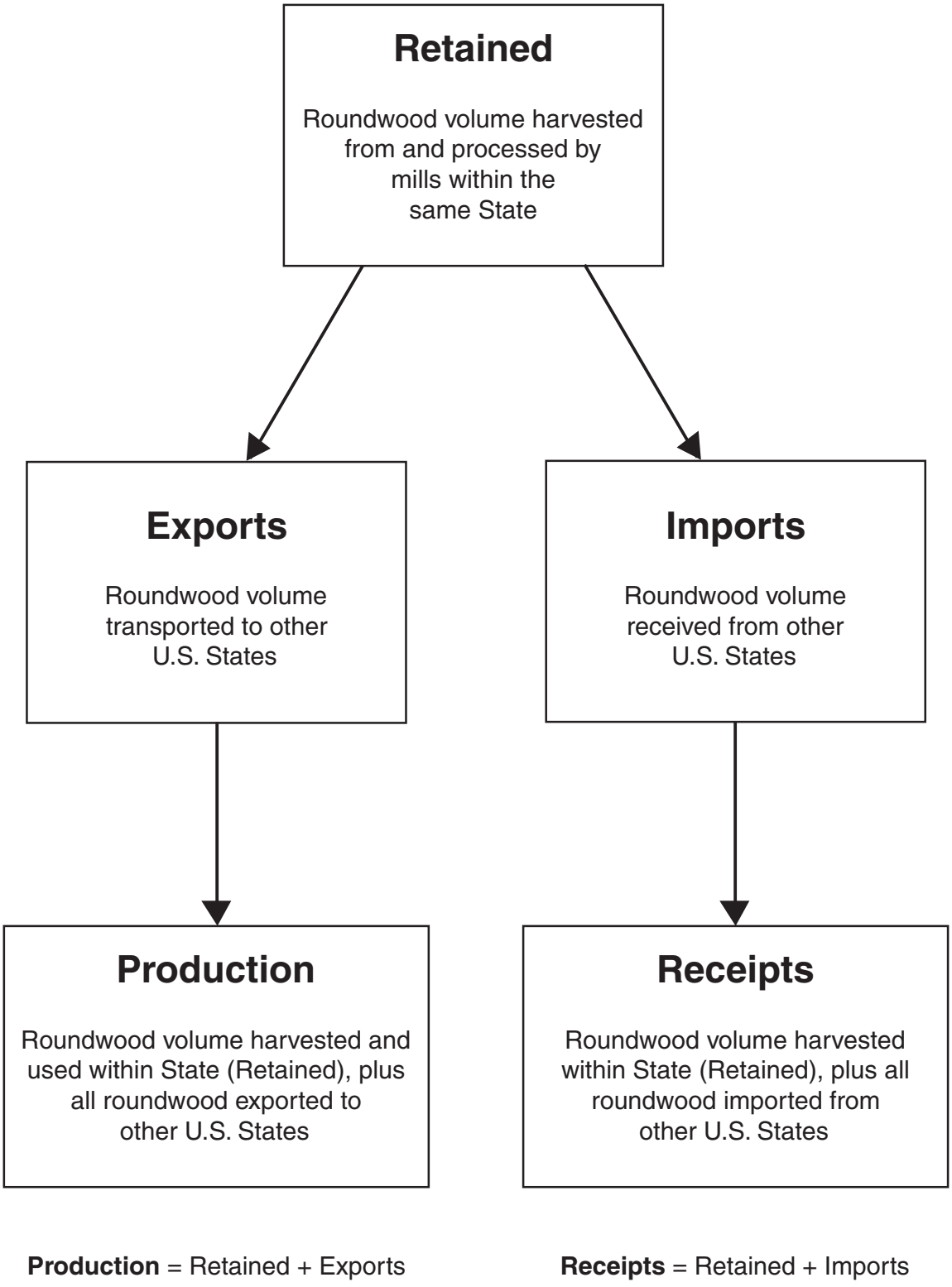

Figure 1—Movement of roundwood exports and imports within the United States.

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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 increased from 650 to 659 million cubic feet.
- TPO from roundwood was up 10 million cubic feet, or 2 percent, while output of plant byproducts dropped 1.3 million cubic feet.
- Output of softwood roundwood products was up 5 percent to 469 million cubic feet, while hardwood roundwood products decreased 24 percent to 40 million cubic feet (fig. 2).
- Figures 3 and 4 display softwood and hardwood county-level intensity of roundwood production for all industrial products across Florida. 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 both softwood and hardwood the darkest shade represents more than 36 cubic feet of production per acre.
- Pulpwood and saw logs were the principal roundwood products in 2003. Combined output of these products totaled 441 million cubic feet and accounted for 87 percent of Florida's total roundwood output (fig. 5).
- Total receipts at Florida mills, which included roundwood harvested and retained in the State, and roundwood imported from other States, declined 2 percent to 484 million cubic feet. At the same time, the number of primary roundwood-using plants in Florida declined from 93 in 1999 to 92 in 2003.

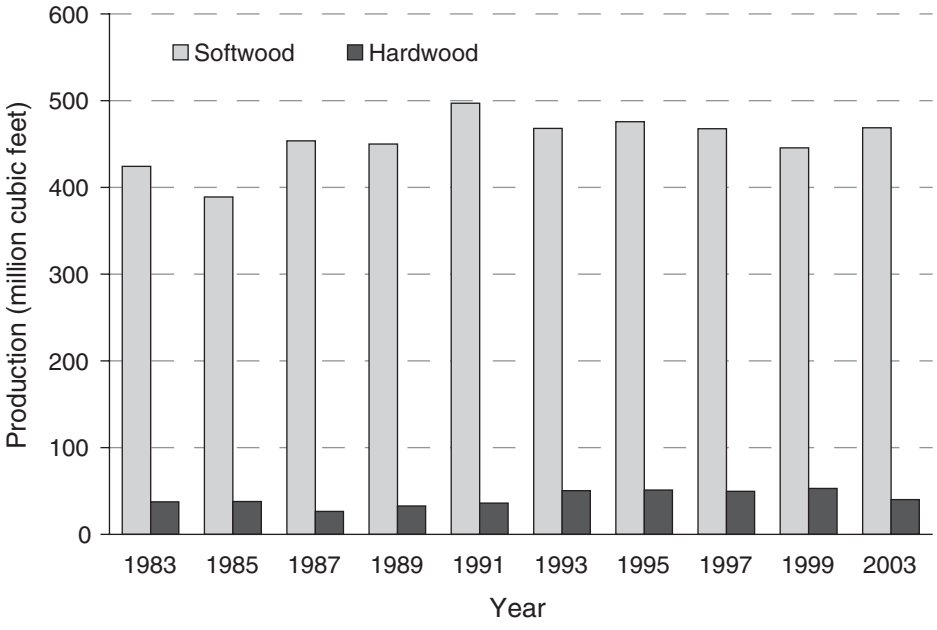

Figure 2—Roundwood production for all products by species group and year (see page 11 for references for individual years).

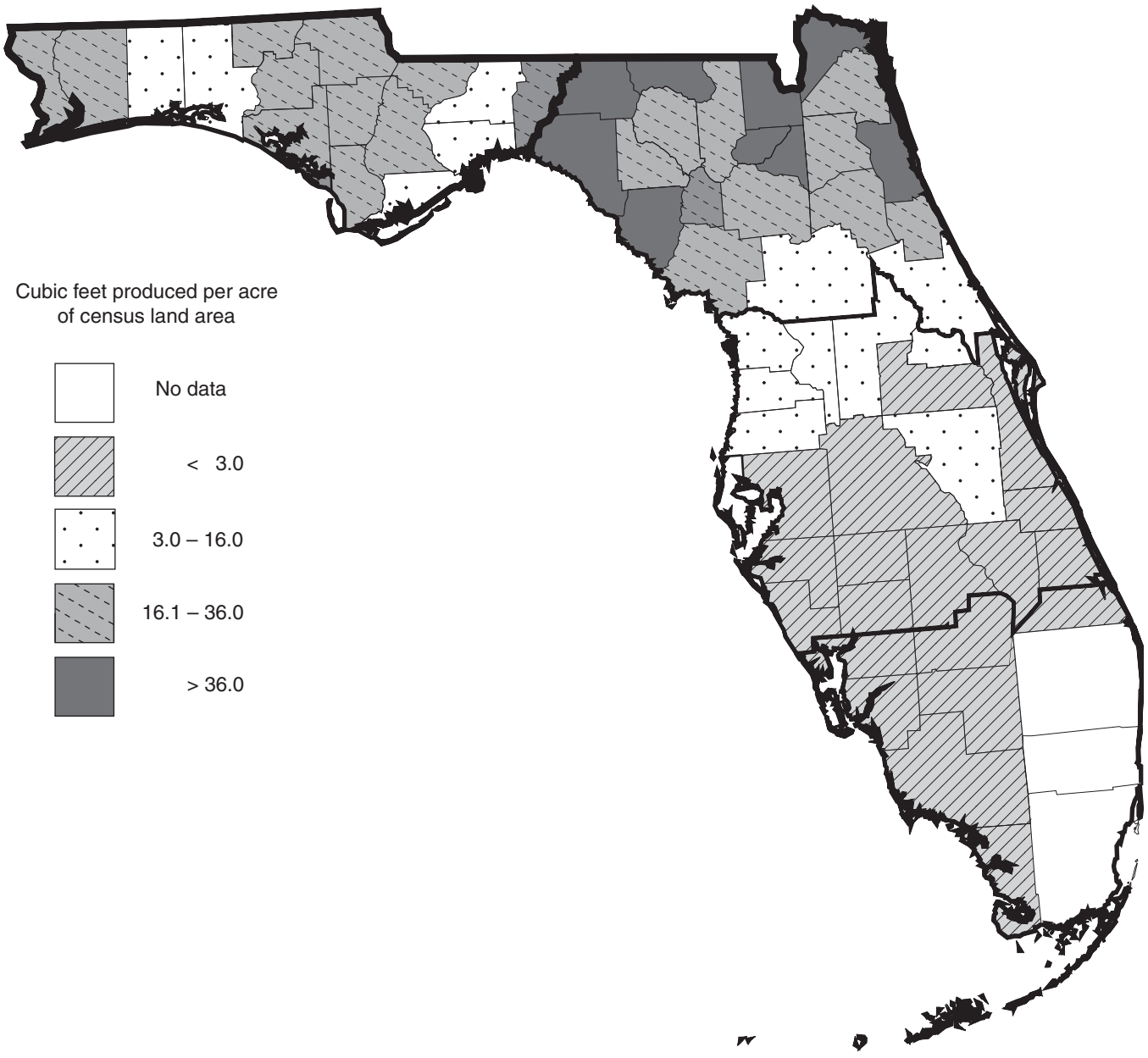

Figure 3—Intensity of roundwood softwood output for all industrial products in Florida by county, 2003.

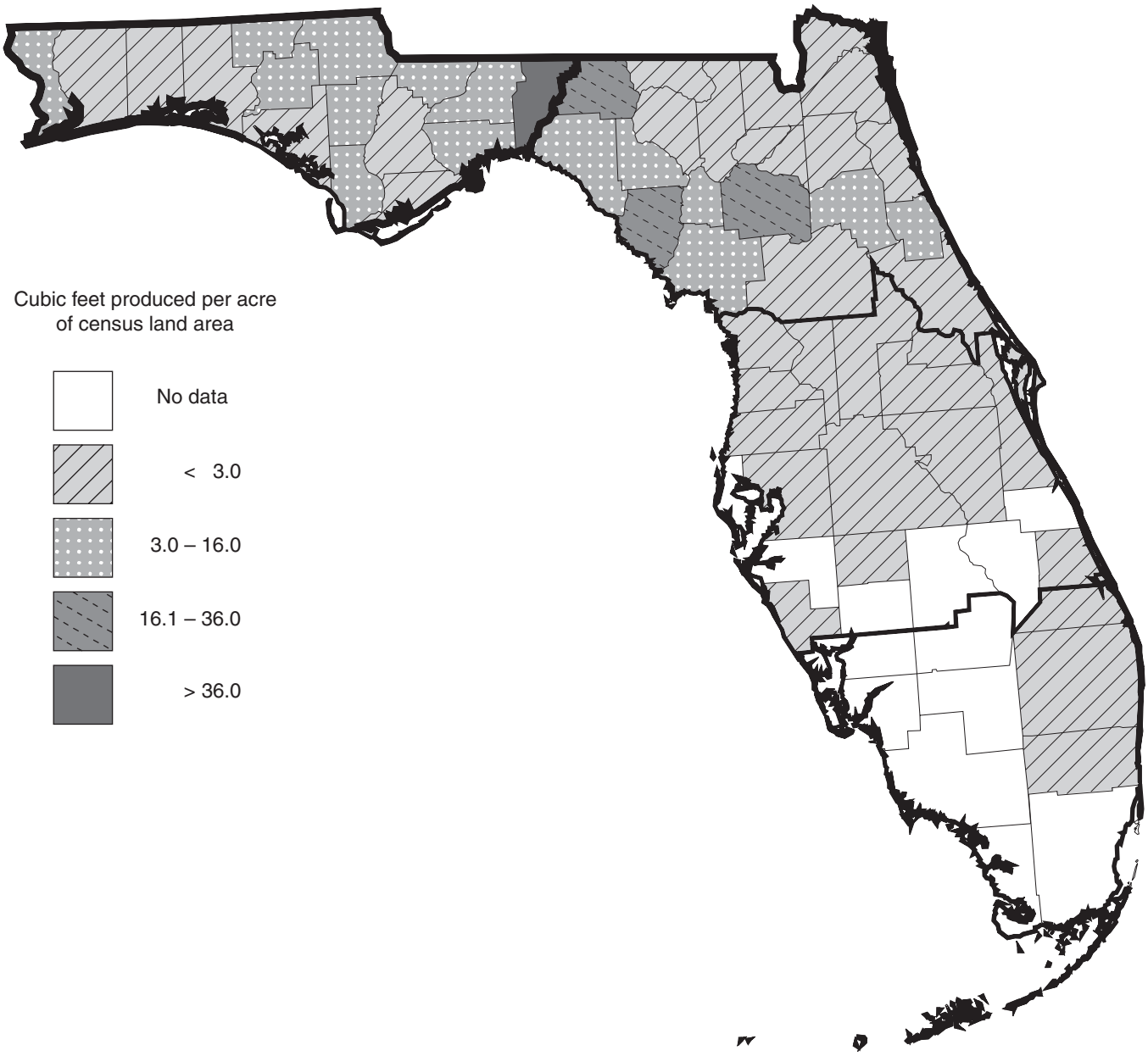

Figure 4—Intensity of roundwood hardwood output for all industrial products in Florida by county, 2003.

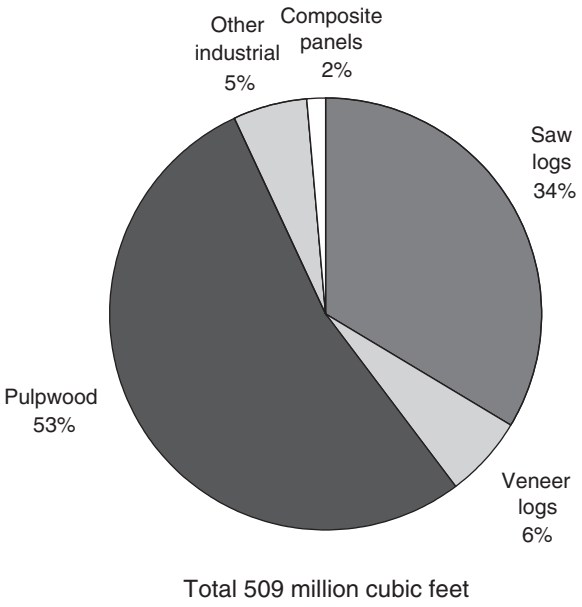

Figure 5—Roundwood production by type of product, 2003.

Pulpwood

- Total pulpwood production, including chipped roundwood, was up 9.4 million cubic feet to 271 million cubic feet (3.8 million cords), but still accounted for 53 percent of the State's total roundwood TPO. Softwood output was up 10 percent to 244 million cubic feet; hardwood output decreased 31 percent to 27 million cubic feet (fig. 6).

- Six pulpmills were operating and receiving roundwood in Florida in 2003, the same as in 1999. Total pulpwood receipts for these mills declined 14 million cubic feet to 273 million cubic feet, accounting for 56 percent of total receipts for all mills.

- Seventy-six percent of roundwood cut for pulpwood was retained for processing at Florida pulpmills. Roundwood pulpwood accounted for 61 percent of total known exports and 82 percent of total imports. Roundwood pulpwood imports amounted to 69 million cubic feet, 2 million cubic feet more than was exported.

Saw Logs

- Saw logs accounted for 34 percent of the State's total roundwood products. Output of softwood saw logs

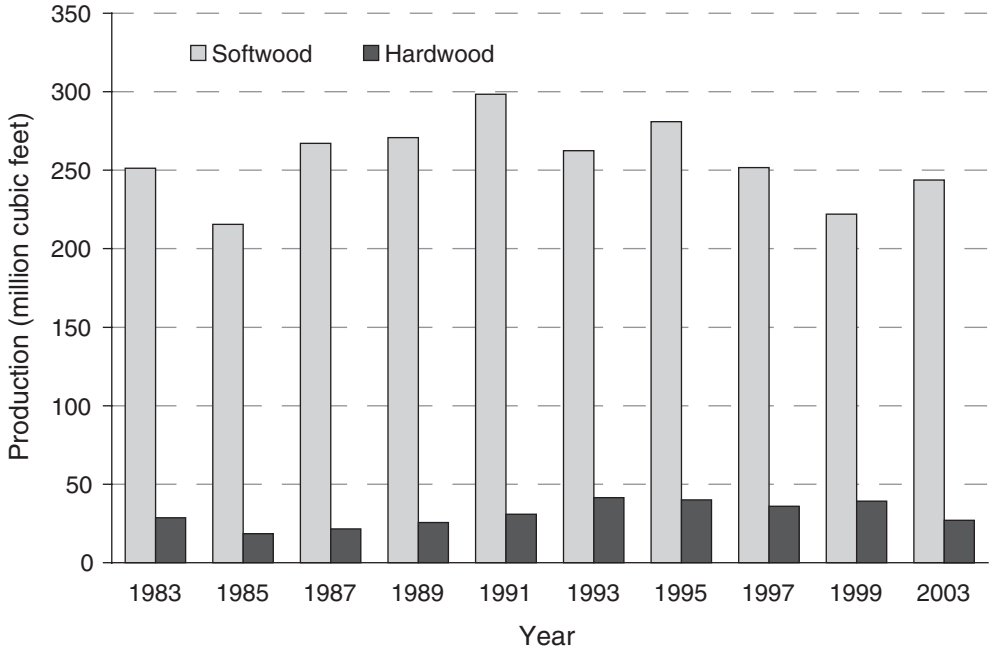

Figure 6—Roundwood pulpwood production by species group and year (see page 11 for references for individual years).

increased 2 percent to 166 million cubic feet (869 million board feet, International ¼-inch rule), while that of hardwood saw logs increased 1.6 percent to 4.5 million cubic feet (27 million board feet, International ¼-inch rule) (fig. 7).

- In 2003, Florida had 53 sawmills, the same as in 1999. Total saw-log receipts increased 5.2 million cubic feet to 154 million cubic feet. Softwood saw-log receipts were up 4 percent to 150 million cubic feet, while those of hardwoods were down 16 percent to 3.9 million cubic feet. Of the 53 mills operating in 2003, 45 percent had receipts of < 1 million board feet. Thirty percent, or 16 mills, had receipts > 10 million board feet and accounted for 93 percent of saw-log receipts.

- Florida retained 86 percent of its saw-log production for domestic manufacture; saw-log exports exceeded imports by more than 16 million cubic feet in 2003.

Veneer Logs

- Output of veneer logs in 2003 totaled 32 million cubic feet and accounted for 6 percent of the State's total roundwood TPO volume. Softwood veneer production declined 7 percent to 30.5 million cubic feet (177 million board feet, International ¼-inch rule), while output of hardwood veneer logs increased 19 percent to 1.4 million cubic feet (8.9 million board feet, International ¼-inch rule) (fig. 8).

- The number of veneer mills operating in Florida dropped from four in 1999 to three in 2003. Total veneer-log receipts decreased 3 percent to 35 million cubic feet. Softwood receipts were down 3 percent to 34 million cubic feet, while hardwood receipts were down 7 percent to 831 thousand cubic feet.

- Florida retained 88 percent of its veneer-log production for processing at domestic veneer mills. Imports amounted to 6.4 million cubic feet, while exports totaled 3.8 million cubic feet, making the State a net importer of roundwood veneer logs.

Other Industrial Products

- Roundwood harvested for other industrial uses, such as poles, posts, mulch, firewood, logs for log homes, and all other industrial products, declined 3 percent to 27.6 million cubic feet. Softwood made up 97 percent of the other industrial product volume (fig. 9).

- Between 1999 and 2003, the number of plants producing other industrial products remained at 30. At the same time, combined receipts of both softwood and hardwood other industrial products fell 2 percent to 22 million cubic feet.

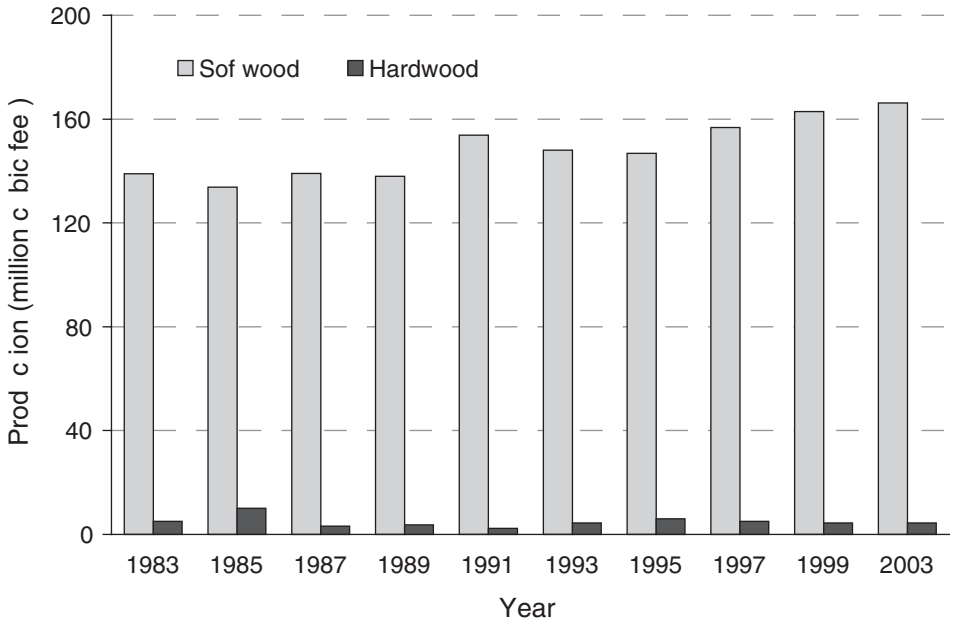

Figure 7—Roundwood saw-log production by species group and year (see page 11 for references for individual years).

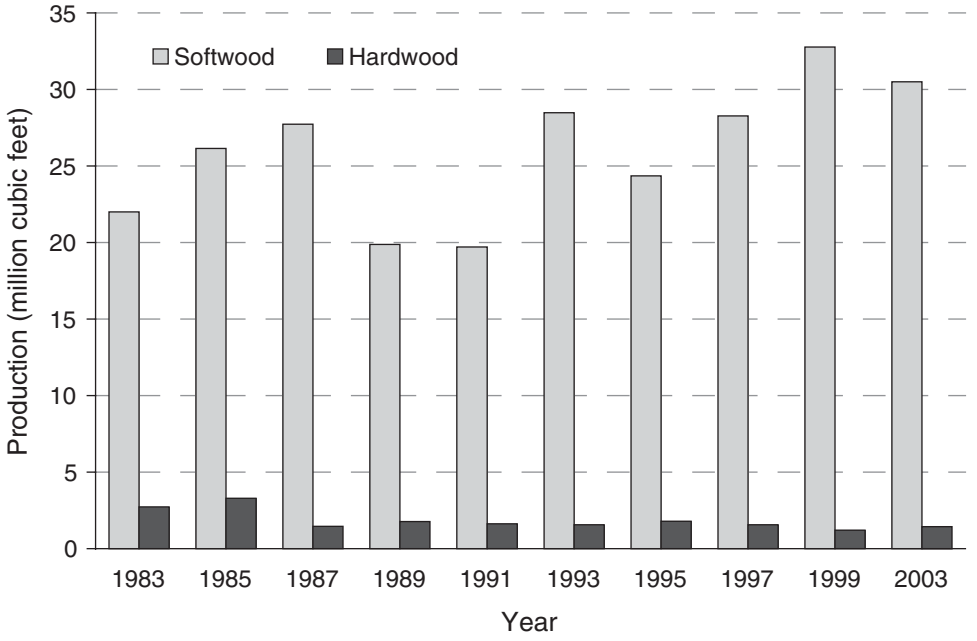

Figure 8—Roundwood veneer-log production by species group and year (see page 11 for references for individual years).

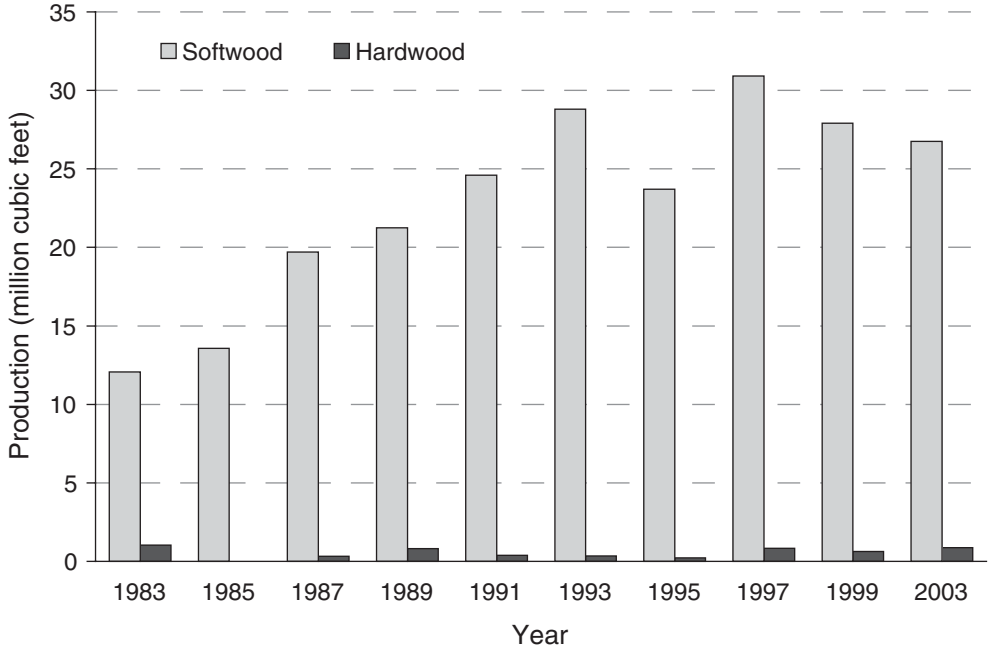

Figure 9—Roundwood production for other industrial products by species group and year (see page 11 for references for individual years).

- Florida was a net exporter of roundwood used for other industrial products; all of the 7 million cubic feet exported was softwood. Imports amounted to 1.3 million cubic feet.

Plant Byproducts

- In 2003, processing of primary products in Florida mills generated 151 million cubic feet of wood and bark residues. Coarse residues from all primary products amounted to 55 million cubic feet, and bark volume totaled 50 million cubic feet. Sawdust and shavings made up 30 percent of total residues, or 45 million cubic feet (fig. 10).

- Virtually all residues were used for a product (fig. 11). Forty-four million cubic feet, or 80 percent, of the coarse residues were used to manufacture fiber products. Most of the bark was used for industrial fuel or other miscellaneous products, and 68 percent of the sawdust and shavings was used for industrial fuel.

- The processing of saw logs generated 87 million cubic feet of mill residues, accounting for 58 percent of the total residues produced (fig. 12).

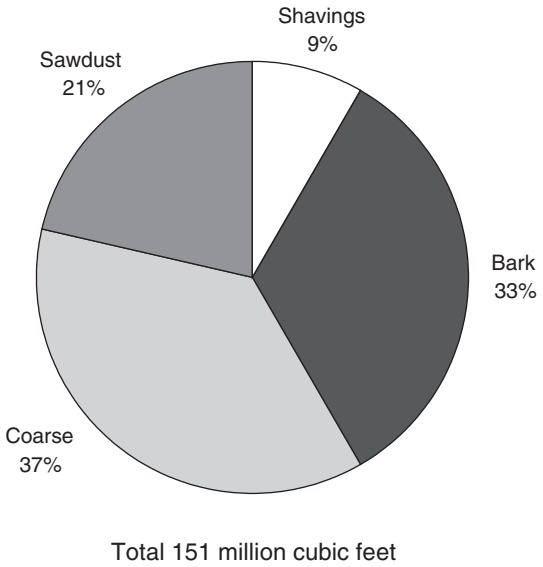

Figure 10—Primary mill residue by residue type, 2003.

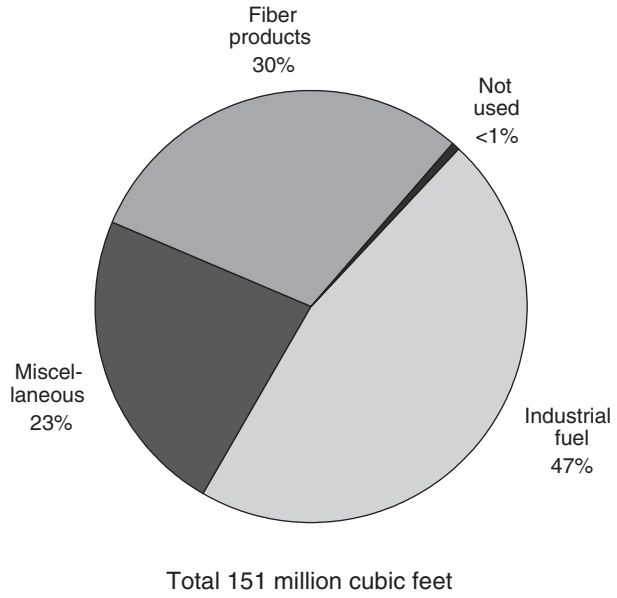

Figure 11—Disposal of residue by product, 2003.

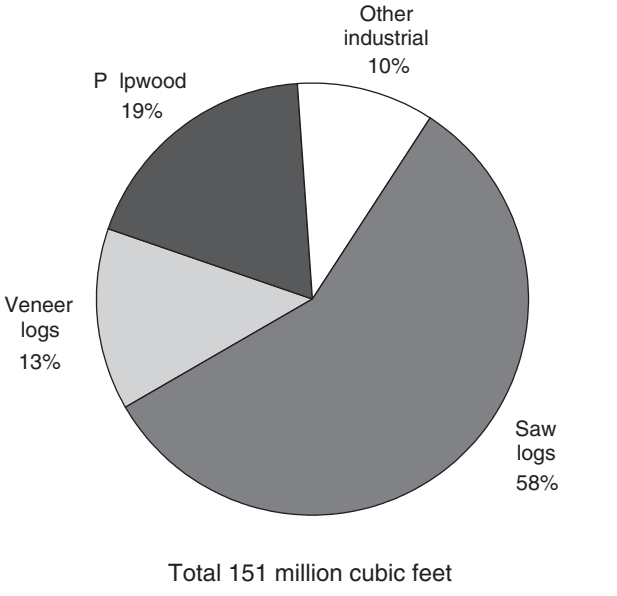

Figure 12—Primary mill residue produced by roundwood type, 2003.

Regional Trends

- Output of industrial roundwood products declined in all but the Northwest region. Pulpwood was the leading product in the Northeast and Northwest regions.

Northeast Region

- Roundwood output from the Northeast region fell 7.8 million cubic feet to 312 million cubic feet. Softwood output was down 153 thousand cubic feet, or < 1 percent, to 289.8 million cubic feet; however, hardwood output decreased 26 percent, or 7.6 million cubic feet, to 22 million cubic feet.

- Pulpwood production accounted for 52 percent of the region's TPO and 59 percent of the State's roundwood pulpwood output. Saw-log production of 115 million cubic feet accounted for 37 percent of the total roundwood output for the region.

- Forty-nine primary wood-using plants were operating during 2003: 28 sawmills, 2 veneer or plywood mills, 4 pulpmills, and 15 other miscellaneous mills (fig. 13). These mills processed 61 percent of Florida’s total roundwood output.

Northwest Region

- One hundred seventy-five million cubic feet of roundwood were produced in the Northwest region, an increase of 12 percent. Softwood production was up 18 percent to 158 million cubic feet, while hardwood production decreased 22 percent to 17 million cubic feet.

- Pulpwood production increased 14 percent to 106 million cubic feet, accounting for 61 percent of the total TPO for the region and 39 percent of the State’s roundwood pulpwood output. Saw-log production was up < 1 percent to 48 million cubic feet, accounting for 27 percent of the region's total roundwood output.

- The 22 mills operating in the Northwest region in 2003 included 13 sawmills, 1 plywood mill, 2 pulpmills, and 6 other miscellaneous mills. These mills accounted for 34 percent of Florida’s total TPO.

Central and South Region

- Roundwood output from the Central and South region declined to 22 million cubic feet. Thirty-four percent of the roundwood cut from this region was used for saw logs. Roundwood production from this region accounted for 4 percent of the total TPO for the State.

- The number of primary wood-using plants operating in this region increased to 21: 12 sawmills and 9 other miscellaneous mills. No pulpmills were operating in this region.

Total Roundwood Output

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

Source

- In addition to the 509 million cubic feet of roundwood output for industrial products, an estimated 21 million cubic feet was harvested for domestic fuelwood, bringing Florida's total roundwood output to 529 million cubic feet.

- Ninety-two percent was considered growing-stock volume (sawtimber and poletimber) from timberland sources. Other sources (such as saplings; stumps, tops, and limbs of trees on timberland; and trees on nonforestland) contributed an estimated 43 million cubic feet, or 8 percent of total roundwood output (fig. 14).

Ownership

- Forest industry and nonindustrial private forestlands each contributed 245 million cubic feet, or 46 percent, of the total roundwood output. Public lands made up the remaining 8 percent, or 39 million cubic feet (fig. 15).

Species

- The slash and longleaf pine group provided more volume than any other softwood species group; at 367 million cubic feet, it accounted for 78 percent of total softwood output (fig. 16). The red oak and white oak groups combined accounted for 26 million cubic feet of total hardwood output, or 46 percent (fig. 17).

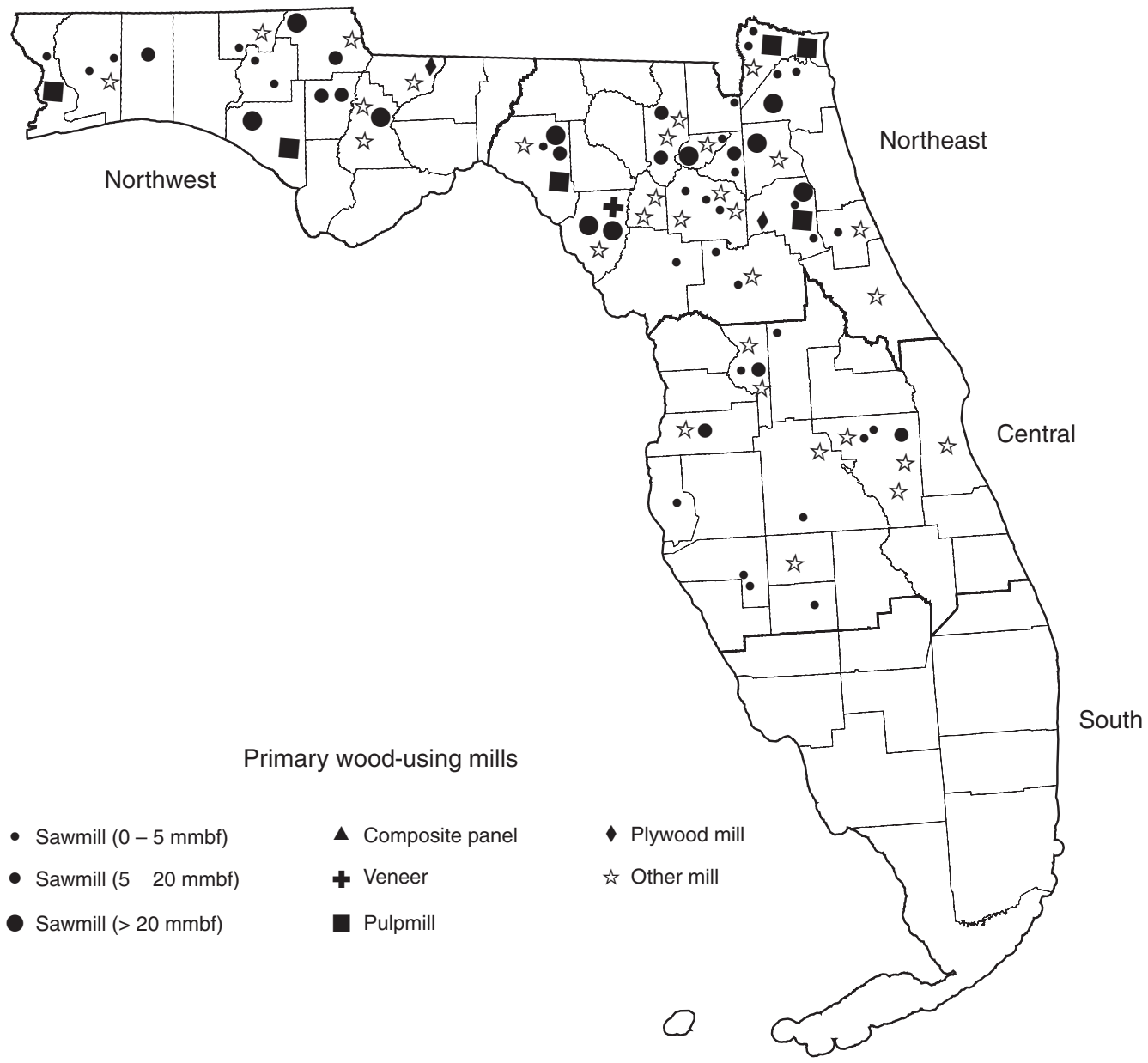

Figure 13—Primary wood-using mills by region, 2003.

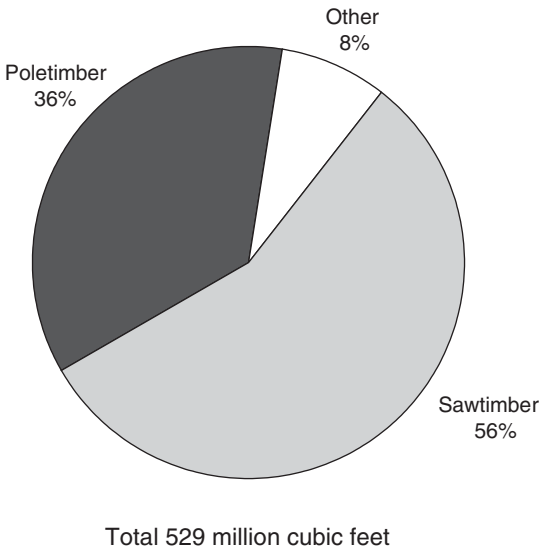

Figure 14—Roundwood output by source, 2003.

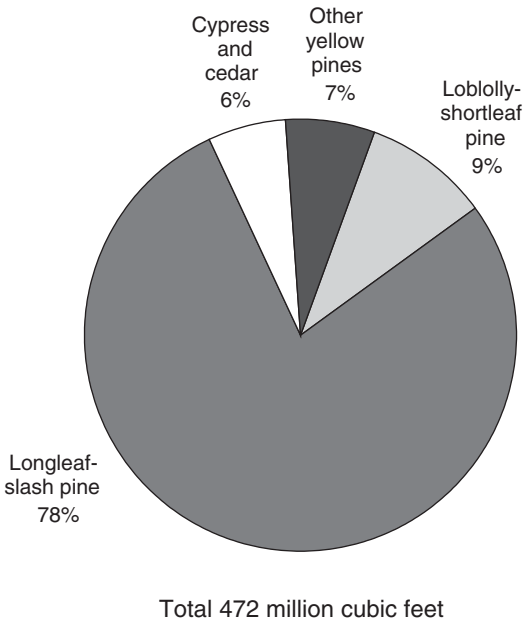

Figure 16—Roundwood output by softwood species group, 2003.

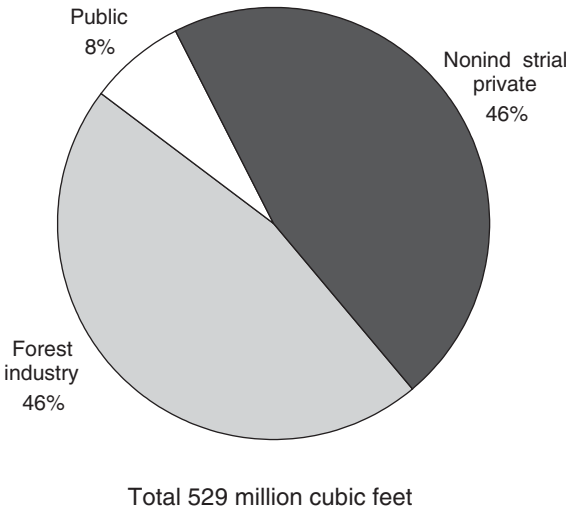

Figure 15—Roundwood output by ownership, 2003.

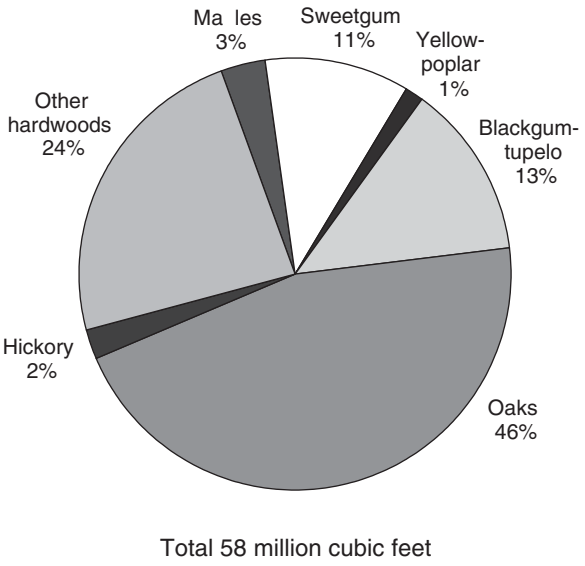

Figure 17—Roundwood output by hardwood species group, 2003.

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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 fuel wood, 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 forestland. 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 forestland (NIPF). 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 roundwood 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 scalelike.

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	0.19121 cubic foot = 1 board foot
	5.23 board feet = 1 cubic foot
Hardwood	0.16807 cubic foot = 1 board foot
	5.95 board feet = 1 cubic foot
Veneer logs	
Softwood	0.17241 cubic foot = 1 board foot
	5.80 board feet = 1 cubic foot
Hardwood	0.16129 cubic foot = 1 board foot
	6.20 board feet = 1 cubic foot
Pulpwood[b]	
Softwood	71.00 cubic feet/cord
Hardwood	75.00 cubic feet/cord

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

[b] Cubic feet of solid wood per cord.

Species List[a]

Common name	Scientific name[b]
Softwoods	
Southern red cedar	*Juniperus silicicola* (Small) Bailey
Eastern red cedar	*J. virginiana* L.
Slash pine	*Pinus clausa* (Chapm. ex Englem.) Vasey ex Sarg.
Shortleaf pine	*P. echinata* Mill.
Slash pine	*P. elliottii* Engelm.
Spruce pine	*P. glabra* Walt.
Longleaf pine	*P. palustris* Mill.
Pond pine	*P. serotina* Michx.
Loblolly pine	*P. taeda* L.
Baldcypress	*Taxodium distichum* (L.) Rich.
Pondcypress	*T. distichum* var. *nutans*
Hardwoods	
Florida maple	*Acer barbatum* Michx.
Boxelder	*A. negundo* L.
Red maple	*A. rubrum* L.
Silver maple	*A. saccharinum* L.
Ailanthus	*Ailanthus altissima* (Mill.) Swingle
Tung-oil tree	*Aleurites fordii* Hemsl.
Serviceberry	*Amelanchier* spp. Med.
River birch	*Betula nigra* L.
American hornbeam	*Carpinus caroliniana* Walt.
Hickory	*Carya* spp. Nutt.
Water hickory	*C. aquatica* (Michx. f.) Nutt.
Bitternut hickory	*C. cordiformis* (Wangenh.) K. Koch
Pignut hickory	*C. glabra* (Mill.) Sweet
Pecan	*C. illinoensis* (Wangenh.) K. Koch
Shellbark hickory	*C. laciniosa* (Michx. f.) Loud.
Nutmeg hickory	*C. myristiciformis* (Michx. f.) Nutt.
Shagbark hickory	*C. ovata* (Mill.) K. Koch
Black hickory	*C. texana* Buckl.
Mockernut hickory	*C. tomentosa* (Poir.) Nutt.
Allegheny chinkapin	*Castanea pumila* Mill.
Chinkapin	*Castanopsis* (D. Don) Spach
Catalpa	*Catalpa* spp. Scop.
Sugarberry	*Celtis laevigata* Willd.
Hackberry	*C. occidentalis* L.
Eastern redbud	*Cercis canadensis* L.
Flowering dogwood	*Cornus florida* L.
Hawthorn	*Crataegus* spp. L.
Common persimmon	*Diospyros virginiana* L.
American beech	*Fagus grandifolia* Ehrh.
White ash	*Fraxinus americana* L.
Pumpkin ash	*F. profunda* (Bush) Bush
Blue ash	*F. quadrangulata* Michx.
Waterlocust	*Gleditsia aquatica* Marsh.
Honeylocust	*G. triacanthos* L.
American holly	*Ilex opaca* Ait.
Black walnut	*Juglans nigra* L.
Hardwoods (continued)	
Sweetgum	*Liquidambar styraciflua* L.
Yellow-poplar	*Liriodendron tulipifera* L.
Osage-orange	*Maclura pomifera* (Raf.) Schneid.
Cucumbertree	*Magnolia acuminata* L.
Southern magnolia	*M. grandiflora* L.
Bigleaf magnolia	*M. macrophylla* Michx.
Sweetbay	*M. virginiana* L.
Apple	*Malus* spp. Mill.
Chinaberry	*Melia azedarach* L.
White mulberry	*Morus alba* L.
Red mulberry	*M. rubra* L.
Water tupelo	*Nyssa aquatica* L.
Blackgum	*N. sylvatica* Marsh.
Swamp tupelo	*N. sylvatica* var. *biflora* (Walt.) Sarg.
Eastern hophornbeam	*Ostrya virginiana* (Mill.) K. Koch
Sourwood	*Oxydendrum arboreum* (L.) DC.
Redbay	*Persea borbonia* (L.) Spreng.
American sycamore	*Platanus occidentalis* L.
Cottonwood	*Populus* spp. L.
Black cherry	*Prunus serotina* Ehrh.
White oak	*Quercus* alba L.
Scarlet oak	*Q. coccinea* Muenchh.
Durand oak	*Q. durandii* Buckl.
Southern red oak	*Q. falcata* Michx.
Cherrybark oak	*Q. falcata* var. *pagodifolia* Ell.
Bluejack oak	*Q. incana* Bartr.
Turkey oak	*Q. laevis* Walt.
Laurel oak	*Q. laurifolia* Michx.
Overcup oak	*Q. lyrata* Walt.
Swamp chestnut oak	*Q. michauxii* Nutt.
Chinkapin oak	*Q. muehlenbergii* Engelm.
Water oak	*Q. nigra* L.
Nuttall oak	*Q. nuttallii* Palmer
Pin oak	*Q. palustris* Muenchh.
Willow oak	*Q. phellos* L.
Shumard oak	*Q. shumardii* Buckl.
Post oak	*Q. stellata* Wangenh.
Black oak	*Q. velutina* Lam.
Live oak	*Q. virginiana* Mill.
Willow	*Salix* spp. L.
Sassafras	*Sassafras albidum* (Nutt.) Nees
American basswood	*Tilia americana* L.
White basswood	*T. heterophylla* Vent.
Winged elm	*Ulmus alata* Michx.
American elm	*U. americana* L.
Cedar elm	*U. crassifolia* Nutt.
Slippery elm	*U. rubra* Muhl.
September elm	*U. serotina* Sarg.
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, Florida, 1999 and 2003

Product and species group	Year			
	1999	2003	Change	Change
	- - - - - thousand cubic feet - - - - -			*percent*
Saw logs				
Softwood	162,959	166,217	3,258	2.0
Hardwood	4,382	4,454	72	1.6
Total	167,341	170,671	3,330	2.0
Veneer logs				
Softwood	32,770	30,492	-2,278	-7.0
Hardwood	1,211	1,437	226	18.7
Total	33,981	31,929	-2,052	-6.0
Pulpwood[a]				
Softwood	222,119	243,796	21,677	9.8
Hardwood	39,202	26,939	-12,263	-31.3
Total	261,321	270,735	9,414	3.6
Composite panels				
Softwood	0	1,326	1,326	—
Hardwood	7,380	6,400	-980	-13.3
Total	7,380	7,726	346	4.7
Other industrial				
Softwood	27,901	26,746	-1,155	-4.1
Hardwood	638	879	241	37.8
Total	28,539	27,625	-914	-3.2
All industrial				
Softwood	445,749	468,577	22,828	5.1
Hardwood	52,813	40,109	-12,704	-24.1
Total	498,562	508,686	10,124	2.0
Byproduct output				
Softwood	141,047	141,578	531	0.4
Hardwood	10,757	8,968	-1,789	-16.6
Total	151,804	150,546	-1,258	-0.8
Total output				
Softwood	586,796	610,155	23,359	4.0
Hardwood	63,570	49,077	-14,493	-22.8
Total	650,366	659,232	8,866	1.4

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (7,104,000 cubic feet in 1999 and 4,787,000 cubic feet in 2003).

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

Product and species group	Year		Change	Change
	1999	2003		
	thousand cubic feet			*percent*
Saw logs				
Softwood	144,316	150,260	5,944	4.1
Hardwood	4,676	3,912	-764	-16.3
Total	148,992	154,172	5,180	3.5
Veneer logs				
Softwood	34,812	33,752	-1,060	-3.0
Hardwood	890	831	-59	-6.6
Total	35,702	34,583	-1,119	-3.1
Pulpwood[a]				
Softwood	232,473	229,100	-3,373	-1.5
Hardwood	54,350	43,978	-10,372	-19.1
Total	286,823	273,078	-13,745	-4.8
Composite panels				
Softwood	0	0	0	—
Hardwood	0	0	0	—
Total	0	0	0	—
Other industrial				
Softwood	21,633	21,071	-562	-2.6
Hardwood	638	879	241	37.8
Total	22,271	21,950	-321	-1.4
Total output				
Softwood	433,234	434,183	949	0.2
Hardwood	60,554	49,600	-10,954	-18.1
Total	493,788	483,783	-10,005	-2.0

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (7,491,000 cubic feet in 1999 and 5,077,000 cubic feet in 2003).

Table A.3—Number of primary wood-using plants by industry, Florida, 1983 to 2003

Industry	Year									
	1983	1986	1987	1989	1991	1993	1995	1997	1999	2003
	number									
Sawmills	108	106	97	85	71	64	68	58	53	53
Veneer mills	10	6	5	5	5	5	5	5	4	3
Pulpmills	9	9	10	9	9	8	8	8	6	6
Composite panel mills	0	0	0	0	0	0	0	0	0	0
Other mills	16	30	31	28	30	32	32	30	30	30
All plants	143	151	143	127	115	109	113	101	93	92

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

Sawmill size class[a]	1999			2003		
	Mills	Volume		Mills	Volume	
mmbf	*number*	*mbf*	*percent*	*number*	*mbf*	*percent*
< 1.0	23	8,612	1	24	8,367	1
1.0 – 4.99	10	22,187	3	8	15,564	2
5.0 – 9.99	3	18,625	2	5	30,684	4
10.0 – 49.99	10	196,149	25	8	166,066	20
> 50	7	537,853	69	8	589,451	73
Total	53	783,426	100	53	810,132	100

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

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

Species	All mills	Type of mill				
			Veneer mills			
		Sawmills	Pine plywood	Other veneer	Pulpmills[a]	Other mills
		ousand cubic feet				
Softwood						
Yellow pine	183,544	143,082	33,392	0	NA	7,070
Eastern white pine	159	0	0	0	NA	159
Cedar	12	10	0	0	NA	2
Cypress	21,006	7,168	0	0	NA	13,838
Other softwood	362	0	360	0	NA	2
Unclassified	229,100	0	0	0	229,100	0
Total softwoods	434,183	150,260	33,752	0	229,100	21,071
Hardwood						
Blackgum and tupelo	98	57	0	41	NA	0
Soft maple	18	18	0	0	NA	0
Sweetgum	609	401	0	208	NA	0
Yellow-poplar	378	46	0	332	NA	0
Other soft hardwood	1,042	632	0	250	NA	160
Hickory	110	102	0	0	NA	8
Red oak	882	768	0	0	NA	114
White oak	78	70	0	0	NA	8
Other hard hardwood	2,407	1,818	0	0	NA	589
Unclassified	43,978	0	0	0	43,978	0
Total hardwoods	49,600	3,912	0	831	43,978	879
All species	483,783	154,172	33,752	831	273,078	21,950

NA = not applicable.

[a] Collected only by softwood and hardwood and includes roundwood chipped.

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

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
			thousand cubic feet		
			Softwood		
1999	445,749	78,564	367,185	66,049	433,234
2003	468,577	96,438	372,139	62,044	434,183
			Hardwood		
1999	52,813	18,223	34,590	25,964	60,554
2003	40,109	12,200	27,909	21,691	49,600
			All species		
1999	498,562	96,787	401,775	92,013	493,788
2003	508,686	108,638	400,048	83,735	483,783

Table A.7 Industrial round ood movement b product and species group, Florida, 2003

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
			thousand cubic feet		
Saw logs					
Softwood	166,217	23,140	143,077	7,183	150,260
Hardwood	4,454	689	3,765	147	3,912
Total	170,671	23,829	146,842	7,330	154,172
Veneer logs					
Softwood	30,492	3,189	27,303	6,449	33,752
Hardwood	1,437	606	831	0	831
Total	31,929	3,795	28,134	6,449	34,583
Pulpwood[a]					
Softwood	243,796	61,799	181,997	47,103	229,100
Hardwood	26,939	4,505	22,434	21,544	43,978
Total	270,735	66,304	204,431	68,647	273,078
Composite panels					
Softwood	1,326	1,326	0	0	0
Hardwood	6,400	6,400	0	0	0
Total	7,726	7,726	0	0	0
Other industrial					
Softwood	26,746	6,984	19,762	1,309	21,071
Hardwood	879	0	879	0	879
Total	27,625	6,984	20,641	1,309	21,950
Total output					
Softwood	468,577	96,438	372,139	62,044	434,183
Hardwood	40,109	12,200	27,909	21,691	49,600
Total	508,686	108,638	400,048	83,735	483,783

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

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

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Florida (retained)	146,842	143,077	3,765
Exports to			
Alabama	8,237	8,131	106
Georgia	15,553	14,970	583
North Carolina	39	39	0
Total	23,829	23,140	689
Imports from			
Alabama	3,583	3,542	41
Georgia	3,617	3,511	106
Louisiana	130	130	0
Total	7,330	7,183	147

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

De ination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Florida (retained)	28,134	27,303	831
Exports to			
Alabama	3,304	3,189	115
Georgia	491	0	491
Total	3,795	3,189	606
Imports from			
Georgia	6,231	6,231	0
South Carolina	218	218	0
Total	6,449	6,449	0

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

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Florida (retained)	204,431	181,997	22,434
Exports to			
Alabama	14,017	12,582	1,435
Georgia	51,598	48,992	2,606
Louisiana	438	225	213
South Carolina	251	0	251
Total	66,304	61,799	4,505
Imports from			
Alabama	22,975	11,303	11,672
Georgia	44,419	35,789	8,630
Louisiana	66	0	66
Mississippi	1,187	11	1,176
Total	68,647	47,103	21,544

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

Table A.11—Composite panel volume by destination, source, and species group, Florida, 2003

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Florida (retained)	0	0	0
Exports to			
Georgia	7,726	1,326	6,400
Total	7,726	1,326	6,400

Table A.12 Other industrial olume b destination, source, and species group, Florida, 2003[a]

Destination and source	All species	Species group	
		Softwood	Hardwood
	thousand cubic feet		
Florida (retained)	20,641	19,762	879
Exports to			
Alabama	5,444	5,444	0
Georgia	1,540	1,540	0
Total	6,984	6,984	0
Imports from			
Alabama	167	167	0
Georgia	1,142	1,142	0
Total	1,309	1,309	0

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

Table A.13 Primary mill residue volume by roundwood type, species group, and residue type, Florida, 2003

Roundwood type and species group	All types	Residue type			
		Bark	Coarse	Sawdust	Shavings
		thousand cubic feet			
Saw logs					
Softwood	84,169	12,485	38,186	20,778	12,720
Hardwood	2,499	448	1,228	821	2
Total	86,668	12,933	39,414	21,599	12,722
Veneer logs					
Softwood	19,678	3,115	8,072	8,491	0
Hardwood	624	99	268	257	0
Total	20,302	3,214	8,340	8,748	0
Pulpwood					
Softwood	22,669	22,669	0	0	0
Hardwood	5,413	5,413	0	0	0
Total	28,082	28,082	0	0	0
Composite panels					
Softwood	0	0	0	0	0
Hardwood	0	0	0	0	0
Total	0	0	0	0	0
Other industrial[a]					
Softwood	15,137	5,909	7,459	1,769	0
Hardwood	489	108	274	107	0
Total	15,626	6,017	7,733	1,876	0
Total					
Softwood	141,653	44,178	53,717	31,038	12,720
Hardwood	9,025	6,068	1,770	1,185	2
Total	150,678	50,246	55,487	32,223	12,722

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

Table A.14—Disposal of residue at primary wood-using plants by product, species group, and type of residue, Florida, 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	44,696	44,072	0	0	43,523	42,899	50	50	1,123	1,123
Hardwood	1,161	1,282	0	0	1,161	1,282	0	0	0	0
Total	45,857	45,354	0	0	44,684	44,181	50	50	1,123	1,123
Particleboard										
Softwood	6,222	5,442	0	0	0	0	3,068	689	3,154	4,753
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	6,222	5,442	0	0	0	0	3,068	689	3,154	4,753
Charcoal/ chemical wood										
Softwood	304	0	0	0	304	0	0	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	304	0	0	0	304	0	0	0	0	0
Sawn products										
Softwood	0	463	0	0	0	463	0	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	0	463	0	0	0	463	0	0	0	0
Fuel										
Softwood	68,083	63,376	36,247	31,691	3,655	2,041	21,438	25,027	6,743	4,617
Hardwood	8,448	6,827	7,216	5,819	84	60	1,145	946	3	2
Total	76,531	70,203	43,463	37,510	3,739	2,101	22,583	25,973	6,746	4,619
Miscellaneous										
Softwood	21,742	28,225	8,520	12,473	6,436	8,267	5,871	5,258	915	2,227
Hardwood	1,148	859	240	249	716	371	189	239	3	0
Total	22,890	29,084	8,760	12,722	7,152	8,638	6,060	5,497	918	2,227
Not used										
Softwood	254	75	192	14	48	47	14	14	0	0
Hardwood	57	57	0	0	57	57	0	0	0	0
Total	311	132	192	14	105	104	14	14	0	0
All products										
Softwood	141,301	141,653	44,959	44,178	53,966	53,717	30,441	31,038	11,935	12,720
Hardwood	10,814	9,025	7,456	6,068	2,018	1,770	1,334	1,185	6	2
Total	152,115	150,678	52,415	50,246	55,984	55,487	31,775	32,223	11,941	12,722

Table A.15—Roundwood timber product output by product and species group, Northeast region of Florida, 1999 and 2003

Product and species group	Year			
	1999	2003	Change	Change
	- - - - - thousand cubic feet - - - - -			*percent*
Saw logs				
Softwood	113,806	113,729	-77	-0.1
Hardwood	902	1,513	611	67.7
Total	114,708	115,242	534	0.5
Veneer logs				
Softwood	28,265	16,790	-11,475	-40.6
Hardwood	831	1,064	233	28.0
Total	29,096	17,854	-11,242	-38.6
Pulpwood[a]				
Softwood	132,538	145,893	13,355	10.1
Hardwood	22,612	14,607	-8,005	-35.4
Total	155,150	160,500	5,350	3.4
Composite panels				
Softwood	0	862	862	—
Hardwood	4,797	4,160	-637	-13.3
Total	4,797	5,022	225	4.7
Other industrial				
Softwood	15,323	12,505	-2,818	-18.4
Hardwood	239	436	197	82.4
Total	15,562	12,941	-2,621	-16.8
All industrial				
Softwood	289,932	289,779	-153	-0.1
Hardwood	29,381	21,780	-7,601	-25.9
Total	319,313	311,559	-7,754	-2.4

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (6,411,000 cubic feet in 1999 and 3,914,000 cubic feet in 2003).

Table A.16—Roundwood timber product output by county, product, and species group, Northeast region of Florida, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Composite panels		Other industrial	
	S - wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet											
Alachua	13,683	3,172	4,344	0	1,740	0	6,422	3,120	0	0	1,177	52
Baker	14,974	474	5,389	0	652	0	8,734	474	0	0	199	0
Bradford	7,683	110	4,208	0	217	0	3,167	110	0	0	91	0
Clay	12,906	198	4,392	0	652	0	7,757	198	0	0	105	0
Columbia	14,044	282	4,712	0	217	125	8,973	157	0	0	142	0
Dixie	18,008	2,667	9,325	173	217	125	7,251	1,985	79	384	1,136	0
Duval	13,698	584	7,106	5	870	87	5,184	492	0	0	538	0
Flagler	9,788	945	3,185	0	1,958	0	3,553	945	0	0	1,092	0
Gilchrist	3,721	511	1,056	0	217	83	2,418	395	0	0	30	33
Hamilton	14,809	653	4,569	0	217	0	9,523	205	93	448	407	0
Lafayette	8,708	920	4,308	0	0	41	4,101	879	0	0	299	0
Levy	19,545	1,606	6,668	473	2,611	166	8,041	945	0	0	2,225	22
Madison	16,523	2,228	4,495	0	675	83	10,469	481	345	1,664	539	0
Marion	10,655	604	3,078	181	1,523	81	5,025	342	0	0	1,029	0
Nassau	24,638	293	13,732	244	435	0	9,960	49	0	0	511	0
Putnam	14,440	1,708	4,498	0	1,740	0	7,973	1,708	0	0	229	0
St. Johns	15,364	631	7,486	0	870	0	6,287	631	0	0	721	0
Suwannee	8,541	465	2,538	0	240	83	5,618	382	0	0	145	0
Taylor	30,779	3,004	11,068	437	217	190	18,364	713	345	1,664	785	0
Union	11,677	84	5,518	0	652	0	5,389	84	0	0	118	0
Volusia	5,595	641	2,054	0	870	0	1,684	312	0	0	987	329
All counties	289,779	21,780	113,729	1,513	16,790	1,064	145,893	14,607	862	4,160	12,505	436

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (3,914,000 cubic feet in 2003).

Table A.17 Ro nd ood imber prod c o p b prod c and species gro p, Nor h es region of Florida, 1999 and 2003

Product and species group	Year		Change	Change
	1999	2003		
	- - - - thousand cubic feet - - - -			*percent*
Saw logs				
Softwood	43,922	44,848	926	2.1
Hardwood	3,465	2,925	-540	-15.6
Total	47,387	47,773	386	0.8
Veneer logs				
Softwood	4,505	10,228	5,723	127.0
Hardwood	380	373	-7	-1.8
Total	4,885	10,601	5,716	117.0
Pulpwood[a]				
Softwood	77,538	94,360	16,822	21.7
Hardwood	15,149	11,375	-3,774	-24.9
Total	92,687	105,735	13,048	14.1
Composite panels				
Softwood	0	464	464	—
Hardwood	2,583	2,240	-343	-13.3
Total	2,583	2,704	121	4.7
Other industrial				
Softwood	7,821	7,883	62	0.8
Hardwood	79	65	-14	-17.7
Total	7,900	7,948	48	0.6
All industrial				
Softwood	133,786	157,783	23,997	17.9
Hardwood	21,656	16,978	-4,678	-21.6
Total	155,442	174,761	19,319	12.4

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (516,000 cubic feet in 1999 and 817,000 cubic feet in 2003).

Table A.18 Roundwood timber product output by county, product, and species group, Northwest region of Florida, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet											
Bay	15,041	653	5,787	191	0	0	8,992	462	0	0	262	0
Calhoun	12,811	1,320	2,794	748	0	0	9,711	572	0	0	306	0
Escambia	12,589	1,157	3,747	0	861	0	7,290	1,157	0	0	691	0
Franklin	3,770	576	2,305	0	0	0	1,262	0	119	576	84	0
Gadsden	9,941	1,345	3,123	268	1,681	64	4,954	998	0	0	183	15
Gulf	10,563	842	1,614	412	0	0	8,823	430	0	0	126	0
Holmes	7,828	751	3,524	29	360	0	3,774	722	0	0	170	0
Jackson	17,533	2,345	4,528	265	1,441	181	9,126	1,899	0	0	2,438	0
Jefferson	7,881	2,695	1,877	89	1,899	64	3,624	878	345	1,664	136	0
Leon	6,146	887	875	63	720	64	4,469	710	0	0	82	50
Liberty	9,533	971	1,719	583	0	0	7,572	388	0	0	242	0
Okaloosa	5,975	243	1,341	26	893	0	3,477	217	0	0	264	0
Santa Rosa	12,173	935	4,164	31	861	0	6,900	904	0	0	248	0
Wakulla	4,913	885	2,658	0	0	0	2,171	885	0	0	84	0
Walton	9,615	366	2,526	26	574	0	6,241	340	0	0	274	0
Washington	11,471	1,007	2,266	194	938	0	5,974	813	0	0	2,293	0
All counties	157,783	16,978	44,848	2,925	10,228	373	94,360	11,375	464	2,240	7,883	65

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (817,000 cubic feet in 2003).

Table A.19 Roundwood timber product output by product and species group, Central and South regions of Florida, 1999 and 2003

Product and species group	Year 1999	2003	Change	Change
	- - - - thousand cubic feet - - - -			*percent*
Saw logs				
Softwood	5,231	7,640	2,409	46.1
Hardwood	15	16	1	6.7
Total	5,246	7,656	2,410	45.9
Veneer logs				
Softwood	0	3,474	3,474	—
Hardwood	0	0	0	—
Total	0	3,474	3,474	—
Pulpwood[a]				
Softwood	12,043	3,543	-8,500	-70.6
Hardwood	1,441	957	-484	-33.6
Total	13,484	4,500	-8,984	-66.6
Composite panels				
Softwood	0	0	0	—
Hardwood	0	0	0	—
Total	0	0	0	—
Other industrial				
Softwood	4,757	6,358	1,601	33.7
Hardwood	320	378	58	18.1
Total	5,077	6,736	1,659	32.7
All industrial				
Softwood	22,031	21,015	-1,016	-4.6
Hardwood	1,776	1,351	-425	-23.9
Total	23,807	22,366	-1,441	-6.1

— = negligible.

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (177,000 cubic feet in 1999 and 56,000 cubic feet in 2003).

Table A.20—Roundwood timber product output by county, product, and species group, Central and South regions of Florida, 2003

County	All products		Saw logs		Veneer logs		Pulpwood[a]		Composite panels		Other industrial	
	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
	thousand cubic feet											
Brevard	546	28	216	0	217	0	81	28	0	0	32	0
Broward	0	15	0	0	0	0	0	15	0	0	0	0
Charlotte	132	0	0	0	0	0	0	0	0	0	132	0
Citrus	1,238	59	345	0	217	0	587	59	0	0	89	0
Collier	70	0	70	0	0	0	0	0	0	0	0	0
De Soto	127	0	127	0	0	0	0	0	0	0	0	0
Glades	841	0	393	0	435	0	13	0	0	0	0	0
Hardee	428	6	0	0	217	0	211	6	0	0	0	0
Hendry	652	0	0	0	0	0	652	0	0	0	0	0
Hernando	1,453	326	742	3	217	0	324	323	0	0	170	0
Highlands	864	0	152	0	217	0	11	0	0	0	484	0
Hillsborough	149	17	124	0	0	0	0	17	0	0	25	0
Indian River	244	0	212	0	0	0	0	0	0	0	32	0
Lake	2,668	185	940	0	217	0	296	25	0	0	1,215	160
Lee	132	0	0	0	0	0	0	0	0	0	132	0
Manatee	16	0	16	0	0	0	0	0	0	0	0	0
Martin	218	2	0	0	217	0	1	2	0	0	0	0
Monroe	38	0	38	0	0	0	0	0	0	0	0	0
Okeechobee	42	0	28	0	0	0	0	0	0	0	14	0
Orange	839	18	303	0	217	0	141	18	0	0	178	0
Osceola	2,655	49	383	0	217	0	364	49	0	0	1,691	0
Palm Beach	0	10	0	0	0	0	0	10	0	0	0	0
Pasco	1,608	19	930	0	0	0	52	19	0	0	626	0
Polk	2,462	217	1,398	0	217	0	254	57	0	0	593	160
Sarasota	314	44	76	0	217	0	21	44	0	0	0	0
Seminole	1,127	216	131	0	435	0	387	158	0	0	174	58
St. Lucie	1	63	0	0	0	0	1	63	0	0	0	0
Sumter	2,151	77	1,016	13	217	0	147	64	0	0	771	0
All counties	21,015	1,351	7,640	16	3,474	0	3,543	957	0	0	6,358	378

[a] Includes roundwood delivered to nonpulpmills, then chipped and sold to pulpmills (56,000 cubic feet in 2003).

Table A.21—Total roundwood output by product, species group, and source of material, Florida, 2003

Product and species group	All sources	Growing-stock trees			Other sources
		Total	Sawtimber	Poletimber	
	thousand cubic feet				
Saw logs					
Softwood	166,217	160,041	147,509	12,532	6,176
Hardwood	4,454	4,434	4,076	359	20
Total	170,671	164,475	151,585	12,890	6,196
Veneer logs and bolts					
Softwood	30,492	30,014	29,629	386	478
Hardwood	1,437	1,432	1,432	0	5
Total	31,929	31,446	31,061	386	483
Pulpwood					
Softwood	243,796	223,699	66,424	157,275	20,097
Hardwood	26,939	21,340	14,220	7,120	5,599
Total	270,735	245,039	80,644	164,395	25,696
Composite panel					
Softwood	1,326	1,217	361	855	109
Hardwood	6,400	5,070	3,378	1,692	1,330
Total	7,726	6,287	3,740	2,547	1,439
Poles and posts					
Softwood	11,857	11,116	8,538	2,578	741
Hardwood	0	0	0	0	0
Total	11,857	11,116	8,538	2,578	741
Other miscellaneous					
Softwood	14,889	11,349	9,562	1,788	3,540
Hardwood	879	833	98	734	46
Total	15,768	12,182	9,660	2,522	3,586
Total industrial products					
Softwood	468,577	437,436	262,022	175,414	31,141
Hardwood	40,109	33,109	23,205	9,904	7,000
Total	508,686	470,545	285,226	185,319	38,141
Fuelwood					
Softwood	3,024	2,593	2,304	289	431
Hardwood	17,556	13,528	9,169	4,358	4,028
Total	20,580	16,121	11,474	4,647	4,459
All products					
Softwood	471,601	440,030	264,326	175,703	31,571
Hardwood	57,665	46,637	32,374	14,263	11,028
Total	529,266	486,666	296,700	189,966	42,600

Numbers in rows and columns may not sum to totals due to rounding.

Table A.22—Total roundwood output by species group, survey region, and ownership class, Florida, 2003

Species group and survey region	Total	Ownership class		
		Public	Forest industry	Nonindustrial private
		thousand cubic feet		
Softwoods				
Northeast	291,649	14,967	170,381	106,302
Northwest	158,803	14,394	55,866	88,544
Central and South	21,149	4,172	0	16,977
Total softwoods	471,601	33,532	226,246	211,823
Hardwoods				
Northeast	31,314	3,817	14,717	12,780
Northwest	24,408	1,462	4,462	18,484
Central and South	1,943	236	0	1,707
Total hardwoods	57,665	5,515	19,179	32,971
All species	529,266	39,047	245,425	244,794

Numbers in rows and columns may not sum to totals due to rounding.

Table A.23—Total roundwood output by species group, detailed species group, and product, Florida, 2003

S ecie g and detailed species group	Total	Product						
		Saw logs	Veneer logs	Pulpwood	Composite panels	Poles and posts	Other miscellaneous	Fuel-wood
		thousand cubic feet						
Softwood								
Cedar	544	151	29	318	0	39	4	3
Longleaf-slash pine	367,338	130,643	21,647	193,851	942	8,711	9,189	2,356
Loblolly-shortleaf pine	45,039	15,375	3,667	23,184	193	1,456	875	289
Other yellow pines	31,075	9,412	3,134	16,042	94	1,173	1,019	199
Cypress	27,606	10,637	2,016	10,401	97	477	3,803	176
Total softwoods	471,601	166,217	30,492	243,796	1,326	11,857	14,889	3,024
Hardwood								
Soft maple	1,778	86	68	906	153	0	24	541
Hard maple	224	10	8	58	80	0	0	68
Other birch	112	0		77	0	0	1	34
Hickory	1,338	154	49	565	145	0	16	407
Beech	492	194		148	0	0	0	150
Ash	776	122	34	329	34	0	21	236
Sweetgum	6,142	379	119	3,082	652	0	40	1,870
Yellow-poplar	806	151	5	404	0	0	1	245
Blackgum-tupelo	7,518	346	221	3,197	1,382	0	84	2,289
Black cherry	273	8	13	133	29	0	8	83
Select white oaks	437	118	6	167	13	0	0	133
Other white oaks	3,033	99	67	1,529	313	0	102	924
Select red oaks	285	11	8	176	3	0	1	87
Other red oaks	22,535	1,673	559	10,995	2,270	0	179	6,860
Basswood	94	13	5	42	4	0	1	29
Elm	600	29	20	308	39	0	21	183
Other Eastern hardwoods	11,223	1,062	255	4,824	1,284	0	381	3,417
Total hardwoods	57,665	4,454	1,437	26,939	6,400	0	879	17,556
All species	529,266	170,671	31,929	270,735	7,726	11,857	15,768	20,580

Numbers in rows and columns may not sum to totals due to rounding.

Table A.24 Total roundwood output by species group, detailed species group, and ownership class, Florida, 2003

S ecie gro and de ailed ecie gro	To al	Ownership class		
		P blic	Fore ind ry	Nonindustrial private
		thousand cubic feet		
Sof wood				
Cedar	544	63	137	343
Longleaf- la h ine	367,338	25,209	182,919	159,210
Loblolly- hor leaf ine	45,039	3,055	19,813	22,170
O her yellow ine	31,075	3,926	10,522	16,626
Cy re	27,606	1,278	12,855	13,473
To al of wood	471,601	33,532	226,246	211,823
Hardwood				
Sof ma le	1,778	131	960	688
Hard ma le	224	5	82	137
O her birch	112	54	11	47
Hickory	1,338	138	501	699
Beech	492	0	98	394
Ash	776	138	322	317
Sweetgum	6,142	577	2,022	3,543
Yellow-poplar	806	15	219	572
Blackgum-tupelo	7,518	402	3,391	3,726
Black cherry	273	20	55	199
Select white oaks	437	31	104	301
Other white oaks	3,033	503	709	1,821
Select red oaks	285	20	61	204
Other red oaks	22,535	2,939	7,360	12,236
Basswood	94	16	64	14
Elm	600	47	264	288
Other Eastern hardwoods	11,223	480	2,957	7,785
Total hardwoods	57,665	5,515	19,179	32,971
All species	529,266	39,047	245,425	244,794

Numbers in rows and columns may not sum to totals due to rounding.

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Bentley, J.W.—Howell, M.—Johnson, T.G. 2006. Florida's timber industry—an assessment of timber product output and use, 2003. Resour. Bull. SRS–110. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 40 p.

In 2003, volume of roundwood output from Florida's forests totaled 509 million cubic feet, 2 percent more than in 1999. Mill byproducts generated from primary manufacturers decreased to 151 million cubic feet. Almost all plant residues were used primarily for fuel and fiber products. Pulpwood was the leading roundwood product at 271 million cubic feet; saw logs ranked second at 171 million cubic feet; veneer logs were third at 32 million cubic feet. Total receipts declined 2 percent to 484 million cubic feet. The number of primary processing plants declined from 93 in 1999 to 92 in 2003.

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

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