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Michigan Timber Industry— An Assessment of Timber Product Output and Use

2004

David E. Haugen and Anthony K. Weatherspoon

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Cover Photograph: Landing area for sawtimber. Photo by Scott A. Pugh, U.S. Forest Service.



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Introduction

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In this publication we discuss recent forest-industry trends in Michigan and report the results of a detailed study of the forest industry, industrial roundwood production, and associated primary mill wood and bark residue in 2004. Such detailed information is necessary for intelligent planning and decisionmaking with respect to wood procurement, forest-resources management, and forest-industry development. The last published report from a detailed study of all industrial roundwood output in Michigan was in 1998. Most comparisons in this report are with the 1998 and 2000 survey results. When new surveys are completed, errors and omissions from previous surveys are corrected. As a result of our ongoing efforts to improve the survey's efficiency and reliability, changes may have been made to the previous survey's data. All comparisons and analysis in this report are based on the reprocessed data from earlier surveys, which may not match earlier published data. Rows and columns of supporting tables may not sum due to rounding but data in each table cell are displayed accurately.

Study Methods

This study was a cooperative effort between the Michigan Department of Natural resources (MI DNR) and the Northern Research Station (NRS) of the U.S. Forest Service. The MI DNR contacted all known primary wood-using mills to obtain a 100-percent response rate using questionnaires supplied by NRS. The questionnaires were designed to determine the size and composition of the State's primary wood-using industry, its use of roundwood, and its generation and disposition of wood residues. Completed questionnaires were processed and analyzed by NRS personnel.

As part of data processing, all industrial roundwood volumes reported on the questionnaires were converted to standard units of measure using regional conversion factors (Doyle scale and Scribner Decimal C scale to International 1/4-inch rule; Table 1). Timber removals by source of material and harvest residues generated during logging were estimated from standard product volumes using factors developed from logging utilization studies previously conducted by NRS. To provide a complete assessment of Michigan's timber product output, data on the State's industrial roundwood receipts were entered into a regional timber removals database and supplemented with data on out-of-state uses of Michigan roundwood.

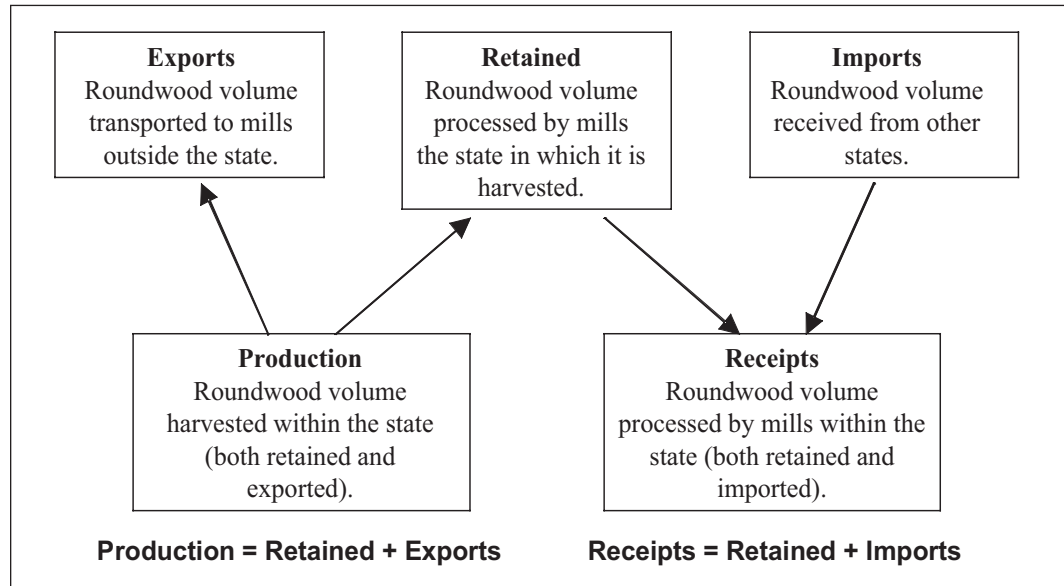
Table 1.—Conversion factors from reported unit of measure to International 1/4-inch rule

Product	Reported scale	
	Doyle scale	Scribner Decimal C scale
Saw logs	1.38	1.08
Veneer logs	1.14	1.04

Certain terms used in this report—retained, export, import, production, and receipts—have specialized meaning and relationships unique to the Forest Inventory and Analysis units across the Nation that assess timber product output (Fig. 1).

Figure 1.—

The movement of industrial roundwood.



Primary Timber Industry In Michigan

INDUSTRIAL ROUNDWOOD

- In 2004, Michigan's primary wood-using industry included 246 sawmills, eight pulp mills, five veneer mills and 45 other specialty mills producing other products (Table 2, Fig. 2). Tables 2-13 are in the Appendix. The number of sawmills in 2004 decreased by 24 mills from the 1998 survey. Twelve medium-size mills (annual production of 1 to 5 million board feet) and 13 small mills (annual production less than 1 million board feet) were either closed or were inactive during the 2004 survey year.
- In 2004, Michigan's primary wood-using industry processed 360.5 million cubic feet of roundwood, a decrease of less than 1 percent from 363.6 million cubic feet in processed in 2000 (Table 3, Fig. 3).

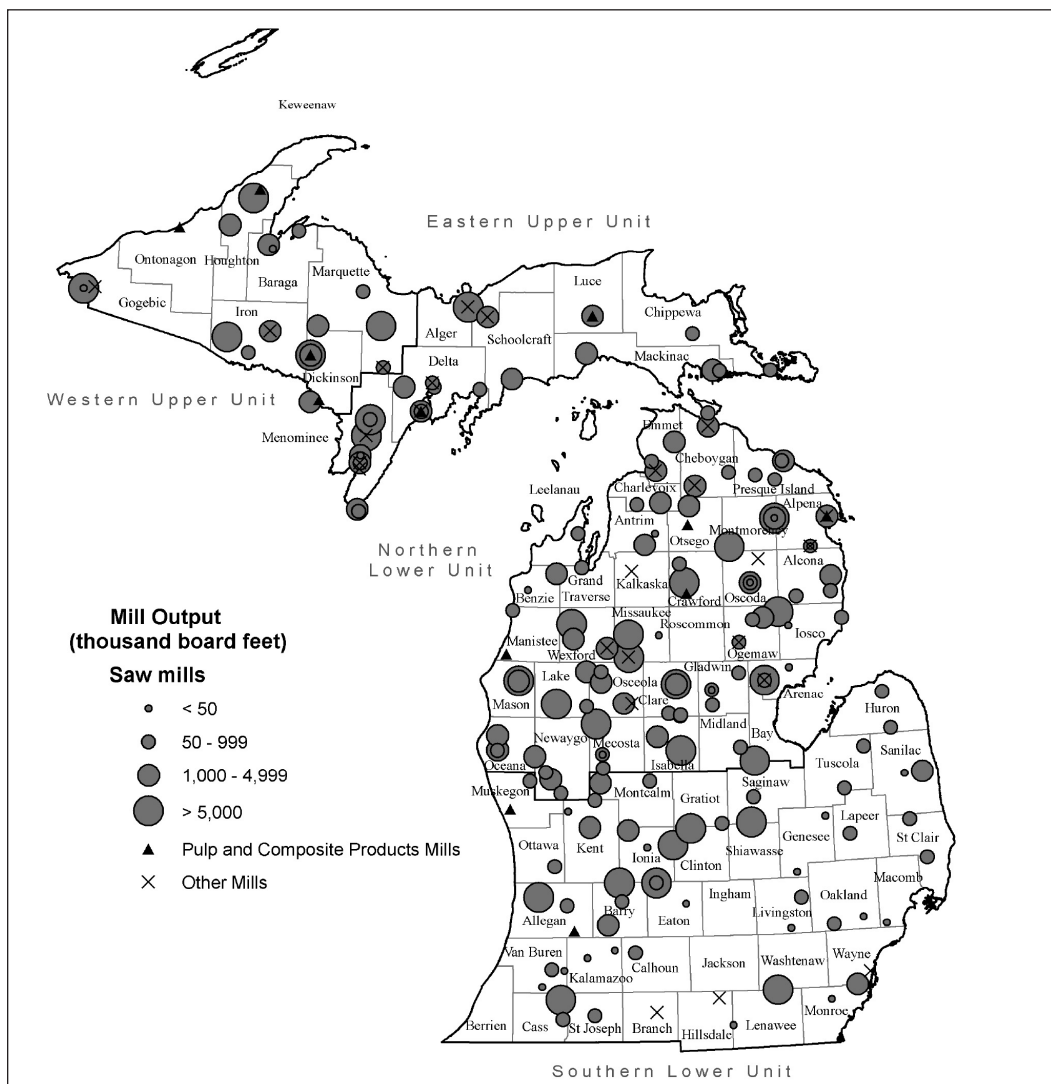


Figure 2.—Forest Inventory Units and location of wood-using mills, Michigan, 2004.

- More than 86 percent of the industrial roundwood processed in 2004 by Michigan's primary wood-using mills was cut from State forest lands. Wisconsin was the largest supplier of out-of-state wood for Michigan's forest-products mills, with 80 percent of the total imports, followed by Canada with 17 percent (Table 3).
- Hardwood species accounted for 72 percent of the industrial roundwood processed by Michigan's primary wood-using mills. Aspen accounted for nearly 33 percent of the total volume processed.
- Although mill receipts of industrial roundwood decreased by less than 1 percent (Table 2) in Michigan, industrial roundwood production decreased by 7 percent, from 369 million cubic feet in 2000 to 344 million cubic feet in 2004 (Table 4, Fig. 4). This was primarily the result of mills importing more industrial roundwood from out of state and mill closures.
- The production of pulpwood accounted for more than 60 percent of the total industrial roundwood produced in 2004. Saw log mills were the second largest consumer of Michigan's industrial roundwood production, consuming 35 percent of total production (Table 5).
- In 2004, the Northern Lower Peninsula Forest Inventory Unit produced 141.9 million cubic feet, or 41 percent of the total industrial roundwood produced in the State (Table 6). This was a decrease 1.5 percent between 2000 and 2004. The remaining units had decreases in the production of industrial roundwood during the same period (Southern Lower Peninsula and Western Upper Peninsula with 8 percent reductions each and the Eastern Upper Peninsula with a 12 percent reduction).
- Nearly 90 percent of the industrial roundwood that was harvested in Michigan was processed by primary wood processors in the State (Table 7). Wisconsin, Minnesota, Indiana and Canada were the largest markets for exports of industrial roundwood exported, receiving 65 percent, 13 percent, 12 percent and 8 percent of total exports, respectively. Other states that processed industrial roundwood harvested in Michigan were Ohio, West Virginia, Illinois, Virginia, Kentucky, and Iowa.
- Aspen accounted for 23 percent of the harvested industrial roundwood volume in 2004, followed by hard maple (15 percent), soft maple (13 percent), and red pine (9 percent) (Fig. 5).

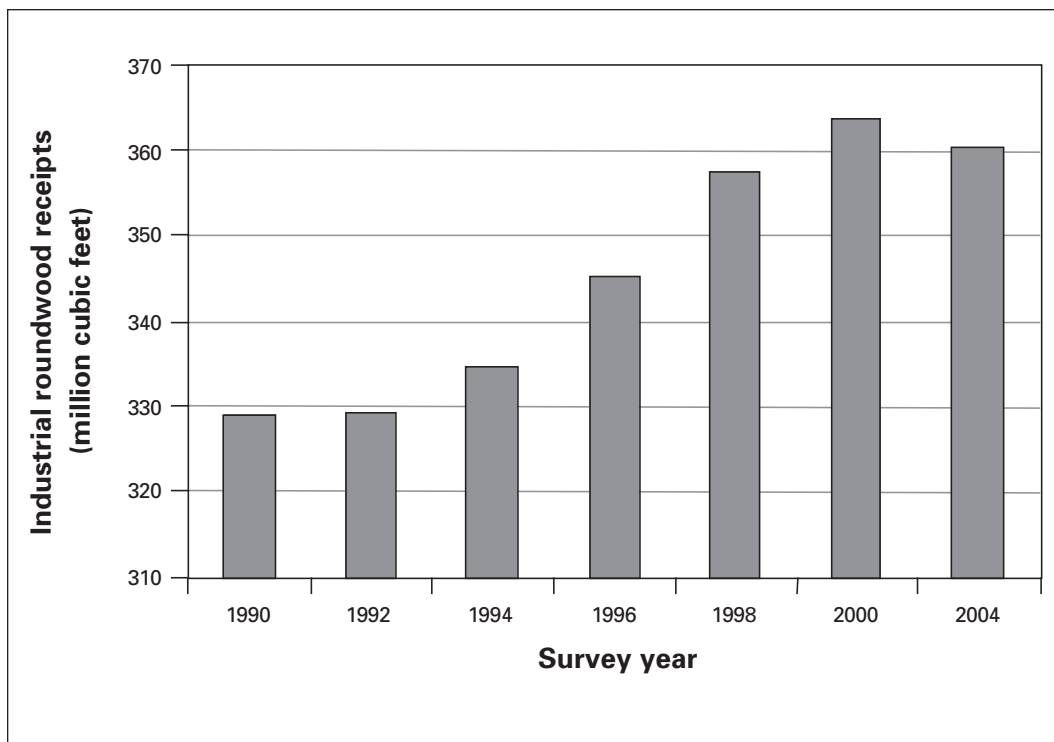


Figure 3.—Industrial roundwood receipts in Michigan, 1990, 1992, 1994, 1996, 1998, 2000, and 2004 (Hackett and Pilon 1993, May and Pilon 1995, Hackett and Pilon 1997, Haugen and Pilon 2002, Haugen and Weatherspoon 2003).

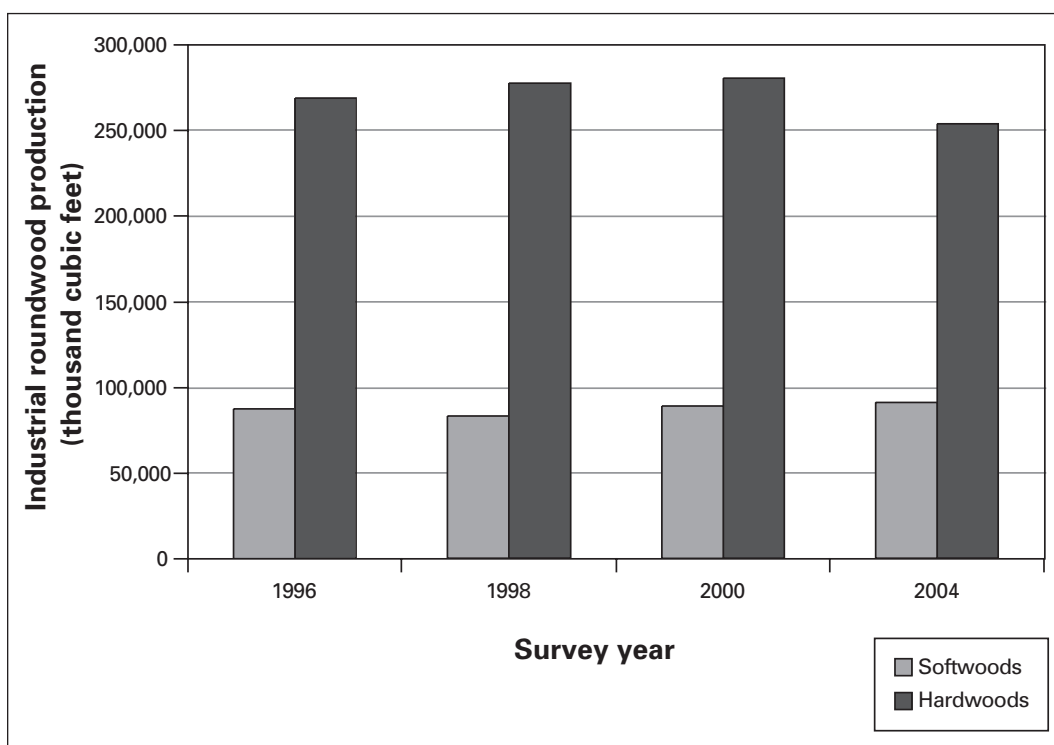


Figure 4.—Industrial roundwood production by softwoods and hardwoods, and survey year, Michigan (Haugen and Pilon 2002, Haugen and Weatherspoon 2003).

SAW LOGS

- Michigan's sawmills processed 735.2 million board feet of saw logs in 2004, a decrease of 2 percent from 2000. The Northern Lower Peninsula Unit received 42 percent of total saw log receipts.
- Saw log production decreased by 9 percent, from 755.8 million board feet in 2000 to 688.1 million board feet in 2004 (Table 8).
- Red pine, hard maple, red oak, jack pine, aspen, and soft maple accounted for 77 percent of the harvest from Michigan's forests in 2004. Other important species groups harvested were spruce, black cherry, basswood, ash, white oak and white pine all of which accounted for 15 percent of the 2004 harvest total (Fig. 6).

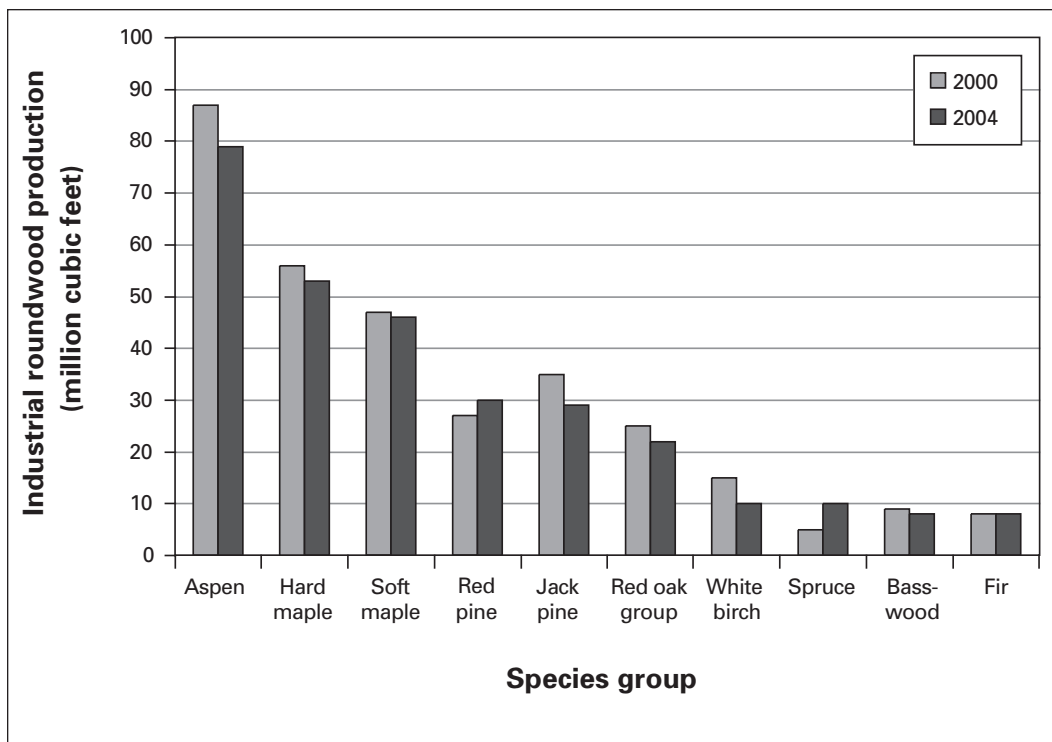


Figure 5.—Industrial roundwood production by select species groups, Michigan, 2000 and 2004.

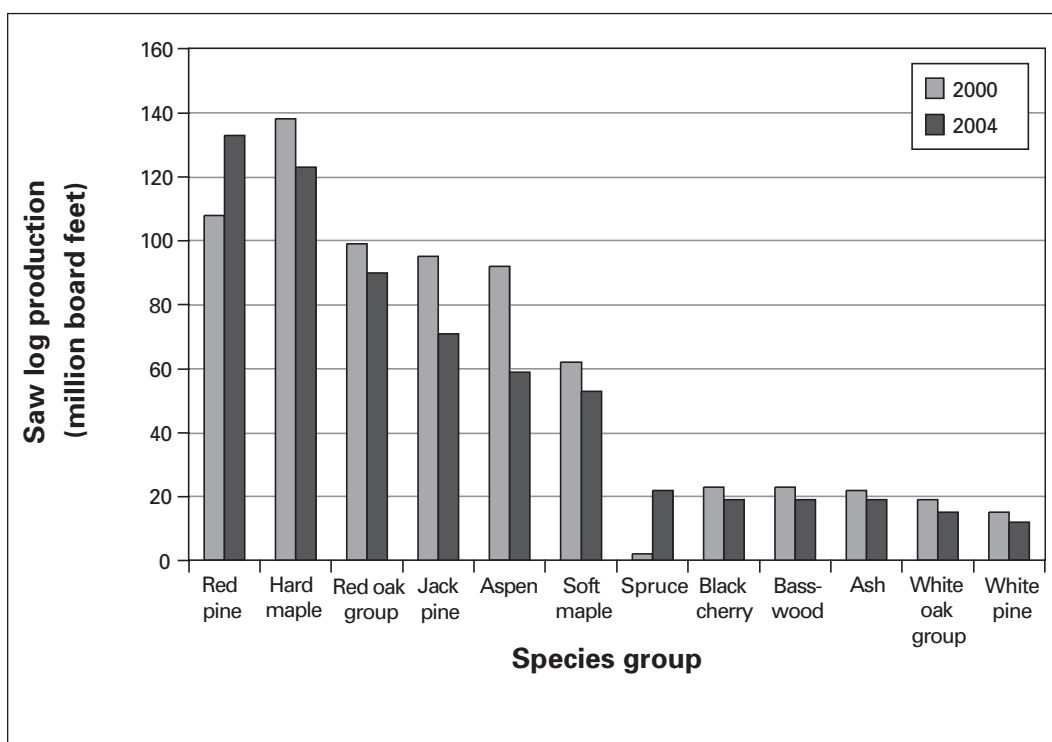


Figure 6.—Saw log production by select species group, Michigan, 2000 and 2004.

OTHER PRODUCTS

- At 209.9 million cubic feet pulpwood was the most harvested product in Michigan in 2004 (Fig. 7). Aspen (32 percent), soft maple (17 percent), and hard maple (15 percent) accounted for 64 percent of the total pulpwood production and 78 percent of all hardwood pulpwood. Softwoods accounted for 19 percent of all pulpwood production with jack pine accounting for 7 percent. More than 84 percent of the aspen harvested for industrial roundwood in Michigan was used for this product in 2004.
- At 6.1 million cubic feet (37.8 million board feet), veneer was the third most harvested product (behind only pulpwood and sawlogs) in 2004 (Fig. 8). Hard maple and aspen accounted for 61 percent of the total species harvested for veneer production.
- Other industrial roundwood products harvested from Michigan in 2004 included posts, industrial fuelwood, cabin logs, mine timbers, poles, and handles. These six products accounted for less than 3 percent of the total volume of industrial roundwood harvested.
- Residential fuelwood is a major nonindustrial product in Michigan and is not included in this report. The results of a residential fuelwood study conducted in 1992 are available in May et al. (1993).

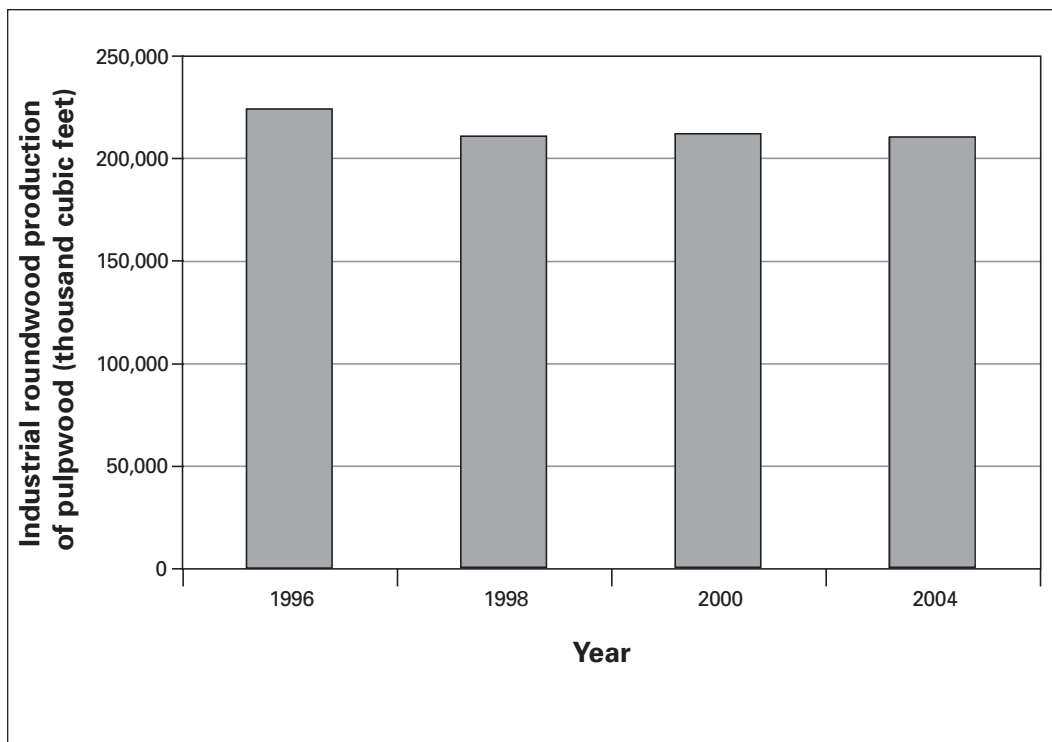


Figure 7.—Industrial roundwood production of pulpwood by survey year, Michigan (Haugen and Pilon 2002 and Haugen and Weatherspoon 2003).

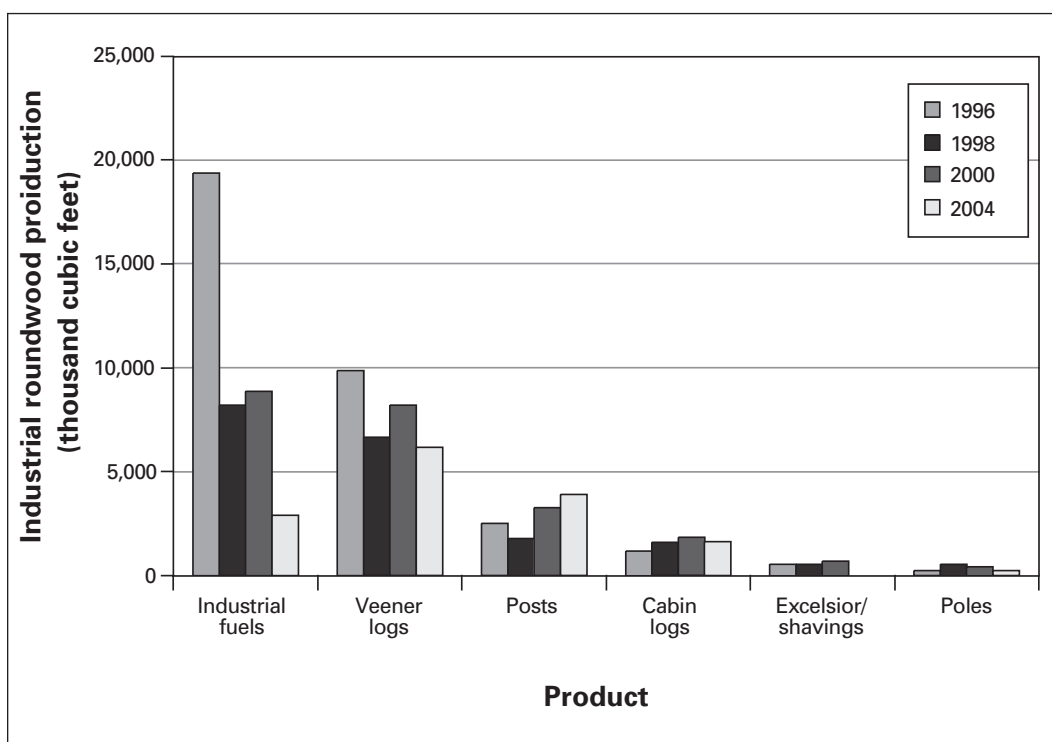


Figure 8.—Industrial roundwood production of other products by product and survey year, Michigan (Haugen and Pilon 2002 and Haugen and Weatherspoon 2003).

TIMBER REMOVALS

- During the harvest of industrial roundwood from Michigan's forests in 2004, 78 percent of the 442.6 million cubic feet of wood material cut was used for primary wood products. The remainder was left on the ground as harvest residues (logging slash and logging residue) (Fig. 9). At 321.2 million cubic feet, growing stock sources were the largest component of removals for industrial roundwood production; 93 percent of the growing stock removed was used for products and 7 percent was left as harvest residue. Another 121.3 million cubic feet of nongrowing-stock material was removed in the production of industrial roundwood, but only 38 percent of this was used for products (Table 9).
- Cull trees and limbwood accounted for 17 and 16 percent, respectively, of the nongrowing-stock sources of roundwood used for the production of primary wood products. The remaining nongrowing-stock material that was used for industrial roundwood production was from dead trees and saplings.
- In 2004, 321.2 million cubic feet were removed from the growing-stock inventory on timberland and 1.07 billion board feet were removed from the sawtimber inventory on timberland (Tables 10 and 11).

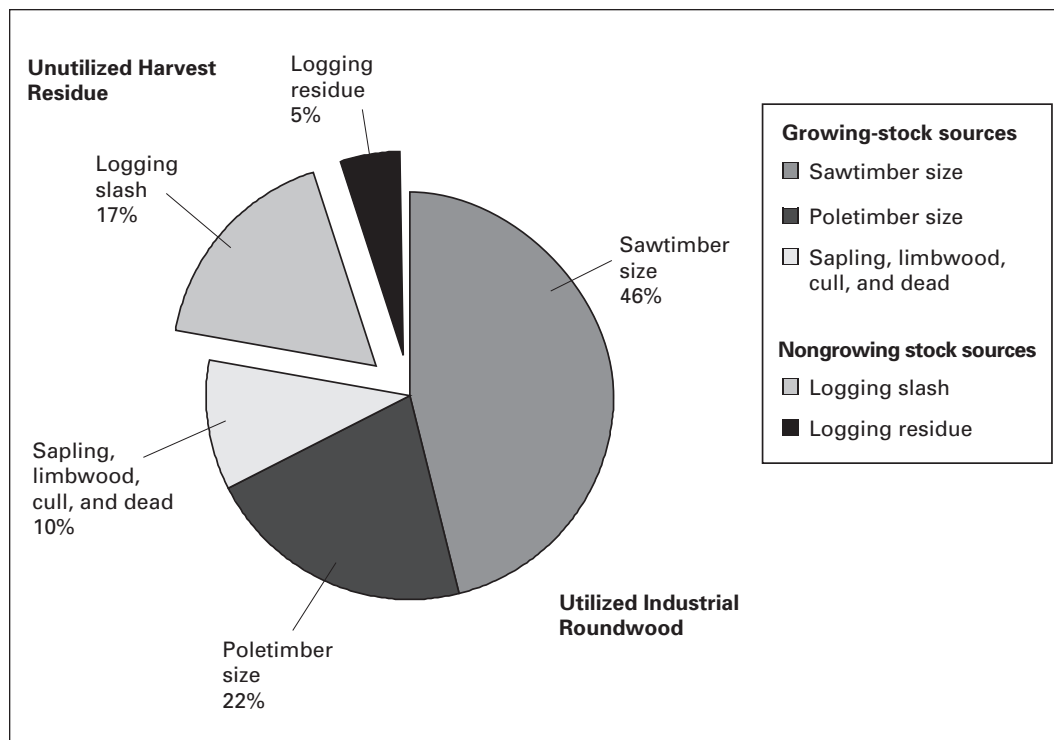


Figure 9.—Distribution of timber removals for industrial roundwood by source of material, Michigan, 2004.

HARVEST INTENSITY

- Harvest intensity (volume of industrial roundwood harvested per acre of forest land) is light. Only eight counties had more than 25 cubic feet of industrial roundwood production per acre of forest land (Fig. 10). For reference, a cord of roundwood contains about 80 cubic feet of wood.
- In 2004 there were 19.3 million acres of forest land in Michigan (Hansen and Brand 2006). The net volume in live trees on forest land was 30.2 billion cubic feet. The average volume of live trees per acre in Michigan in 2004 was 1,565 cubic feet/per acre. The 443 million cubic feet of total wood material removed due to harvesting (Table 9) is less than 1.4 percent of the total live volume of trees on forest land.

HARVEST RESIDUES

- In 2004, harvesting of industrial roundwood products left 97.8 million cubic feet of harvest residues on the ground in Michigan (Table 12).
- Hard maple, soft maple, and aspen accounted for 48 percent of the volume of harvest residues generated in Michigan in 2004. Softwood species including red pine (10 percent), jack pine (9 percent) and spruce (4 percent) accounted for another 31 percent of the volume of harvest residues.
- More than 75 percent of the wood material left on the ground after the harvest of Michigan's industrial roundwood came from nongrowing-stock sources such as limbwood, dead trees, cull trees, and saplings.
- As energy prices increase, harvest residues could be a feedstock for the development of industrial and domestic fuel.

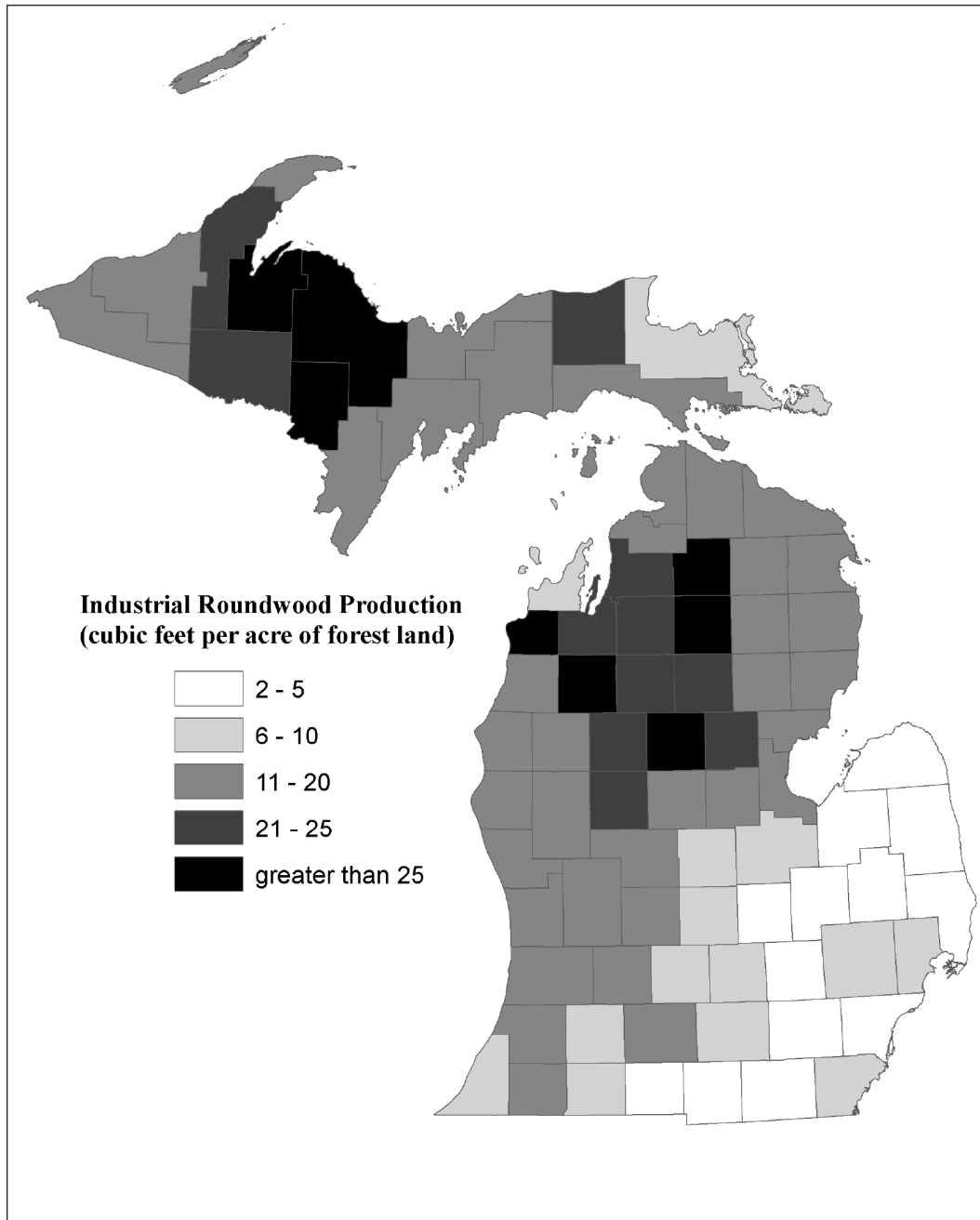


Figure 10.—Harvest intensity for industrial roundwood production, Michigan, 2004.

PRIMARY MILL RESIDUES

- Michigan's primary wood-using industries generated more than 3 million green tons of wood residues (e.g., coarse and fine residues) and bark residues when converting industrial roundwood into products (e.g., lumber, wood pulp, and veneer) (Table 13).
- In 2004, 35.4 percent of the mill residues were in the form of coarse wood residues, such as slabs and edgings. Fine residues made up another 29.5 percent of the mill residues produced, and bark residue accounted for the remaining 35.1 percent (Fig. 11).
- In 2004, nearly 45 percent of the total residues produced by Michigan's primary wood-using mills was used for industrial or domestic fuel. Fiber products consumed 30.1 percent while miscellaneous uses (e.g. livestock bedding, mulch, small-dimension lumber) consumed 23.9 percent. Only 1 percent of mill residues was unused in 2004 (Fig. 12).
- In 2004, 15 percent of the coarse residues, 28 percent of fine residues, and 33 percent of bark residues were used in the production of industrial/domestic fuel.
- At 1 percent, the proportion of unused mill residues in Michigan is less than other states in the region. Unused residues in Wisconsin and Minnesota totaled 4 and 2 percent respectively (Reading and Whipple 2007, Reading and Jacobson 2008).

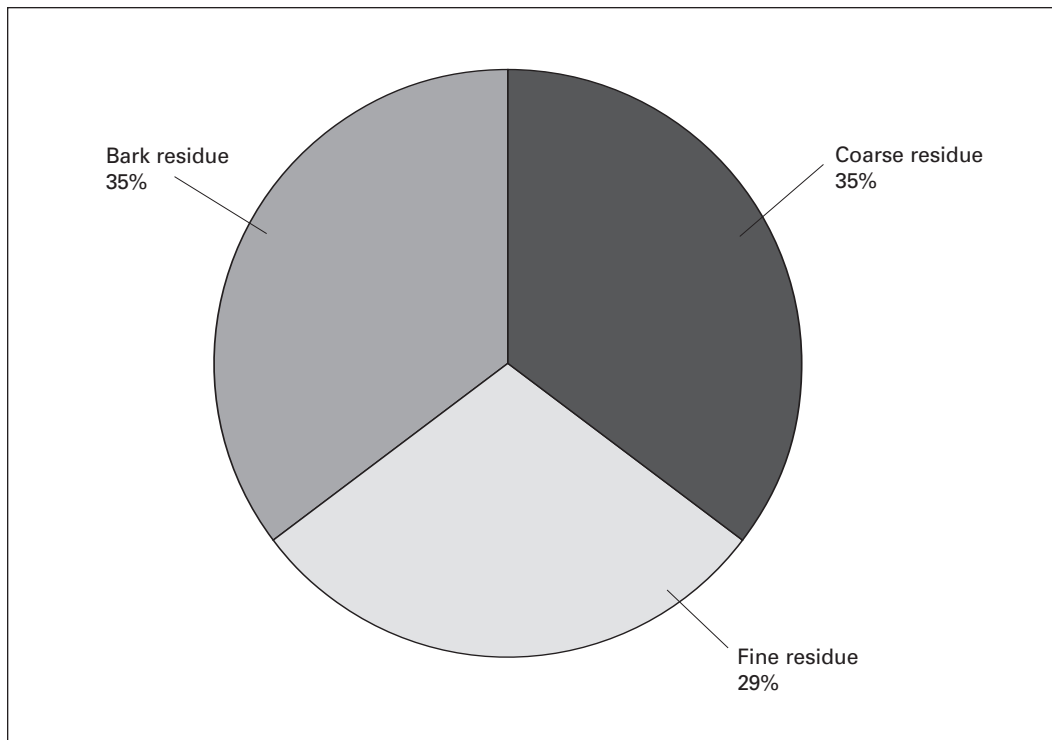


Figure 11.—

Distribution of residues generated by primary wood-using mills by type of residue, Michigan, 2004.

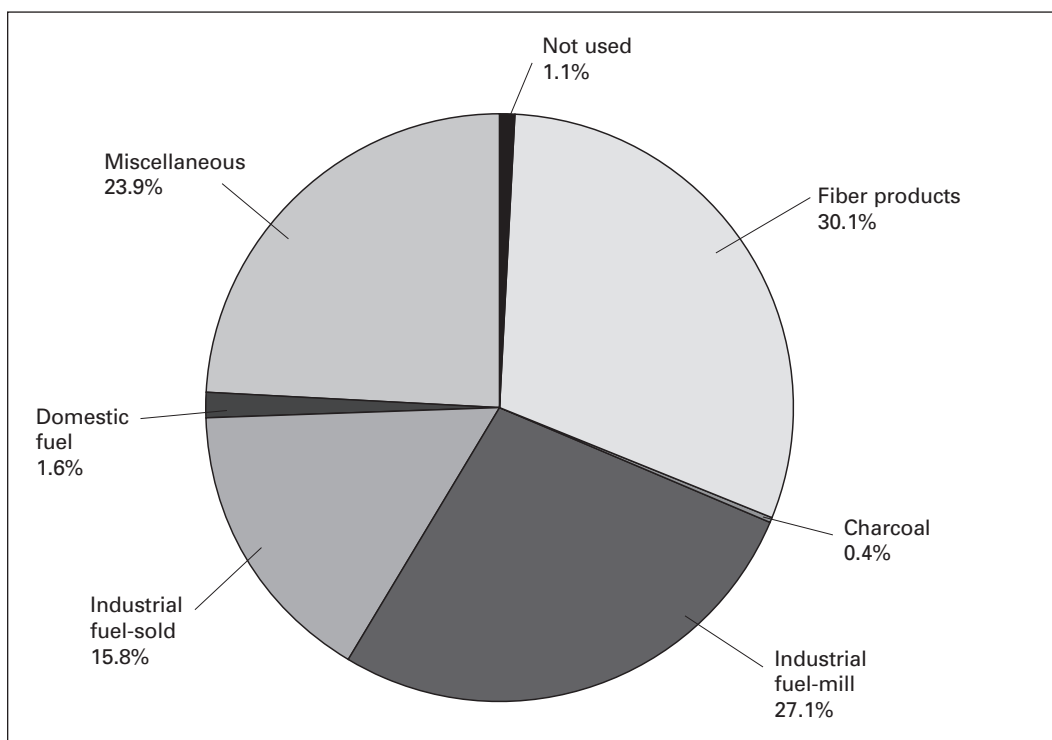


Figure 12.—

Distribution of residues generated by primary wood-using mills by method of disposal, Michigan, 2004.

Acknowledgments

We greatly appreciate the cooperation of the primary wood-using firms that supplied valuable information for this study and thank members of the Michigan Department of Natural Resources for canvassing survey respondents during the preparation of this report. Figures 2 and 8 were created by Dale Gormanson, U.S. Forest Service's Northern Research Station, St. Paul, MN.

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Definition of Terms

Board foot. Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its equivalent).

Bolt. A short log no more than 8 feet long, to be sawn for lumber, peeled or sliced for veneer, shaved for excelsior, or converted into shingles, cooperage stock, dimension stock, blocks, blanks, or other products.

Central stem. The portion of a tree between a 1-foot stump and the minimum 4.0-inch top diameter outside bark, or point where the central stem breaks into limbs.

Coarse mill residue. Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. (Note: Excludes species of typically small size, poor form, or inferior quality such as hophornbeam, Osage-orange, and redbud.)

Cull removals. Net volume of rough and rotten trees plus the net volume in sections of the central stem of growing-stock trees that do not meet regional merchantability standards but are harvested for industrial roundwood products.

Dead removals. Net volume of dead trees harvested for industrial roundwood products.

Diameter at breast height (d.b.h.). The outside bark diameter at 4.5 feet above the forest floor on the uphill side of the tree. For determining breast height, the forest floor includes the duff layer that may be present, but does not include unincorporated woody debris that may rise above the ground line.

Doyle rule. A simple log rule or formula for estimating the board-foot volume of logs based on a 4-inch slabbing allowance to square the log. This rule is used in the Eastern and Southern United States.

Exports. The volume of roundwood utilized by mills outside the state where the timber was harvested.

Fine mill residue. Wood residue not suitable for chipping, such as sawdust and veneer clippings.

Forest land. Land at least 10 percent stocked with trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. (Note: Stocking is measured by comparing specified standards with basal area and/or number of trees, age or size, and spacing.) The minimum area for classification of forest land is

1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams or other bodies of water, or clearings in forest areas shall be classified as forest if less than 120 feet wide.

Growing-stock removals. The growing-stock volume removed from timberland by harvesting industrial roundwood products. (Note: Includes sawtimber removals, poletimber removals, and logging residues.)

Growing-stock tree. A live timberland tree of commercial species that meets specified standards of size, quality, and merchantability. (Note: Excludes rough, rotten, and dead trees.)

Growing-stock volume. Net volume of growing-stock trees 5.0 inches d.b.h. and larger, from 1 foot above the ground to a minimum 4.0-inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Harvest residues. The total net volume of unused portions of trees cut or killed by logging. (Note: Includes both logging residues and logging slash.)

Industrial fuelwood. A roundwood product, with or without bark, used to generate energy at manufacturing facilities and schools, correctional institutions, or electric generating plants.

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

Industrial roundwood exports. The quantity of industrial roundwood harvested in a geographical area and transported to other geographical areas.

Industrial roundwood imports. The quantity of industrial roundwood received from other geographical areas.

Industrial roundwood products. Saw logs, pulpwood, veneer logs, poles, commercial posts, pilings, cooperage logs, particleboard bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood used for pulp or board products.

Industrial roundwood production. The quantity of industrial roundwood harvested in a geographic area plus all industrial roundwood exported to other geographical areas.

Industrial roundwood receipts. The quantity of industrial roundwood received by commercial mills in a geographic area plus all industrial roundwood imported from other geographical areas.

Industrial roundwood retained. The quantity of industrial roundwood harvested from and processed by commercial mills within the same geographical area.

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs, allowing 1/2-inch of taper for each 4-foot length, and assuming 1/4-inch of kerf. This rule is used as the U.S. Forest Service standard log rule in the Eastern United States.

Limbwood removals. Net volume of all portions of a tree other than the central stem (including forks, large limbs, tops, and stumps) harvested for industrial roundwood products.

Logging residue. The net volume of unused portions of the merchantable central stem of growing-stock trees cut or killed by logging.

Logging slash. The net volume of unused portions of the unmerchantable (nongrowing-stock) sections of trees cut or killed by logging.

Merchantable sections. Refers to sections of the central stem of growing-stock trees that meet either pulpwood or saw log specifications.

Net volume. Gross volume less deductions for rot, sweep, or other defects affecting use for roundwood products.

Noncommercial species. Trees species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial roundwood products. Noncommercial species are listed in the volume tables as rough trees.

Nonforest land. Land that has never supported forests, and land formerly forested where use for timber management is precluded by development for other uses. (Note: Includes areas used for crops, active Christmas tree plantations, orchards, nurseries, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, powerline clearings of any width, and 1- to 39.9-acre areas of water classified by the Bureau of the Census as land.) If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet wide and more than 1 acre to qualify as nonforest land.

Nonforest land removals. Net volume of trees on nonforest lands harvested for industrial roundwood products.

Poletimber. A growing-stock tree at least 5.0 inches d.b.h. but smaller than sawtimber size (9.0 inches d.b.h. for softwoods, 11.0 inches d.b.h. for hardwoods).

Poletimber removals. Net volume in the merchantable central stem of poletimber trees harvested for industrial roundwood products.

Primary wood-using mills. Mills receiving roundwood or chips from roundwood for processing into products such as lumber, veneer, pulp, etc.

Primary wood-using mill residue. Wood materials (coarse and fine) and bark generated at manufacturing plants that process industrial roundwood into principal products. These residues include wood products obtained incidental to production of principal products and wood materials not utilized for some product.

Production. The quantity of roundwood material harvested in a geographic area plus all roundwood material exported to other geographical areas.

Receipts. The quantity of roundwood material received by commercial mills in a geographic area plus all roundwood material imported from other geographical areas.

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

Rotten tree. A tree that does not meet regional merchantability standards because of excessive unsound cull.

Rough tree. A tree that does not meet regional merchantability standards because of excessive sound cull, including noncommercial tree species.

Roundwood. Logs, bolts, or other round sections cut from trees (including chips from roundwood).

Sapling. A live tree between 1.0 and 5.0 inches d.b.h.

Sapling removals. Net volume in saplings harvested for industrial roundwood products.

Saw log portion. That portion of the central stem of sawtimber trees between the stump and the saw log top.

Saw log top. The point on the central stem of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7.0 inches diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods.

Sawtimber removals. As used in Table 9, sawtimber removals refers to the net volume in the merchantable central stem of sawtimber-size trees harvested for industrial roundwood products. (Note: includes the saw log and upper stem portions of sawtimber-size trees.) When referring to the sawtimber volume removed from timberland as in Table 11, sawtimber removals refers to the net volume in the saw log portion of sawtimber-size trees harvested for roundwood products or left on the ground as harvest residue, and is usually expressed in thousands of board feet (International 1/4-inch rule).

Sawtimber tree. A growing-stock tree containing at least a 12 foot saw log or two noncontiguous saw logs 8 feet or longer, and meeting regional specifications for freedom from defect. Softwoods must be at least 9.0 inches d.b.h. and hardwoods must be at least 11.0 inches d.b.h.

Sawtimber volume. Net volume in the saw log portion of sawtimber trees.

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

Timber product output. The volume of roundwood products produced from an area's forests.

Timberland. Forest land that is producing, or is capable of producing, in excess of 20 cubic feet per acre per year of industrial roundwood products under natural conditions, is not withdrawn from timber utilization by statute or administrative regulation, and is not associated with urban or rural development.

Tree. A woody perennial plant, typically large, with a single well-defined stem carrying a more or less definite crown; sometimes defined as attaining a minimum diameter of 3 inches (7.6 cm) and a minimum height of 15 ft (4.6 m) at maturity. For FIA, any plant on the tree list in the current field manual is measured as a tree.

Upper stem portion. That portion of the central stem of sawtimber trees between the saw log top and the minimum top diameter of 4.0 inches outside bark, or to the point where the central stem breaks into limbs.

Common and Scientific Names of Tree Species Mentioned in This Report

SOFTWOODS

Pine

Jack pine	<i>Pinus banksiana</i>
Red pine	<i>Pinus resinosa</i>
Eastern white pine	<i>Pinus strobus</i>

Spruce

White spruce	<i>Picea glauca</i>
Black spruce	<i>Picea mariana</i>

Balsam fir

Abies balsamea

Eastern hemlock

Tsuga canadensis

Tamarack

Larix laricina

Northern white-cedar

Thuja occidentalis

Eastern redcedar

Juniperis virginiana

HARDWOODS

White oak group

White oak	<i>Quercus alba</i>
Bur oak	<i>Quercus macrocarpa</i>
Chinkapin oak	<i>Quercus muehlenbergii</i>
Swamp white oak	<i>Quercus bicolor</i>

Red oak group

Northern red oak	<i>Quercus rubra</i>
Black oak	<i>Quercus velutina</i>
Northern pin oak	<i>Quercus ellipsoidalis</i>

Hickory

Bitternut hickory	<i>Carya cordiformis</i>
Pignut hickory	<i>Carya glabra</i>
Shagbark hickory	<i>Carya ovata</i>

Birch	
River birch	<i>Betula nigra</i>
White birch	<i>Betula papyrifera</i>
Yellow birch	<i>Betula alleghaniensis</i>
Hard maple	
Black maple	<i>Acer nigrum</i>
Sugar maple	<i>Acer saccharum</i>
Soft maple	
Red maple	<i>Acer rubrum</i>
Silver maple	<i>Acer saccharinum</i>
American beech	<i>Fagus grandifolia</i>
Ash	
Black ash	<i>Fraxinus nigra</i>
White ash	<i>Fraxinus americana</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Balsam poplar	<i>Populus balsamifera</i>
Aspen	
Bigtooth aspen	<i>Populus grandidentata</i>
Quaking aspen	<i>Populus tremuloides</i>
Eastern cottonwood	<i>Populus deltoides</i>
American basswood	<i>Tilia americana</i>
Black walnut	<i>Juglans nigra</i>
Elm	
American elm	<i>Ulmus americana</i>
Rock elm	<i>Ulmus thomasii</i>
Slippery elm	<i>Ulmus rubra</i>
Other hardwoods	
Northern catalpa	<i>Catalpa speciosa</i>
Black cherry	<i>Prunus serotina</i>
River birch	<i>Betula nigra</i>

Black locust
Honeylocust
Red mulberry
Butternut
Black willow
Boxelder
Hackberry

Robinia pseudoacacia
Gleditsia triacanthos
Morus rubra
Juglans cinerea
Salix nigra
Acer negundo
Celtis occidentalis

Table Titles

Table 1.—Conversion factors from reported unit of measure to International 1/4-inch rule (see page 5)

Table 2.—Number of active primary wood-using mills by survey year, Michigan

Table 3.—Industrial roundwood receipts (thousand cubic feet) by species group and state of origin, Michigan, 2004

Table 4.—Industrial roundwood production (thousand cubic feet) by product, softwoods and hardwoods, and survey year, Michigan

Table 5.—Industrial roundwood production by Forest Inventory Unit, species group and product, Michigan, 2004

Table 6.—Industrial roundwood production (thousand cubic feet) by Forest Inventory Unit, county, and species group, Michigan, 2004

Table 7.—Industrial roundwood production (thousand cubic feet) by Forest Inventory Unit, species group, and state of destination, Michigan, 2004

Table 8.—Saw log receipts and production (thousand board feet) by Forest Inventory Unit and species group, Michigan, 2000 and 2004

Table 9.—Wood material harvested for industrial roundwood (thousand cubic feet) by Forest Inventory Unit, source of material and species group, Michigan, 2004

Table 10.—Growing-stock removals from timberland for industrial roundwood (thousand cubic feet) by Forest Survey Unit, county, and species group, Michigan 2004

Table 11.—Sawtimber removals (thousand cubic feet) from timberland for industrial roundwood by Forest Survey Unit, county, and species group, Michigan 2004

Table 12.—Harvest residue (thousand cubic feet) generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, Michigan, 2004

Table 13.—Disposition of residues produced at primary wood-using mills by Forest Inventory Unit, disposition, residue type, and softwoods and hardwoods, Michigan, 2004

Table 2.—Number of active primary wood-using mills by survey year, Michigan

Kind of mill and mill size	Survey Year						
	1990	1992	1994	1996	1998	2000	2004
Sawmills^a							
Large	39	30	35	34	35	35	36
Medium	105	107	99	92	95	81	83
Small	200	176	142	153	140	131	127
Total	344	313	276	279	270	247	246
Pulp mills	11	11	11	12	12	12	8
Veneer mills	7	7	6	6	5	6	5
Other products ^b	43	23	40	43	37	41	35
All mills	405	354	333	340	324	306	294

^a Annual lumber production in thousand board feet (mbf), International 1/4-inch rule.

^b Includes plants producing shavings, posts, poles, etc.

Table 3.—Industrial roundwood receipts (thousand cubic feet) by species group and state of origin, Michigan, 2004

Species group	Total	Illinois	Indiana	Iowa	State of origin						
					Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Softwoods											
Fir	7,578	--	--	--	6,989	--	585	--	--	--	4
Redcedar	0	--	--	--	--	--	--	0	--	--	--
Tamarack	1,298	--	--	--	1,247	--	41	--	--	--	11
Spruce	6,906	--	--	--	6,241	--	463	--	--	--	201
Jack pine	36,186	--	--	--	28,280	149	7,681	--	--	--	76
Red pine	34,455	--	1	--	29,035	151	5,237	--	2	--	30
White pine	3,100	--	0	--	2,782	--	317	--	--	--	1
Other/unknown pine	426	--	--	--	426	--	--	--	--	--	--
N. white cedar	4,518	--	--	--	4,182	--	166	--	--	--	171
Hemlock	5,548	--	--	--	4,944	--	604	--	--	--	--
Other/unknown sftwds	8	--	--	--	8	--	--	--	--	--	--
Total	100,023	--	1	--	84,134	300	15,093	0	2	--	494
Hardwoods											
Soft maple	47,909	--	3	--	41,414	--	5,912	--	0	1	578
Hard maple	53,369	29	91	25	46,287	--	5,720	68	68	231	849
White birch	9,168	--	--	--	7,835	--	1,186	--	--	17	131
Yellow birch	4,966	--	--	--	4,015	--	809	--	--	32	110
Hickory	694	--	6	--	688	--	--	--	0	--	--
Beech	7,177	--	0	--	6,169	--	883	--	--	--	124
Ash	5,851	--	1	--	5,267	--	550	--	--	--	34
Black walnut	364	1	1	1	357	--	1	1	1	--	--
Yellow-poplar	87	--	8	--	79	--	--	--	--	--	--
Sycamore	0	--	--	--	0	--	--	--	--	--	--
Cottonwood	198	--	2	--	197	--	--	--	--	--	--
Balsam poplar	4,259	--	--	--	3,836	--	373	--	--	--	50
Aspen	85,926	--	--	--	74,595	33	5,564	--	--	--	5,734
Black cherry	3,181	4	30	3	3,081	--	9	8	8	--	37
Other/unknown cherry	1,283	--	--	--	1,085	--	180	--	--	--	18

(Table 3 continued on next page)

(Table 3 continued)

Red oak group	21,209	15	40	12	19,531	--	1,386	34	35	--	156
White oak group	4,864	5	45	4	4,749	--	13	12	35	--	--
Sassafras	2	--	--	--	2	--	--	--	--	--	--
Basswood	8,764	--	0	--	7,447	--	1,224	--	--	--	93
Elm	180	--	0	--	179	--	--	--	0	--	--
Other/unknown hrdwds	976	--	--	--	780	--	177	--	--	--	18
Total	260,427	55	227	46	227,592	33	23,988	124	149	282	7,931
All Species	360,451	55	228	46	311,726	332	39,081	124	151	282	8,425

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 cubic feet.

Table may not sum due to rounding.

Table 4.—Industrial roundwood production (thousand cubic feet) by product, softwoods and hardwoods, and survey year, Michigan

Product	Survey Year			
	1996	1998	2000	2004
Softwoods				
Saw logs	23,240	36,208	42,146	46,773
Veneer logs	502	431	398	330
Pulpwood	47,495	40,156	38,539	39,806
Cabin logs	1,174	1,580	1,858	--
Handles	--	--	--	--
Industrial fuelwood	12,622	2,553	2,554	--
Misc.	13	16	--	--
Excelsior	--	--	--	--
Poles	236	553	434	237
Posts	1,893	1,762	3,256	3,907
Total	87,175	83,259	89,185	91,053
Hardwoods				
Saw logs	75,247	94,739	88,873	74,688
Veneer logs	9,355	6,240	7,800	5,832
Pulpwood	176,391	170,106	172,897	170,180
Cabin logs	--	23	--	--
Handles	--	--	18	14
Industrial fuelwood	6,750	5,641	6,316	2913
Misc.	--	21	--	--
Excelsior	544	544	711	--
Poles	--	--	434	--
Posts	620	23	3,256	--
Total	268,907	277,337	280,305	253,627
All products	356,082	360,596	369,490	344,680

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 cubic feet.

Table may not sum due to rounding.

Table 5.—Industrial roundwood production by Forest Inventory Unit, species group and product, Michigan, 2004^a

Species group	All products		Saw logs		Veneer logs		Veneer logs		Pulpwood		Handles		Handles		Industrial fuelwood		Industrial fuelwood		Poles		Poles		Posts	
	MCF c/	MBF b/	logs	MCF c/	logs	MBF b/	MCF c/	logs	MBF b/	MCF c/	Cords d/	MCF c/	MBF b/	MCF c/	Cords d/	MCF c/	Cords d/	Pieces	MCF c/	Pieces	MCF c/	M pieces	MCF c/	
All Units																								
Softwoods																								
Fir	8,044	8,971	1,689	--	--	--	--	--	--	79,314	6,266	--	--	--	--	--	--	--	--	--	--	86	89	
Tamarack	1,693	916	172	--	--	--	--	--	--	19,242	1,520	--	--	--	--	--	--	--	--	--	--	--	--	
Spruce	10,015	21,851	4,115	250	41	74,144	5,857	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2		
Jack pine	29,106	71,171	13,402	--	--	--	--	--	--	198,788	15,704	--	--	--	--	--	--	--	--	--	--	--	--	
Red pine	29,580	133,223	23,529	1,151	187	50,907	4,022	--	--	--	--	--	--	--	--	--	--	39,439	237	1,562	1,606			
White pine	2,971	12,173	2,190	624	102	8,587	678	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Other/unknown pine	426	--	--	--	--	--	426	--	--	5,394	426	--	--	--	--	--	--	--	--	--	--	--		
N. white cedar	4,155	6,900	1,608	--	--	--	335	--	--	4,245	335	--	--	--	--	--	--	--	--	--	2,151	2,211		
Hemlock	5,056	402	67	--	--	--	4,988	--	--	63,141	4,988	--	--	--	--	--	--	--	--	--	--	--		
Other/unknown softwds	8	--	--	--	--	--	8	--	--	104	8	--	--	--	--	--	--	--	--	--	--	--		
Softwood total		91,053	255,607	46,773	2,025	330	503,868	39,806	--	--	--	--	--	--	--	--	--	39,439	237	3,801	3,907			
Hardwoods																								
Soft maple	45,800	53,065	9,329	691	113	449,199	35,487	--	--	--	12,466	871	--	--	--	--	--	--	--	--	--	--		
Hard maple	53,375	122,748	19,914	14,528	2,365	388,117	30,661	--	--	--	6,208	434	--	--	--	--	--	--	--	--	--	--		
White birch	10,403	7,940	1,394	1,614	263	110,291	8,713	2	0	473	33	--	--	--	--	--	--	--	--	--	--	--		
River birch	8	25	4	25	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Yellow birch	4,683	8,593	1,447	1,648	268	37,382	2,953	1	0	199	14	--	--	--	--	--	--	--	--	--	--	--		
Hickory	994	4,223	715	119	19	3,255	257	--	--	32	2	--	--	--	--	--	--	--	--	--	--	--		
Hackberry	13	72	13	2	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Beech	5,791	8,922	1,503	160	26	53,041	4,190	--	--	--	1,037	72	--	--	--	--	--	--	--	--	--	--		
Ash	6,565	18,755	3,487	587	95	35,808	2,829	84	14	2,005	140	--	--	--	--	--	--	--	--	--	--	--		
Butternut	5	2	0	--	--	60	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Black walnut	545	2,742	462	510	83	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Yellow-poplar	235	1,243	218	101	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Sycamore	27	151	27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Cottonwood	277	1,569	276	--	--	--	--	--	--	--	25	2	--	--	--	--	--	--	--	--	--	--		

(Table 5 continued on next page)

(Table 5 continued)

Species group	All products		Saw logs		Veneer logs		Pulpwood		Handles		Industrial fuelwood		Poles		Posts	
	MCF c/	MBF b/	MCF c/	MBF b/	MCF c/	MBF b/	Cords d/	MCF c/	MBF b/	MCF c/	Cords d/	MCF c/	Pieces	MCF c/	pieces	MCF c/
Balsam poplar	3,849	454	80	--	--	--	47,581	3,759	--	--	148	10	--	--	--	--
Aspen	79,073	58,764	10,337	8,638	1,406	--	846,379	66,864	--	--	6,673	466	--	--	--	--
Black cherry	3,584	19,153	3,363	911	148	--	--	--	--	--	1,032	72	--	--	--	--
Other/unknown cherry	1,219	--	--	--	--	--	15,424	1,219	--	--	--	--	--	--	--	--
Red oak group	21,806	89,634	15,743	4,929	802	--	60,455	4,776	1	0	6,943	485	--	--	--	--
White oak group	5,520	14,522	2,861	1,247	203	--	28,713	2,268	--	--	2,696	188	--	--	--	--
Black locust	2	11	2	--	--	--	--	--	--	--	--	--	--	--	--	--
Sassafras	10	46	8	--	--	--	--	--	--	--	20	1	--	--	--	--
Basswood	8,401	18,768	3,296	67	11	--	63,210	4,994	--	--	1,448	101	--	--	--	--
Elm	510	314	58	46	7	--	5,394	426	--	--	263	18	--	--	--	--
Other/unknown hrdwds	932	865	152	--	--	--	9,872	780	--	--	--	--	--	--	--	--
Hardwood total	253,627	432,581	74,688	35,823	5,832	--	2,154,181	170,180	87	14	41,670	2,913	--	--	--	--
State Total	344,680	688,189	120,783	37,848	6,162	--	2,658,049	209,986	87	14	41,670	2,913	39,439	237	3,801	3,907
Eastern Upper Peninsula																
Softwoods																
Fir	3,293	2,301	433	--	--	--	35,494	2,804	--	--	--	--	--	--	55	56
Tamarack	645	12	2	--	--	--	8,137	643	--	--	--	--	--	--	--	--
Spruce	2,414	3,578	674	16	3	--	21,992	1,737	--	--	--	--	--	--	--	--
Jack pine	5,959	17,180	3,235	--	--	--	34,485	2,724	--	--	--	--	--	--	--	--
Red pine	3,159	8,222	1,464	31	5	--	20,828	1,645	--	--	--	--	7,359	44	--	--
White pine	987	4,169	714	162	26	--	3,132	247	--	--	--	--	--	--	--	--
N. white cedar	2,496	3,779	965	--	--	--	1,792	142	--	--	--	--	--	--	1,351	1,389
Hemlock	1,788	--	--	--	--	--	22,627	1,788	--	--	--	--	--	--	--	--
Softwood total	20,741	39,240	7,488	208	34	--	148,485	11,730	--	--	--	--	7,359	44	1,406	1,445
Hardwoods																
Soft maple	9,311	6,386	14	88	14	--	103,478	8,175	--	--	--	--	--	--	--	--
Hard maple	10,832	12,529	638	3,917	638	--	103,315	8,162	--	--	--	--	--	--	--	--
White birch	3,113	3,793	103	633	103	--	29,670	2,344	--	--	--	--	--	--	--	--
Yellow birch	1,413	2,127	73	451	73	--	12,421	981	--	--	--	--	--	--	--	--

(Table 5 continued on next page)

(Table 5 continued)

Species group	All products		Saw		Veneer		Veneer		Saw		Veneer		Pulpwood		Pulpwood		Handles		Handles		Industrial fuelwood		Industrial fuelwood		Poles		Poles		Posts	
	MCF c/	MBF b/	logs	logs	logs	logs	logs	logs	logs	logs	logs	logs	Cords d/	MCF c/	Cords d/	MCF c/	MBF b/	MCF c/	MBF b/	Cords d/	MCF c/	Pieces	MCF c/	Pieces	M	MCF c/	Pieces	M	MCF c/	
Beech	2,042	3,682	3	18	3	17,966	1,419	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ash	721	660	4	22	4	7,670	606	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Yellow-poplar	25	140	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Balsam poplar	894	---	---	---	---	11,317	894	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Aspen	11,960	7,351	84	517	84	133,965	10,583	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Black cherry	152	810	10	59	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Other/unknown cherry	375	---	---	---	---	4,753	375	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Red oak group	845	1,634	8	46	8	6,971	551	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
White oak group	168	462	0	2	0	1,098	87	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Basswood	1,188	2,098	2	14	2	10,350	818	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Elm	65	3	---	---	---	818	65	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Other/unknown hrdwds	153	---	---	---	---	1,935	153	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hardwood total	43,257	41,677	939	5,767	939	445,728	35,213	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	63,998	80,917	973	5,975	973	594,213	46,943	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Northern Lower Peninsula

Softwoods																							
Fir	579	174	33	--	--	6,863	542	--	--	--	--	--	--	--	--	--	--	--	--	4	--	4	--
Tamarack	353	610	115	--	--	3,009	238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce	556	391	74	--	--	6,079	480	--	--	--	--	--	--	--	--	--	--	--	--	2	--	2	--
Jack pine	17,203	33,281	6,267	--	--	138,436	10,936	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red pine	23,550	119,660	20,067	--	--	9,339	738	--	--	--	--	--	--	--	--	--	--	30,422	183	1,562	--	1,606	--
White pine	857	3,592	602	71	12	2,695	213	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other/unknown pine	426	--	--	--	--	5,394	426	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N. white cedar	724	1,256	236	--	--	415	33	--	--	--	--	--	--	--	--	--	--	--	--	443	--	455	--
Hemlock	45	37	6	--	--	489	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other/unknown sftwds	8	--	--	--	--	104	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Softwood total	44,301	159,000	27,400	71	12	172,823	13,653	--	--	--	--	--	--	--	--	--	--	30,422	183	2,011	--	2,067	--
Hardwoods																							
Soft maple	17,409	19,476	3,420	89	14	165,866	13,103	--	--	--	--	--	--	--	--	--	12,466	--	--	--	--	--	--

(Table 5 continued on next page)

(Table 5 continued)

Species group	All products MCF c/	Saw logs MBF b/	Saw logs MCF c/	Veneer logs MBF b/	Veneer logs MCF c/	Pulpwood Cords d/	Pulpwood MCF c/	Handles MBF b/	Handles MCF c/	Industrial fuelwood Cords d/	Industrial fuelwood MCF c/	Poles Pieces	Poles MCF c/	Posts M pieces	Posts MCF c/
Hard maple	14,445	51,788	8,400	1,645	268	67,635	5,343	--	--	6,208	434	--	--	--	--
White birch	2,452	1,339	235	--	--	27,639	2,183	2	0	473	33	--	--	--	--
Yellow birch	157	82	14	--	--	1,631	129	1	0	199	14	--	--	--	--
Hickory	295	411	69	--	--	2,833	224	--	--	32	2	--	--	--	--
Beech	1,555	3,563	600	52	9	11,065	874	--	--	1,037	72	--	--	--	--
Ash	2,372	8,033	1,353	253	41	10,602	838	--	--	2,005	140	--	--	--	--
Black walnut	8	49	8	1	0	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	9	53	9	--	--	--	--	--	--	--	--	--	--	--	--
Cottonwood	93	521	91	--	--	--	--	--	--	25	2	--	--	--	--
Balsam poplar	1,053	7	1	--	--	13,177	1,041	--	--	148	10	--	--	--	--
Aspen	39,457	40,515	7,127	--	--	403,336	31,864	--	--	6,673	466	--	--	--	--
Black cherry	630	3,088	542	98	16	--	--	--	--	1,032	72	--	--	--	--
Other/unknown cherry	223	--	--	--	--	2,818	223	--	--	--	--	--	--	--	--
Red oak group	11,329	48,286	8,474	581	95	28,795	2,275	1	0	6,943	485	--	--	--	--
White oak group	2,103	5,293	929	104	17	12,265	969	--	--	2,696	188	--	--	--	--
Sassafras	1	--	--	--	--	--	--	--	--	20	1	--	--	--	--
Basswood	3,473	8,570	1,505	9	1	23,613	1,865	--	--	1,448	101	--	--	--	--
Elm	158	34	6	2	0	1,693	134	--	--	263	18	--	--	--	--
Other/unknown hrdwds	411	3	1	--	--	5,200	411	--	--	--	--	--	--	--	--
Hardwood total	97,634	191,110	32,784	2,834	461	778,168	61,475	3	0	41,670	2,913	--	--	--	--
Total	141,935	350,110	60,184	2,905	473	950,991	75,128	3	0	41,670	2,913	30,422	183	2,011	2,067

Southern Lower Peninsula

Softwoods															
Fir	7	--	--	--	--	85	7	--	--	--	--	--	--	--	--
Tamarack	0	--	--	--	--	6	0	--	--	--	--	--	--	--	--
Spruce	2	--	--	--	--	22	2	--	--	--	--	--	--	--	--
Jack pine	275	2	0	--	--	3,471	274	--	--	--	--	--	--	--	--
Red pine	544	3,159	531	--	--	176	14	--	--	--	--	--	--	--	--
White pine	38	137	26	--	--	146	12	--	--	--	--	--	--	--	--

(Table 5 continued on next page)

(Table 5 continued)

Species group	All products MCF c/	Saw logs MBF b/	Saw logs MCF c/	Veneer logs MBF b/	Veneer logs MCF c/	Pulpwood Cords d/	Pulpwood MCF c/	Handles MBF b/	Handles MCF c/	Industrial fuelwood Cords d/	Industrial fuelwood MCF c/	Poles Pieces	Poles MCF c/	Posts M pieces	Posts MCF c/
N. white cedar	1	--	--	--	--	9	1	--	--	--	--	--	--	--	--
Hemlock	2	10	2	--	--	8	1	--	--	--	--	--	--	--	--
Softwood total	868	3,308	559	--	--	3,924	310	--	--	--	--	--	--	--	--
Hardwoods															
Soft maple	3,944	13,143	2,319	112	18	20,337	1,607	--	--	--	--	--	--	--	--
Hard maple	3,401	16,622	2,700	2,996	488	2,696	213	--	--	--	--	--	--	--	--
White birch	46	58	10	34	6	389	31	--	--	--	--	--	--	--	--
River birch	4	--	--	25	4	--	--	--	--	--	--	--	--	--	--
Yellow birch	12	4	1	--	--	149	12	--	--	--	--	--	--	--	--
Hickory	684	3,784	641	119	19	297	23	--	--	--	--	--	--	--	--
Hackberry	13	72	13	2	0	--	--	--	--	--	--	--	--	--	--
Beech	255	1,309	220	89	14	255	20	--	--	--	--	--	--	--	--
Ash	1,812	8,261	1,734	262	43	453	36	84	14	--	--	--	--	--	--
Black walnut	534	2,694	454	495	81	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	201	1,050	184	101	17	--	--	--	--	--	--	--	--	--	--
Sycamore	27	151	27	--	--	--	--	--	--	--	--	--	--	--	--
Cottonwood	184	1,048	184	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	143	446	78	--	--	818	65	--	--	--	--	--	--	--	--
Aspen	1,803	1,886	332	--	--	18,617	1,471	--	--	--	--	--	--	--	--
Black cherry	2,640	14,410	2,530	676	110	--	--	--	--	--	--	--	--	--	--
Other/unknown cherry	5	--	--	--	--	66	5	--	--	--	--	--	--	--	--
Red oak group	7,422	34,021	5,983	1,900	309	14,303	1,130	--	--	--	--	--	--	--	--
White oak group	3,223	8,631	1,827	1,130	184	15,348	1,213	--	--	--	--	--	--	--	--
Black locust	2	11	2	--	--	--	--	--	--	--	--	--	--	--	--
Sassafras	8	46	8	--	--	--	--	--	--	--	--	--	--	--	--
Basswood	516	2,733	480	3	1	454	36	--	--	--	--	--	--	--	--
Elm	72	276	49	43	7	161	13	--	--	--	--	--	--	--	--
Other/unknown hrdwds	6	38	6	--	--	--	--	--	--	--	--	--	--	--	--
Hardwood total	26,959	110,695	19,786	7,988	1,300	74,344	5,873	84	14	--	--	--	--	--	--
Total	27,827	114,003	20,341	7,988	1,300	78,268	6,183	84	14	--	--	--	--	--	--

(Table 5 continued on next page)

(Table 5 continued)

Species group	All products		Saw logs		Veneer logs		Pulpwood		Handles		Industrial fuelwood		Poles		Posts	
	MCF c/	MBF b/	logs	MCF c/	logs	MBF b/	MCF c/	Cords d/	MBF b/	MCF c/	Cords d/	MCF c/	Pieces	MCF c/	pieces	MCF c/
Western Upper Peninsula																
Softwoods																
Fir	4,165	6,497	1,223	--	--	--	36,872	2,913	--	--	--	--	--	--	28	28
Tamarack	695	294	55	--	--	--	8,091	639	--	--	--	--	--	--	--	--
Spruce	7,044	17,883	3,367	234	38	38	46,052	3,638	--	--	--	--	--	--	--	--
Jack pine	5,669	20,709	3,899	--	--	--	22,396	1,769	--	--	--	--	--	--	--	--
Red pine	2,327	2,182	510	1,121	182	182	20,565	1,625	--	--	--	--	1,658	10	--	--
White pine	1,089	4,275	819	392	64	64	2,614	207	--	--	--	--	--	--	--	--
N. white cedar	934	1,866	406	--	--	--	2,029	160	--	--	--	--	--	--	357	367
Hemlock	3,221	355	60	--	--	--	40,017	3,161	--	--	--	--	--	--	--	--
Softwood total	25,142	54,060	10,341	1,746	284	284	178,636	14,112	--	--	--	--	1,658	10	384	395
Hardwoods																
Soft maple	15,136	14,059	2,469	402	66	66	159,519	12,602	--	--	--	--	--	--	--	--
Hard maple	24,697	41,809	6,781	5,971	972	972	214,471	16,943	--	--	--	--	--	--	--	--
White birch	4,792	2,750	483	947	154	154	52,593	4,155	--	--	--	--	--	--	--	--
River birch	4	25	4	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	3,101	6,380	1,074	1,197	195	195	23,180	1,831	--	--	--	--	--	--	--	--
Hickory	15	28	5	--	--	--	125	10	--	--	--	--	--	--	--	--
Beech	1,939	369	62	--	--	--	23,755	1,877	--	--	--	--	--	--	--	--
Ash	1,661	1,800	303	50	8	8	17,082	1,349	--	--	--	--	--	--	--	--
Butternut	5	2	0	--	--	--	60	5	--	--	--	--	--	--	--	--
Black walnut	2	--	--	14	2	2	--	--	--	--	--	--	--	--	--	--
Balsam poplar	1,759	1	0	--	--	--	22,268	1,759	--	--	--	--	--	--	--	--
Aspen	25,853	9,011	1,585	8,121	1,322	1,322	290,460	22,946	--	--	--	--	--	--	--	--
Black cherry	161	846	149	78	13	13	--	--	--	--	--	--	--	--	--	--
Other/unknown cherry	615	ry	--	--	--	--	7,788	615	--	--	--	--	--	--	--	--
Red oak group	2,211	5,694	999	2,402	391	391	10,386	820	--	--	--	--	--	--	--	--
White oak group	26	136	24	11	2	2	1	0	--	--	--	--	--	--	--	--
Basswood	3,224	5,366	942	42	7	7	28,793	2,275	--	--	--	--	--	--	--	--
Elm	215	1	0	--	--	--	2,722	215	--	--	--	--	--	--	--	--

(Table 5 continued on next page)

(Table 5 continued)

Species group	All products		Saw logs		Veneer logs		Pulpwood		Handles		Industrial fuelwood		Poles		Posts	
	MCF ^{c/}	MBF ^{b/}	MCF ^{c/}	logs	MCF ^{c/}	logs	MCF ^{c/}	Cords ^{d/}	MBF ^{b/}	MCF ^{c/}	MCF ^{c/}	Cords ^{d/}	Pieces	MCF ^{c/}	pieces	MCF ^{c/}
Other/unknown hrdwds	361	824	145	---	---	---	2,737	216	---	---	---	---	---	---	---	---
Hardwood total	85,777	89,099	15,026	19,234	3,131	855,941	67,619	---	---	---	---	---	---	---	---	---
Total	110,919	143,159	25,367	20,980	3,416	1,034,577	81,732	---	---	---	---	---	1,658	10	384	395

^a Product volumes converted to standard units of measure using regional conversion factors and to thousand cubic feet using factors from the Michigan Utilization Study of 1980 and other regional utilization studies.

^b Thousand board feet, International 1/4-inch rule.

^c Thousand cubic feet.

^d Standard cords are 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.

All table cells without observations in the inventory sample are indicated by ---.

Table value of 0 indicates the volume rounds to less than 1/2 unit of measure.

Table may not sum due to rounding.

Table 6.—Industrial roundwood production (thousand cubic feet) by Forest Inventory Unit, county, and species group, Michigan, 2004

County	All species	All				Jack pine			Red pine	White pine	Other pine	N. white cedar		Hemlock	Other/unknown swds.		Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hackberry
		Fir	Tamarack	Spruce	pine	pine	pine	pine	cedar	cedar	cedar	swds.	swds.	maple	maple	maple	maple	maple	maple	maple	maple	maple	maple	maple
Eastern Upper Peninsula																								
Alger	8,213	453	209	233	254	596	244	--	96	413	--	--	2,499	1,301	1,745	469	--	264	--	--	--	--	--	--
Chippewa	6,304	260	31	265	755	365	24	--	133	216	--	--	2,049	886	900	260	--	110	--	--	--	--	--	--
Delta	9,909	750	107	560	436	422	77	--	754	302	--	--	3,409	1,289	1,789	443	--	214	--	--	--	--	--	--
Luce	11,176	346	44	214	1,957	391	151	--	161	173	--	--	3,435	1,641	2,111	509	--	243	--	--	--	--	--	--
Mackinac	7,446	309	30	243	906	491	88	--	173	70	--	--	2,309	1,106	982	377	--	149	--	--	--	--	--	--
Menominee	9,849	785	155	297	228	358	257	--	996	474	--	--	3,550	1,073	1,169	435	--	176	--	--	--	--	--	--
Schoolcraft	11,101	390	69	602	1,423	534	146	--	185	140	--	--	3,490	2,014	2,136	621	--	258	--	--	--	--	--	--
Unit total	63,998	3,293	645	2,414	5,959	3,159	987	--	2,496	1,788	--	--	20,741	9,311	10,832	3,113	--	1,413	--	--	--	--	--	--
Northern Lower Peninsula																								
Alcona	6,104	15	--	4	285	270	39	15	186	--	--	--	814	448	157	155	--	0	--	--	--	--	--	--
Alpena	3,599	86	11	42	24	94	19	17	285	--	--	--	578	486	172	208	--	0	--	--	--	--	--	--
Antrim	4,077	--	--	0	444	633	10	61	2	--	--	--	1,149	596	820	99	--	12	18	--	--	--	--	--
Arenac	1,513	--	--	--	124	1	1	--	3	--	--	--	129	354	95	31	--	0	0	--	--	--	--	--
Bay	479	--	--	--	11	--	--	0	--	--	--	--	11	121	11	22	--	0	0	--	--	--	--	--
Benzie	3,416	1	--	184	61	700	10	32	--	--	--	--	988	634	765	7	--	4	5	--	--	--	--	--
Charlevoix	3,493	--	--	--	83	275	2	--	4	1	--	--	365	548	956	95	--	14	17	--	--	--	--	--
Cheboygan	7,635	194	2	106	778	1,261	34	21	32	--	--	8	2,437	585	544	221	--	5	1	--	--	--	--	--
Clare	5,121	0	7	7	568	413	12	--	1	--	--	--	1,009	706	290	46	--	6	13	--	--	--	--	--
Crawford	7,630	20	--	5	3,393	906	36	--	9	--	--	--	4,369	743	356	120	--	4	5	--	--	--	--	--
Emmet	3,394	6	--	1	16	301	1	19	1	0	--	--	345	455	979	119	--	4	1	--	--	--	--	--
Gladwin	4,446	--	--	--	650	917	9	--	31	--	--	--	1,607	543	103	38	--	2	4	--	--	--	--	--
Grand Traverse	3,936	--	39	--	284	1,807	9	68	--	--	--	--	2,206	297	488	9	--	4	6	--	--	--	--	--
Iosco	3,253	5	238	0	266	691	108	2	32	38	--	--	1,381	236	99	73	--	0	0	--	--	--	--	--
Isabella	1,568	--	--	--	8	113	1	--	0	--	--	--	122	345	246	17	--	4	11	--	--	--	--	--
Kalkaska	6,535	0	--	1	573	2,599	57	34	--	--	--	--	3,264	753	739	63	--	13	24	--	--	--	--	--
Lake	4,225	--	2	--	406	834	24	--	2	--	--	--	1,268	360	256	7	--	2	4	--	--	--	--	--

(Table 6 continued on next page)

(Table 6 continued)

County	All species	Jack					N.			Other/		Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
		Fir	Tamarack	Spruce	pine	Red pine	White pine	Other pine	white cedar	Hemlock	unknown swds.						
Leelanau	804	--	7	0	15	100	18	--	--	--	--	140	160	289	3	--	0
Manistee	3,602	--	14	--	127	575	17	2	--	--	--	735	625	705	12	--	1
Mason	2,677	--	--	--	72	273	8	--	--	2	--	355	532	389	13	--	6
Mecosta	2,712	--	2	3	30	449	83	--	--	1	--	569	392	301	17	--	6
Midland	2,839	--	--	--	17	7	32	--	--	--	--	56	928	234	82	--	7
Missaukee	5,570	0	2	0	602	1,231	37	--	14	--	--	1,887	867	524	60	--	15
Montmorency	6,063	51	--	57	1,328	398	40	2	16	--	--	1,892	542	420	125	--	1
Newaygo	5,260	--	7	--	254	758	36	--	--	--	--	1,054	676	491	13	--	7
Oceana	3,002	--	2	1	192	520	3	--	--	2	--	719	468	494	18	--	10
Ogemaw	4,398	0	--	0	1,275	398	13	13	11	--	--	1,710	290	138	45	--	0
Osceola	3,936	--	5	0	193	525	10	--	6	--	--	739	605	594	34	--	12
Oscoda	5,511	23	--	6	1,601	1,087	54	--	3	--	--	2,774	350	207	75	--	2
Otsego	7,357	1	0	0	608	947	24	126	2	0	--	1,708	1,120	1,418	278	--	8
Presque Isle	4,725	158	0	97	656	230	33	2	80	0	--	1,255	485	193	237	--	2
Roscommon	6,393	0	--	2	1,425	1,014	26	--	3	--	--	2,470	666	70	90	--	2
Wexford	6,661	19	14	39	832	3,226	49	13	--	--	--	4,193	493	902	20	--	6
Unit total	141,935	579	353	556	17,203	23,550	857	426	724	45	8	44,301	17,409	14,445	2,452	--	157
Southern Lower Peninsula																	
Allegan	2,198	--	--	--	--	4	1	--	--	--	--	5	380	53	2	--	1
Barry	1,755	--	--	--	--	82	0	--	--	--	--	82	166	426	3	0	1
Berrien	577	--	--	--	--	--	--	--	--	--	--	--	13	206	0	1	--
Branch	278	--	--	--	--	--	--	--	--	--	--	--	63	71	--	--	2
Calhoun	825	--	--	--	--	--	--	--	--	--	--	--	121	25	--	0	--
Cass	1,089	--	--	--	--	0	--	--	--	--	--	0	198	80	--	0	--
Clinton	357	2	0	1	29	4	0	--	0	1	--	37	119	51	--	--	10
Eaton	474	--	--	--	--	6	--	--	--	--	--	6	17	178	--	--	12
Genesee	251	--	--	--	--	--	1	--	--	--	--	1	18	62	--	--	3
Gratiot	413	--	--	--	4	1	1	--	--	--	--	6	110	32	1	--	1
Hillsdale	196	--	--	--	--	--	--	--	--	--	--	--	4	123	--	--	2

(Table 6 continued)

County	All species	Fir	Tamarack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hackberry
Huron	215	--	--	--	0	--	--	--	--	--	--	0	22	13	5	--	--	0	--
Ingham	460	--	--	--	--	192	--	--	--	--	--	192	37	67	--	--	--	6	--
Ionia	803	--	--	--	98	4	0	--	--	--	--	101	42	101	0	--	0	31	--
Jackson	789	--	--	--	--	--	--	--	--	--	--	--	12	5	--	0	--	87	1
Kalamazoo	953	--	--	--	--	2	1	--	--	--	--	3	224	34	0	--	--	6	1
Kent	2,683	--	--	--	24	12	13	--	--	--	--	49	469	518	12	1	3	31	1
Lapeer	467	--	--	--	--	1	0	--	--	--	--	1	100	115	0	--	--	7	--
Lenawee	358	--	--	--	--	--	--	--	--	--	--	--	3	174	--	--	--	42	0
Livingston	397	--	--	--	--	--	--	--	--	--	--	--	19	3	--	--	--	8	0
Macomb	332	--	--	--	35	3	1	--	--	--	--	39	19	25	--	--	--	4	0
Monroe	283	--	--	--	--	--	--	--	--	--	--	--	11	19	0	--	0	28	0
Montcalm	1,849	--	--	--	4	56	9	--	--	--	--	69	345	126	8	0	3	20	--
Muskegon	2,862	--	--	--	1	131	7	--	--	2	--	141	438	155	6	--	3	31	--
Oakland	644	--	--	--	--	--	0	--	--	--	--	0	55	65	--	--	--	16	0
Ottawa	979	--	--	--	49	32	3	--	--	--	--	84	149	115	1	--	1	2	--
Saginaw	650	--	--	--	6	8	1	--	--	--	--	14	160	41	1	--	0	19	--
Sanilac	224	--	--	--	18	1	--	--	--	--	--	18	42	16	1	--	--	0	--
Shiawassee	240	--	--	--	--	--	--	--	--	--	--	--	22	33	--	--	--	27	--
St Clair	433	--	--	--	--	--	0	--	--	--	--	0	72	64	--	--	--	2	--
St Joseph	707	--	--	--	--	0	1	--	--	--	--	1	51	23	--	0	--	60	1
Tuscola	525	--	--	--	--	--	--	--	--	--	--	--	48	50	4	--	--	1	--
Van Buren	1,958	--	--	--	--	4	--	--	--	--	--	4	371	297	--	1	--	27	1
Washtenaw	476	5	--	1	7	0	0	--	1	--	--	14	14	15	2	0	0	50	0
Wayne	127	--	--	--	--	--	--	--	--	--	--	--	10	18	--	--	--	1	--
Unit total	27,827	7	0	2	275	544	38	--	1	2	--	868	3,944	3,401	46	4	12	684	13

Western Upper Peninsula

Baraga	14,176	326	66	922	670	157	43	--	98	568	--	2,850	2,564	3,976	753	--	503	0	--
Dickinson	10,969	728	121	1,043	496	217	151	--	172	129	--	3,057	1,127	1,420	459	2	197	--	--
Gogebic	13,142	223	20	317	71	157	52	--	21	141	--	1,002	2,463	4,056	670	2	387	11	--

(Table 6 continued on next page)

(Table 6 continued)

County	All species				N.				Other/unknown swds.				Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry	
	Fir	Tamarack	Spruce	Jack pine	Red pine	White pine	Other pine	white cedar	Hemlock	Total swds.	Soft maple								
Houghton	12,671	231	21	601	564	396	21	--	84	380	--	2,298	1,861	3,392	495	--	466	0	--
Iron	15,258	958	143	1,879	595	531	71	--	136	255	--	4,569	1,618	2,502	750	1	408	0	--
Keweenaw	4,818	56	20	303	22	26	18	--	27	69	--	541	1,177	1,473	246	--	223	2	--
Marquette	25,726	1,500	282	1,556	3,174	591	676	--	223	1,290	--	9,292	2,625	3,851	846	--	462	--	--
Ontonagon	14,159	142	21	422	77	251	58	--	172	389	--	1,534	1,702	4,026	573	--	454	1	--
Unit total	110,919	4,165	695	7,044	5,669	2,327	1,089	--	934	3,221	--	25,142	15,136	24,697	4,792	4	3,101	15	--
State Total	344,680	8,044	1,693	10,015	29,106	29,580	2,971	426	4,155	5,056	8	91,053	45,800	53,375	10,403	8	4,683	994	13

County	Eastern Upper Peninsula										Other/unknown	White oak group					Black locust	Sassafras	Bass-wood	Elm	Other/unknown	Total
	Beech	Ash	Butter-nut	Black walnut	Yellow poplar	Sycamore	Cotton-wood	Balsam poplar	Aspen	Black cherry												

Alger	453	90	--	--	11	--	--	94	806	42	63	68	5	--	--	--	275	5	21	5,714
Chippewa	154	62	--	--	--	--	--	138	1,564	1	35	41	0	--	--	--	79	6	18	4,254
Delta	253	75	--	--	5	--	--	132	1,936	37	63	74	--	--	--	--	175	1	15	6,500
Luce	450	170	--	--	5	--	--	155	1,858	33	59	213	73	--	--	--	175	19	29	7,741
Mackinac	152	47	--	--	1	--	--	137	1,900	17	33	95	38	--	--	--	84	2	17	5,137
Menominee	182	90	--	--	--	--	--	174	2,598	3	49	132	--	--	--	--	193	12	15	6,299
Schoolcraft	400	187	--	--	2	--	--	65	1,298	20	73	222	52	--	--	--	207	19	38	7,611
Unit total	2,042	721	--	--	25	--	--	894	11,960	152	375	845	168	--	--	--	1,188	65	153	43,257

Northern Lower Peninsula																						
Alcona	26	221	--	--	--	--	--	71	3,056	5	--	1,007	24	--	--	--	105	0	15	5,290		
Alpena	38	66	--	--	--	--	--	69	1,627	--	--	279	5	--	--	--	54	0	16	3,021		
Antrim	52	79	--	--	--	--	--	49	844	12	4	20	1	--	--	--	252	11	59	2,928		
Arenac	23	58	--	--	--	--	8	7	662	0	12	104	11	--	--	--	18	0	--	1,384		
Bay	2	18	--	--	--	--	1	3	247	1	1	12	15	--	--	--	13	0	0	468		

(Table 6 continued on next page)

(Table 6 continued)

County	Beech	Ash	Butter-nut	Black walnut	Yellow poplar	Sycamore	Cottonwood	Balsam poplar	Aspen	Black cherry	Other/unknown cherry	Red oak group	White oak group	Black locust	Sassafras	Basswood	Elm	Other/unknown hwd.	Total hwd.
Benzie	77	100	--	--	--	--	--	9	475	26	31	157	12	--	--	91	3	32	2,428
Charlevoix	104	97	--	--	--	--	--	55	873	7	4	22	0	--	--	325	11	--	3,128
Cheboygan	58	52	--	--	--	--	--	53	3,242	1	1	82	25	--	--	306	1	22	5,197
Clare	40	66	--	--	--	--	9	33	2,229	18	15	521	78	--	--	34	8	--	4,113
Crawford	24	22	--	--	--	--	--	14	1,291	4	2	559	39	--	--	73	4	--	3,261
Emmet	98	84	--	--	--	--	--	3	915	19	2	17	0	--	--	334	2	19	3,049
Gladwin	17	46	--	--	--	--	15	10	1,624	2	6	278	124	--	--	24	2	--	2,839
Grand Traverse	27	50	--	0	--	--	--	15	458	14	7	155	48	--	--	83	4	66	1,730
Iosco	7	43	--	--	--	--	39	38	1,169	2	2	141	8	--	--	13	0	2	1,872
Isabella	18	40	--	--	--	--	8	21	478	10	--	138	68	--	0	37	6	--	1,446
Kalkaska	47	67	--	--	--	--	--	65	1,163	26	7	116	7	--	--	138	14	28	3,271
Lake	37	63	--	1	--	--	0	12	466	24	11	1,300	371	--	0	37	3	--	2,956
Leelanau	39	48	--	--	--	--	--	0	40	4	5	28	1	--	--	44	2	--	664
Manistee	104	100	--	--	9	--	--	3	456	84	26	532	113	--	--	46	1	2	2,867
Mason	57	61	--	--	--	--	0	30	740	20	18	345	59	--	--	34	7	--	2,322
Mecosta	30	53	--	4	--	--	--	33	964	32	2	206	52	--	0	30	8	--	2,143
Midland	38	117	--	--	--	--	10	35	990	4	18	127	118	--	--	52	8	--	2,783
Missaukee	41	84	--	0	--	--	--	72	1,637	17	7	210	26	--	--	83	14	--	3,683
Montmorency	47	58	--	--	--	--	--	35	2,121	4	1	555	12	--	--	248	1	2	4,171
Newaygo	65	95	--	0	--	--	1	29	804	85	10	1,395	458	--	1	50	8	0	4,206
Oceana	58	60	--	2	--	--	2	44	511	45	4	418	89	--	1	34	10	0	2,283
Ogemaw	13	102	--	0	--	--	--	38	1,516	1	3	477	26	--	--	26	0	12	2,688
Osceola	106	89	--	--	--	--	--	40	1,115	36	12	389	91	--	--	48	9	--	3,197
Oscoda	21	31	--	--	--	--	--	14	1,273	8	--	539	16	--	--	200	0	--	2,737
Otsego	152	109	--	--	--	--	--	51	1,786	5	5	83	11	--	--	483	10	122	5,648
Presque Isle	31	44	--	--	--	--	--	58	2,234	0	--	118	2	--	--	62	3	2	3,470
Roscommon	9	58	--	--	--	--	0	15	1,993	2	2	820	176	--	--	13	2	--	3,923
Wexford	47	90	--	--	--	--	--	27	460	112	6	176	18	--	--	83	8	11	2,469
Unit total	1,555	2,372	--	8	9	--	93	1,053	39,457	630	223	11,329	2,103	--	1	3,473	158	411	97,634

(Table 6 continued on next page)

(Table 6 continued)

County	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Other/ unknown cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm	Other/ unknown hwd.	Total hwd.
Southern Lower Peninsula																			
Allegan	13	73	--	21	143	--	--	11	125	141	--	757	444	0	1	9	1	1	2,193
Barry	13	22	--	33	4	--	--	9	58	253	--	498	92	0	1	36	2	1	1,673
Berrien	6	7	--	9	45	26	4	--	--	164	--	44	28	0	1	5	11	1	577
Branch	--	39	--	9	0	--	--	--	--	33	--	43	15	--	--	2	2	0	278
Calhoun	1	88	--	14	2	--	--	11	21	195	--	140	80	0	1	67	2	1	825
Cass	0	7	--	65	2	--	--	--	--	371	--	305	20	0	1	3	14	1	1,089
Clinton	--	11	--	9	--	--	--	--	4	53	--	39	14	--	--	10	--	--	320
Eaton	3	68	--	22	0	--	1	--	1	43	--	44	37	--	--	37	4	--	467
Genesee	1	57	--	5	--	--	3	--	2	6	--	56	22	--	--	14	1	--	250
Gratiot	1	33	--	--	--	--	8	3	53	2	--	104	33	--	--	23	1	--	407
Hillsdale	--	7	--	11	--	--	--	--	--	16	--	14	16	--	--	3	--	0	196
Huron	--	21	--	--	--	--	44	33	44	3	--	21	4	--	--	3	--	--	215
Ingham	2	66	--	1	--	--	3	--	0	23	--	25	15	--	--	22	2	--	268
Ionia	50	44	--	7	--	--	3	11	42	118	--	170	40	--	--	40	0	--	701
Jackson	--	74	--	54	--	--	--	--	0	141	--	240	153	0	1	19	0	1	789
Kalamazoo	0	8	--	6	2	--	--	0	71	130	--	240	226	0	0	1	0	--	950
Kent	11	100	--	11	--	--	0	27	192	153	1	799	268	0	0	35	4	--	2,634
Lapeer	1	29	--	0	--	--	7	--	5	13	--	96	81	--	--	9	0	--	466
Lenawee	12	14	--	11	--	--	1	0	--	28	--	18	22	--	--	33	0	--	358
Livingston	--	43	--	0	--	--	0	--	--	53	--	184	85	--	--	1	--	--	397
Macomb	3	76	--	0	0	0	1	--	102	9	--	36	15	--	--	4	--	--	293
Monroe	0	141	--	17	--	--	7	0	3	5	--	38	11	--	--	2	0	--	283
Montcalm	18	118	--	--	--	--	0	14	291	22	0	564	222	--	--	20	11	--	1,780
Muskegon	52	23	--	0	--	--	1	15	213	28	1	1,294	442	--	--	13	4	--	2,721
Oakland	6	196	--	1	--	--	4	--	16	44	1	163	65	--	--	9	0	0	643
Ottawa	29	32	--	--	0	--	13	8	84	33	0	331	90	--	--	5	2	--	896
Saginaw	4	88	--	--	--	--	11	0	17	4	1	132	137	--	--	20	0	--	636
Sanilac	0	19	--	--	--	--	9	--	106	4	--	3	0	--	--	6	--	--	206
Shiawassee	1	64	--	2	--	--	2	--	0	15	--	50	13	--	--	12	0	--	240

(Table 6 continued on next page)

(Table 6 continued)

County	Beech	Ash	Butter-nut	Black walnut	Yellow poplar	Sycamore	Cottonwood	Balsam poplar	Aspen	Black cherry	Other/unknown cherry	Red oak group	White oak group	Black locust	Sassafras	Basswood	Elm	Other/unknown hws.	Total hws.
St Clair	7	34	--	--	--	--	37	--	1	10	--	65	129	--	--	10	0	--	433
St Joseph	0	39	--	166	1	--	--	--	11	93	--	200	54	0	1	3	2	0	706
Tuscola	--	35	--	0	--	--	19	--	295	9	--	30	12	--	--	20	0	--	525
Van Buren	20	40	--	5	1	0	2	--	45	398	--	564	172	0	1	4	5	1	1,954
Washtenaw	0	58	--	55	--	--	0	--	--	25	--	82	157	--	--	3	0	--	463
Wayne	0	37	--	0	--	--	3	--	0	2	--	31	10	--	--	13	2	--	127
Unit total	255	1,812	--	534	201	27	184	143	1,803	2,640	5	7,422	3,223	2	8	516	72	6	26,959

Western Upper Peninsula

Baraga	360	218	0	--	--	--	--	172	1,979	22	112	184	3	--	--	395	32	51	11,325
Dickinson	157	106	--	--	--	--	--	305	3,376	6	39	122	--	--	--	561	15	22	7,912
Gogebic	198	336	4	0	--	--	--	157	2,864	31	122	314	6	--	--	392	79	48	12,139
Houghton	170	212	0	1	--	--	--	166	2,716	19	43	339	3	--	--	371	13	107	10,373
Iron	166	204	0	1	--	--	--	291	3,852	32	40	243	2	--	--	503	38	38	10,690
Keweenaw	162	86	--	0	--	--	--	31	364	6	32	280	2	--	--	162	--	32	4,277
Marquette	560	173	--	1	--	--	--	500	6,541	23	161	390	7	--	--	255	13	27	16,435
Ontonagon	167	325	0	--	--	--	--	138	4,161	24	66	338	2	--	--	585	25	37	12,625
Unit total	1,939	1,661	5	2	--	--	--	1,759	25,853	161	615	2,211	26	--	--	3,224	215	361	85,777
State total	5,791	6,565	5	545	235	27	277	3,849	79,073	3,584	1,219	21,806	5,520	2	10	8,401	510	932	253,627

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 cubic feet.

Table may not sum due to rounding.

Table 7.—Industrial roundwood production (thousand cubic feet) by Forest Inventory Unit, species group, and state of destination, Michigan, 2004

Species group	Total	State of destination											Other foreign
		Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada	
All Units													
Softwoods													
Fir	8,044	--	--	--	6,989	12	408	--	--	--	--	635	--
Tamarack	1,693	--	--	--	1,247	--	446	--	--	--	--	--	--
Spruce	10,015	--	--	--	6,241	13	3,066	--	--	--	--	695	--
Jack pine	29,106	--	--	--	28,280	--	117	--	--	--	45	663	--
Red pine	29,580	--	1	--	28,884	--	684	--	--	--	11	--	--
White pine	2,971	--	6	0	2,780	--	155	--	--	--	2	28	--
Other/unknown pine	426	--	--	--	426	--	--	--	--	--	--	--	--
N. white cedar	4,155	--	--	--	4,084	2	69	--	--	--	--	--	--
Hemlock	5,056	--	--	--	4,944	--	112	--	--	--	--	--	--
Other softwoods	8	--	--	--	8	--	--	--	--	--	--	--	--
Total	91,053	--	6	0	83,883	26	5,057	--	--	--	59	2,021	--
Hardwoods													
Soft maple	45,800	--	485	11	41,338	987	2,963	--	3	--	12	1	--
Hard maple	53,375	9	560	28	45,193	2,623	4,581	8	250	9	--	112	0
White birch	10,403	--	6	--	7,778	120	2,192	--	--	--	2	306	--
River birch	8	--	4	--	--	--	4	--	--	--	--	--	--
Yellow birch	4,683	--	--	--	3,885	--	708	--	--	--	--	90	--
Hickory	994	--	290	--	688	--	15	1	--	1	--	1	--
Hackberry	13	--	13	--	--	--	--	0	--	--	--	--	--
Beech	5,791	--	90	0	5,669	--	17	--	1	--	0	13	--
Ash	6,565	--	383	--	5,225	107	813	5	16	1	--	15	0
Butternut	5	--	--	--	--	--	5	--	--	--	--	--	--
Black walnut	545	--	160	--	357	--	2	1	8	6	--	3	7
Yellow-poplar	235	--	154	--	79	--	--	--	2	--	--	--	--
Sycamore	27	--	25	--	0	--	--	--	1	--	--	--	--
Cottonwood	277	--	79	--	197	--	--	--	1	--	--	--	--

(Table 7 continued on next page)

(Table 7 continued)

Species group	Total	State of destination										Other foreign
		Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada
Balsam poplar	3,849	--	--	--	3,836	13	0	--	--	--	--	--
Aspen	79,073	--	--	--	74,593	496	3,940	--	--	--	44	--
Black cherry	3,584	36	426	--	3,029	--	76	5	3	6	--	2
Other/unknown cherry	1,219	--	--	--	1,085	103	31	--	--	--	--	--
Red oak group	21,806	--	880	--	19,481	--	1,145	23	112	6	--	157
White oak group	5,520	9	499	--	4,749	--	112	--	42	15	--	92
Black locust	2	--	2	--	--	--	--	--	--	--	--	--
Sassafras	10	--	8	--	2	--	--	--	--	--	--	--
Basswood	8,401	--	150	--	7,219	154	872	--	--	--	4	3
Elm	510	--	49	--	179	86	193	--	--	--	--	3
Other hardwoods	932	--	5	--	780	--	145	--	--	--	--	2
Total	253,627	54	4,266	39	225,363	4,689	17,814	43	441	45	62	801
State total	344,680	54	4,272	39	309,246	4,715	22,871	43	441	45	121	2,822

Eastern Upper Peninsula

Softwoods												
Fir	3,293	--	--	--	2,780	6	146	--	--	--	--	361
Tamarack	645	--	--	--	505	--	140	--	--	--	--	--
Spruce	2,414	--	--	--	1,584	13	391	--	--	--	--	426
Jack pine	5,959	--	--	--	5,836	--	105	--	--	--	18	--
Red pine	3,159	--	--	--	2,664	--	489	--	--	--	6	--
White pine	987	--	--	--	900	--	70	--	--	--	1	17
N. white cedar	2,496	--	--	--	2,428	--	69	--	--	--	--	--
Hemlock	1,788	--	--	--	1,754	--	33	--	--	--	--	--
Total	20,741	--	--	--	18,452	19	1,442	--	--	--	25	803
Hardwoods												
Soft maple	9,311	--	--	--	8,399	54	853	--	--	--	4	0
Hard maple	10,832	--	--	6	9,740	145	848	2	--	2	--	89
White birch	3,113	--	--	--	2,214	7	620	--	--	--	1	272
Yellow birch	1,413	--	--	--	1,209	--	114	--	--	--	--	90

(Table 7 continued on next page)

(Table 7 continued)

Species group	State of destination											Other foreign
	Total	Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada
Beech	2,042	--	--	--	2,039	--	2	--	--	--	0	1
Ash	721	--	--	--	505	6	210	--	--	--	--	--
Yellow-poplar	25	--	--	--	25	--	--	--	--	--	--	--
Balsam poplar	894	--	--	--	893	1	--	--	--	--	--	--
Aspen	11,960	--	--	--	11,024	27	899	--	--	--	10	--
Black cherry	152	--	--	--	135	--	11	2	--	3	--	--
Other/unknown cherry	375	--	--	--	370	6	--	--	--	--	--	--
Red oak group	845	--	--	--	577	--	268	--	--	--	--	--
White oak group	168	--	--	--	81	--	87	--	--	--	--	--
Basswood	1,188	--	--	--	1,067	8	112	--	--	--	1	0
Elm	65	--	--	--	1	5	59	--	--	--	--	--
Other hardwoods	153	--	--	--	153	--	--	--	--	--	--	--
Total	43,257	--	--	6	38,433	258	4,083	4	--	5	16	452
Unit total	63,998	--	--	6	56,885	277	5,525	4	--	5	41	1,255
												0

Northern Lower Peninsula

Softwoods												
Fir	579	--	--	--	344	--	5	--	--	--	--	231
Tamarack	353	--	--	--	115	--	238	--	--	--	--	--
Spruce	556	--	--	--	139	--	184	--	--	--	--	233
Jack pine	17,203	--	--	--	16,529	--	--	--	--	--	11	663
Red pine	23,550	--	--	--	23,536	--	14	--	--	--	0	--
White pine	857	--	--	--	845	--	--	--	--	--	--	12
Other/unknown pine	426	--	--	--	426	--	--	--	--	--	--	--
N. white Ccedar	724	--	--	--	722	2	--	--	--	--	--	--
Hemlock	45	--	--	--	6	--	38	--	--	--	--	--
Other softwoods	8	--	--	--	8	--	--	--	--	--	--	--
Total	44,301	--	--	--	42,671	2	478	--	--	--	11	1,139
Hardwoods												
Soft maple	17,409	--	--	9	17,398	--	0	--	--	--	1	1

(Table 7 continued on next page)

(Table 7 continued)

Species group	Total	State of destination											Other foreign
		Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada	
Hard maple	14,445	--	--	--	14,428	--	0	--	--	--	--	17	--
White birch	2,452	--	--	--	2,418	--	--	--	--	--	0	34	--
Yellow birch	157	--	--	--	156	--	--	--	--	--	--	1	--
Hickory	295	--	--	--	295	--	--	--	--	--	--	--	--
Beech	1,555	--	--	--	1,555	--	--	--	--	--	--	0	--
Ash	2,372	--	--	--	2,358	--	--	3	--	1	--	9	0
Black walnut	8	--	--	--	8	--	--	--	--	--	--	--	--
Yellow-poplar	9	--	--	--	9	--	--	--	--	--	--	--	--
Cottonwood	93	--	--	--	93	--	--	--	--	--	--	--	--
Balsam poplar	1,053	--	--	--	1,053	--	--	--	--	--	--	--	--
Aspen	39,457	--	--	--	39,451	--	0	--	--	--	6	--	--
Black Cherry	630	--	--	--	629	--	--	0	--	0	--	1	--
Other/unknown cherry	223	--	--	--	223	--	--	--	--	--	--	--	--
Red oak group	11,329	--	--	--	11,174	--	0	14	--	4	--	136	1
White oak group	2,103	--	--	--	2,061	--	--	--	--	2	--	39	0
Sassafras	1	--	--	--	1	--	--	--	--	--	--	--	--
Basswood	3,473	--	--	--	3,471	--	--	--	--	--	0	2	--
Elm	158	--	--	--	158	--	--	--	--	--	--	0	--
Other hardwoods	411	--	--	--	411	--	--	--	--	--	--	1	--
Total	97,634	--	--	9	97,350	--	1	18	--	7	7	241	1
Unit total	141,935	--	--	9	140,021	2	479	18	--	7	18	1,380	1

Southern Lower Peninsula

Softwoods													
Fir	7	--	--	--	7	--	--	--	--	--	--	--	--
Tamarack	0	--	--	--	0	--	--	--	--	--	--	--	--
Spruce	2	--	--	--	2	--	--	--	--	--	--	--	--
Jack pine	275	--	--	--	275	--	--	--	--	--	--	--	--
Red pine	544	--	1	--	544	--	--	--	--	--	--	--	--
White pine	38	--	6	--	32	--	--	--	--	--	--	--	--

(Table 7 continued on next page)

(Table 7 continued)

Species group	Total	State of destination										Other foreign
		Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada
N. white cedar	1	--	--	--	1	--	--	--	--	--	--	--
Hemlock	2	--	--	--	2	--	--	--	--	--	--	--
Total	868	--	6	--	862	--	--	--	--	--	--	--
Hardwoods												
Soft maple	3,944	--	485	2	3,453	--	1	--	3	--	--	--
Hard maple	3,401	9	560	--	2,574	--	1	--	250	--	--	7
White birch	46	--	6	--	41	--	--	--	--	--	--	--
River birch	4	--	4	--	--	--	--	--	--	--	--	--
Yellow birch	12	--	--	--	12	--	--	--	--	--	--	--
Hickory	684	--	290	--	392	--	--	1	--	1	--	1
Hackberry	13	--	13	--	--	--	--	0	--	--	--	--
Beech	255	--	90	0	152	--	--	--	1	--	--	12
Ash	1,812	--	383	--	1,406	--	--	2	16	0	--	6
Black walnut	534	--	160	--	349	--	--	1	8	6	--	3
Yellow-poplar	201	--	154	--	45	--	--	--	2	--	--	--
Sycamore	27	--	25	--	0	--	--	--	1	--	--	--
Cottonwood	184	--	79	--	104	--	--	--	1	--	--	--
Balsam poplar	143	--	--	--	143	--	--	--	--	--	--	--
Aspen	1,803	--	--	--	1,803	--	--	--	--	--	--	--
Black cherry	2,640	36	426	--	2,175	--	--	--	3	--	--	1
Other/unknown cherry	5	--	--	--	5	--	--	--	--	--	--	--
Red oak group	7,422	--	880	--	6,395	--	1	9	112	2	--	21
White oak group	3,223	9	499	--	2,606	--	--	--	42	12	--	53
Black locust	2	--	2	--	--	--	--	--	--	--	--	--
Sassafras	8	--	8	--	0	--	--	--	--	--	--	--
Basswood	516	--	150	--	366	--	--	--	--	--	--	1
Elm	72	--	49	--	20	--	--	--	--	--	--	2
Other hardwoods	6	--	5	--	0	--	--	--	--	--	--	2
Total	26,959	54	4,266	2	22,041	--	3	12	441	22	--	108
Unit total	27,827	54	4,272	2	22,904	--	3	12	441	22	--	108

(Table 7 continued on next page)

(Table 7 continued)

Species group	Total	State of destination											Other foreign
		Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada	
		Western Upper Peninsula											
Softwoods													
Fir	4,165	--	--	--	3,858	5	258	--	--	--	--	43	--
Tamarack	695	--	--	--	626	--	68	--	--	--	--	--	--
Spruce	7,044	--	--	--	4,516	--	2,492	--	--	--	--	35	--
Jack pine	5,669	--	--	--	5,640	--	12	--	--	--	16	--	--
Red pine	2,327	--	--	--	2,140	--	182	--	--	--	5	--	--
White pine	1,089	--	--	0	1,003	--	85	--	--	--	1	--	--
N. white cedar	934	--	--	--	933	--	0	--	--	--	--	--	--
Hemlock	3,221	--	--	--	3,181	--	40	--	--	--	--	--	--
Total	25,142	--	--	0	21,898	5	3,138	--	--	--	22	79	--
Hardwoods													
Soft maple	15,136	--	--	--	12,087	933	2,109	--	--	--	7	--	--
Hard maple	24,697	--	--	22	18,451	2,478	3,732	6	--	7	--	--	0
White birch	4,792	--	--	--	3,105	113	1,573	--	--	--	1	--	--
River birch	4	--	--	--	--	--	4	--	--	--	--	--	--
Yellow birch	3,101	--	--	--	2,507	--	593	--	--	--	--	--	--
Hickory	15	--	--	--	--	--	15	--	--	--	--	--	--
Beech	1,939	--	--	--	1,924	--	15	--	--	--	0	--	--
Ash	1,661	--	--	--	956	101	603	0	--	0	--	--	0
Butternut	5	--	--	--	--	--	5	--	--	--	--	--	--
Black walnut	2	--	--	--	--	--	2	--	--	--	--	--	--
Balsam poplar	1,759	--	--	--	1,747	12	0	--	--	--	--	--	--
Aspen	25,853	--	--	--	22,316	469	3,040	--	--	--	28	--	--
Black cherry	161	--	--	--	91	--	64	3	--	3	--	--	--
Other/unknown cherry	615	--	--	--	488	97	31	--	--	--	--	--	--
Red oak group	2,211	--	--	--	1,334	--	876	--	--	--	--	--	--
White oak group	26	--	--	--	0	--	26	--	--	--	--	--	--
Basswood	3,224	--	--	--	2,315	146	760	--	--	--	3	--	--
Elm	215	--	--	--	--	82	134	--	--	--	--	--	--

(Table 7 continued on next page)

(Table 7 continued)

Species group	State of destination												
	Total	Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Virginia	West Virginia	Canada	Other foreign
Other hardwoods	361	--	--	--	216	--	145	--	--	--	--	--	--
Total	85,777	--	--	22	67,539	4,431	13,727	9	--	10	39	--	0

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 cubic feet.

Table may not sum due to rounding.

Table 8.—Saw log receipts and production (thousand board feet)^a by Forest Inventory Unit and species group, Michigan, 2000 and 2004

Species group	Receipts			Production		
	2000	2004	Percent change	2000	2004	Percent change
All Units						
Softwood						
Fir	11,718	11,457	-2%	9,366	8,971	-4%
Redcedar	--	1		--	--	--
Tamarack	200	1,081	441%	263	916	248%
Spruce	6,412	24,946	289%	1,836	21,851	1090%
Jack pine	99,852	105,088	5%	95,138	71,171	-25%
Red pine	117,646	161,083	37%	108,016	133,223	23%
White pine	13,697	13,443	-2%	14,530	12,173	-16%
Other/unknown pine	80	--	--	84	--	--
N. white cedar	7,841	7,256	-7%	6,421	6,900	7%
Hemlock	1,555	1,684	8%	1,772	402	-77%
Total	258,999	326,039	26%	237,424	255,607	8%
Hardwood						
Soft maple	59,234	50,613	-15%	62,103	53,065	-15%
Hard maple	134,042	113,757	-15%	137,846	122,748	-11%
White birch	9,371	6,995	-25%	11,892	7,940	-33%
River birch	--	--	--	--	25	--
Yellow birch	8,289	6,842	-17%	9,255	8,593	-7%
Hickory	3,163	2,565	-19%	4,727	4,223	-11%
Hackberry	--	--	--	72	72	0%
Beech	8,571	11,531	35%	8,066	8,922	11%
Ash	20,330	16,948	-17%	21,925	18,755	-14%
Butternut	6	--	--	6	2	-67%
Black walnut	1,601	2,115	32%	2,212	2,742	24%
Yellow-poplar	734	400	-46%	1,560	1,243	-20%
Sycamore	--	2	--	149	151	1%
Cottonwood	1,751	1,121	-36%	2,208	1,569	-29%
Balsam poplar	314	453	44%	301	454	51%

(Table 8 continued on next page)

(Table 8 continued)

Species group	Receipts			Production		
	2000	2004	Percent change	2000	2004	Percent change
Aspen	87,832	62,217	-29%	91,885	58,764	-36%
Black cherry	21,387	17,134	-20%	22,587	19,153	-15%
Red oak group	97,382	87,857	-10%	98,701	89,634	-9%
White oak group	16,569	11,688	-29%	19,217	14,522	-24%
Black locust	--	--	--	11	11	0%
Willow	90	--	--	90	--	--
Sassafras	27	1	-96%	72	46	-36%
Basswood	20,373	16,932	-17%	23,068	18,768	-19%
Elm	193	60	-69%	446	314	-30%
Other/unknown hrdwds	--	2	--	39	865	2118%
Total	491,258	409,235	-17%	518,437	432,581	-17%
All species	750,257	735,274	-2%	755,862	688,189	-9%
Eastern Upper Peninsula						
Softwoods						
Fir	195	--	--	3,642	2,301	-37%
Tamarack		--	--	98	12	-88%
Spruce	24	166	592%	355	3,578	908%
Jack pine	--	386	--	42,297	17,180	-59%
Red pine	5,951	4,634	-22%	12,209	8,222	-33%
White pine	6,499	7,096	9%	4,548	4,169	-8%
N. white cedar	3,171	4,149	31%	3,154	3,779	20%
Hemlock	1,180	1,600	36%	340	--	--
Total	17,019	18,030	6%	66,644	39,240	-41%
Hardwoods						
Soft maple	8,123	7,167	-12%	7,503	6,386	-15%
Hard maple	23,451	12,545	-47%	15,897	12,529	-21%
White birch	2,834	2,159	-24%	4,511	3,793	-16%
Yellow birch	1,951	1,152	-41%	1,605	2,127	33%
Beech	4,008	7,180	79%	2,679	3,682	37%
Ash	3,355	1,136	-66%	1,722	660	-62%

(Table 8 continued on next page)

Species group	Receipts			Production		
	2000	2004	Percent change	2000	2004	Percent change
Yellow-poplar	--	140	--	--	140	--
Balsam poplar	--	--	--	138	--	--
Aspen	18,159	9,000	-50%	15,051	7,351	-51%
Black cherry	2,056	1,043	-49%	808	810	0%
Red oak group	2,203	4,476	103%	855	1,634	91%
White oak group	--	432	--	--	462	--
Basswood	583	3,636	524%	1,144	2,098	83%
Elm	--	--	--	--	3	--
Total	66,723	50,064	-25%	51,912	41,677	-20%
All species	83,742	68,094	-19%	118,556	80,917	-32%

Northern Lower Peninsula

Softwoods						
Fir	241	70	-71%	340	174	-49%
Redcedar	--	1	--	--	--	--
Tamarack	--	--	--	--	610	--
Spruce	311	110	-65%	392	391	0%
Jack pine	8,976	8,954	0%	28,501	33,281	17%
Red pine	79,102	108,874	38%	85,158	119,660	41%
White pine	6,049	3,021	-50%	5,823	3,592	-38%
Other/unknown pine	80	--	--	54	--	--
N. white cedar	4,238	2,959	-30%	2,249	1,256	-44%
Hemlock	122	47	-61%	122	37	-70%
Total	99,117	124,036	25%	122,637	159,000	30%
Hardwoods						
Soft maple	18,633	18,346	-2%	24,256	19,476	-20%
Hard maple	53,766	46,242	-14%	60,606	51,788	-15%
White birch	2,346	1,082	-54%	2,744	1,339	-51%
Yellow birch	68	96	41%	116	82	-29%
Hickory	196	809	313%	130	411	216%
Beech	3,022	3,631	20%	3,571	3,563	0%

(Table 8 continued on next page)

(Table 8 continued)

Species group	Receipts			Production		
	2000	2004	Percent change	2000	2004	Percent change
Ash	7,837	7,882	1%	8,806	8,033	-9%
Black walnut	847	174	-79%	832	49	-94%
Yellow-poplar	163	123	-25%	--	53	--
Cottonwood	703	255	-64%	637	521	-18%
Balsam poplar	83	--	--	98	7	-93%
Aspen	53,422	37,825	-29%	54,262	40,515	-25%
Black cherry	5,245	3,853	-27%	7,312	3,088	-58%
Red oak group	52,805	47,015	-11%	61,355	48,286	-21%
White oak group	5,818	5,179	-11%	7,684	5,293	-31%
Willow	90	--	--	51	--	--
Sassafras	25	--	--	--	--	--
Basswood	10,118	8,632	-15%	11,209	8,570	-24%
Elm	177	30	-83%	169	34	-80%
Other/unknown hrdwds	--	--	--	3	3	0%
Total	215,365	181,173	-16%	243,842	191,110	-22%
All species	314,482	305,209	-3%	366,479	350,110	-4%
Southern Lower Peninsula						
Softwoods						
Spruce	3	--	--	3	--	--
Jack pine	4	--	--	--	2	--
Red pine	474	152	-68%	3,456	3,159	-9%
White pine	497	16	-97%	447	137	-69%
Other/unknown pine	--	--	--	26	--	--
Hemlock	21	--	--	21	10	-52%
Total	1,000	168	-83%	3,953	3,308	-16%
Hardwoods						
Soft maple	20,413	11,668	-43%	17,224	13,143	-24%
Hard maple	19,490	20,456	5%	15,372	16,622	8%
White birch	263	136	-48%	216	58	-73%
Yellow birch	62	10	-84%	57	4	-93%

(Table 8 continued on next page)

Species group	Receipts			Production		
	2000	2004	Percent change	2000	2004	Percent change
Hickory	2,967	1,756	-41%	4,596	3,784	-18%
Hackberry	--	--	--	72	72	0%
Beech	1,319	696	-47%	1,748	1,309	-25%
Ash	8,025	6,307	-21%	9,382	8,261	-12%
Butternut	6	--	--	6	--	--
Black walnut	754	1,941	157%	1,381	2,694	95%
Yellow-poplar	571	137	-76%	1,560	1,050	-33%
Sycamore	--	2	--	149	151	1%
Cottonwood	1,048	867	-17%	1,571	1,048	-33%
Balsam poplar	21	453	2057%	6	446	7333%
Aspen	1,666	4,459	168%	795	1,886	137%
Black cherry	12,676	11,603	-8%	12,631	14,410	14%
Red oak group	36,182	30,426	-16%	32,605	34,021	4%
White oak group	10,750	6,077	-43%	11,390	8,631	-24%
Black locust	--	--	--	11	11	0%
Willow	--	--	--	39	--	--
Sassafras	2	1	-50%	72	46	-36%
Basswood	4,845	1,883	-61%	4,616	2,733	-41%
Elm	16	30	88%	277	276	0%
Other/unknown hrdwds	--	2	--	36	38	6%
Total	121,075	98,910	-18%	115,812	110,695	-4%
All species	122,075	99,078	-19%	119,765	114,003	-5%

Western Upper Peninsula

Softwoods						
Fir	11,282	11,388	1%	5,384	6,497	21%
Tamarack	200	1,081	441%	165	294	78%
Spruce	6,073	24,670	306%	1,085	17,883	1548%
Jack pine	90,873	95,748	5%	24,340	20,709	-15%
Red pine	32,119	47,424	48%	7,193	2,182	-70%

(Table 8 continued on next page)

(Table 8 continued)

Species group	Receipts			Production		
	2000	2004	Percent change	2000	2004	Percent change
White pine	653	3,311	407%	3,712	4,275	15%
Other/unknown pine	--	--	--	4	--	--
N. White Cedar	433	148	-66%	1,019	1,866	83%
Hemlock	231	37	-84%	1,288	355	-72%
Total	141,864	183,806	30%	44,190	54,060	22%
Hardwoods						
Soft maple	12,064	13,433	11%	13,120	14,059	7%
Hard maple	37,335	34,513	-8%	45,971	41,809	-9%
White birch	3,929	3,618	-8%	4,421	2,750	-38%
River birch	--	--	--	--	25	--
Yellow birch	6,208	5,585	-10%	7,476	6,380	-15%
Hickory	--	--	--	--	28	--
Beech	223	24	-89%	68	369	443%
Ash	1,113	1,624	46%	2,014	1,800	-11%
Butternut	--	--	--	--	2	--
Balsam poplar	210	--	--	59	1	-98%
Aspen	14,585	10,933	-25%	21,777	9,011	-59%
Black cherry	1,410	635	-55%	1,837	846	-54%
Red oak group	6,191	5,941	-4%	3,886	5,694	47%
White oak group	--	--	--	142	136	-4%
Basswood	4,827	2,782	-42%	6,100	5,366	-12%
Elm	0	--	--	0	1	--
Other/unknown Hrdwds	--	--	--	--	824	--
Total	88,094	79,088	-10%	106,872	89,099	-17%
All species	229,958	262,893	14%	151,062	143,159	-5%

^a International 1/4-inch rule.

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 board feet.

Table may not sum due to rounding.

Table 9.—Wood material harvested for industrial roundwood (thousand cubic feet) by Forest Inventory Unit, source of material and species group, Michigan, 2004

Species group	Source of material													
	Growing-stock					Non-growing-stock								
	Used for products		Logging residue (not used)	Total growing-stock	Used for products					Logging slash (not used)	Total non-growing-stock	Total wood material used	Total wood material not used	Total wood material harvested
	Sawtimber	Pole-timber			Limb-wood	Sap-lings	Cull trees	Dead trees	Nonforest trees					
All Units														
Softwoods														
Fir	5,958.90	1,647.60	446.1	8,052.70	274.3	72.8	21.6	68.5	--	2,522.40	2,959.60	8,043.80	2,968.50	11,012.30
Tamarack	1,220.90	395.3	82.4	1,698.60	45.1	17.3	4.4	9.5	--	537.8	614.1	1,692.50	620.2	2,312.70
Spruce	7,955.60	1,566.00	699.2	10,220.80	281.5	66.1	31.8	113.7	--	3,394.20	3,887.30	10,014.70	4,093.40	14,108.10
Jack pine	21,925.00	3,292.90	1,655.70	26,873.70	2,792.90	126.4	105.9	862.8	--	7,327.30	11,215.30	29,106.00	8,983.00	38,089.00
Red pine	25,400.50	2,760.70	1,354.40	29,515.70	671.4	177.4	247.8	322.6	--	8,349.00	9,768.20	29,580.40	9,703.50	39,283.90
White pine	2,554.70	230.6	125.8	2,911.10	92.1	14.1	40.3	38.9	--	862.5	1,048.00	2,970.80	988.3	3,959.00
Other/unknown pine	285.9	21.6	--	307.5	104.7	--	--	14	--	13.5	132.2	426.2	13.5	439.6
N. white cedar	2,267.60	1,578.70	460.3	4,306.60	123	115.9	32.1	37.2	--	823.3	1,131.60	4,154.70	1,283.50	5,438.20
Hemlock	2,634.50	1,623.80	160.6	4,418.90	278.9	120	258.9	139.5	--	1,566.90	2,364.30	5,055.60	1,727.60	6,783.20
Other/unknown softwds	5.5	0.4	--	5.9	2	--	--	0.3	--	0.3	2.5	8.2	0.3	8.5
Total	70,209.30	13,117.60	4,984.50	88,311.40	4,666.00	710	742.8	1,607.20	--	25,397.10	33,123.00	91,052.80	30,381.70	121,434.50
Hardwoods														
Soft maple	19,838.10	19,211.10	3,171.60	42,220.80	3,516.10	394.3	2,311.00	529.6	--	7,599.90	14,350.90	45,800.20	10,771.50	56,571.70
Hard maple	33,372.70	7,363.60	4,732.90	45,469.20	3,803.80	105.2	8,695.50	33.6	--	15,362.30	28,000.60	53,374.50	20,095.30	73,469.80
White birch	4,366.80	4,484.20	739.9	9,590.90	736.4	58.8	625.8	131.2	--	1,905.90	3,458.20	10,403.30	2,645.80	13,049.10
River birch	7.8	0.2	1.3	9.3	0.1	--	0.4	--	--	2	2.5	8.4	3.3	11.8
Yellow birch	2,831.80	626.4	378.3	3,836.40	333.6	4.1	885.4	1.3	--	1,410.90	2,635.20	4,682.50	1,789.10	6,471.70
Hickory	769.5	118.9	95.1	983.5	44.5	5.5	53.8	1.8	--	196.8	302.5	994	292	1,286.00
Hackberry	12.2	0.5	2	14.6	0.2	--	0.1	--	--	2.6	2.8	12.9	4.5	17.4
Beech	3,107.90	1,036.70	394.7	4,539.30	489.6	19.1	1,131.70	6.1	--	1,692.30	3,338.80	5,791.20	2,086.90	7,878.20
Ash	4,410.90	954.7	620.3	5,985.90	416.7	22.8	753.1	7.2	--	1,518.40	2,718.30	6,565.40	2,138.70	8,704.10
Butternut	1.8	2.5	0.3	4.6	0.4	0.1	0.3	0.1	--	0.8	1.7	5.1	1.1	6.3
Black walnut	512.2	7.1	68.3	587.6	9.8	--	15.8	--	--	113.5	139.1	544.8	181.8	726.6
Yellow-poplar	220.8	8.5	35.9	265.1	2.8	--	2.9	--	--	47.4	53	234.9	83.3	318.1
Sycamore	25	1	4	30.1	0.3	--	0.2	--	--	5.2	5.7	26.5	9.2	35.8

(Table 9 continued on next page)

(Table 9 continued)

Species group	Source of material												
	Growing-stock					Non-growing-stock							
	Used for products			Logging residue (not used)	Total growing-stock	Used for products			Logging slash (not used)	Total non-growing-stock	Total wood material used	Total wood material not used	Total wood material harvested
	Sawtimber	Pole-timber	Limb-wood			Sap-lings	Cull trees	Dead trees					
Cottonwood	260.3	11.2	41.7	313.2	4.1	0	1.7	--	54	59.8	277.3	95.8	373
Balsam poplar	1,290.30	1,911.80	221.5	3,423.60	308.9	25	256.2	56.6	689.6	1,336.40	3,848.90	911.1	4,760.00
Aspen	35,923.20	37,231.60	3,275.60	76,430.40	2,862.50	147.7	2,348.50	559.5	12,938.40	18,856.60	79,073.10	16,213.90	95,287.00
Black cherry	3,323.20	151.8	534.4	4,009.50	71	0.2	37.6	--	702.4	811.1	3,583.80	1,236.80	4,820.60
Other/unknown cherry	--	--	--	--	102.3	11.3	1,086.60	18.3	786.8	2,005.40	1,218.50	786.8	2,005.40
Red oak group	15,741.40	3,819.50	1,685.70	21,246.70	1,183.00	142.4	562.6	357.5	2,646.80	4,892.30	21,806.40	4,332.50	26,138.90
White oak group	3,184.00	1,614.90	360.1	5,159.00	419.1	81.1	138.1	82.9	616.6	1,337.70	5,520.10	976.6	6,496.70
Black locust	1.8	0	0.2	2	0	--	0	--	0.4	0.4	1.9	0.6	2.5
Sassafras	8	0.7	1.2	10	0.7	0	0.1	--	1.6	2.4	9.5	2.9	12.4
Basswood	4,744.70	2,696.90	776.3	8,218.00	487.4	35.4	361.7	75.1	1,538.20	2,498.00	8,401.40	2,314.60	10,716.00
Elm	196.8	229.6	31.7	458.2	44.3	4.4	28.9	6.4	84.4	168.4	510.4	116.1	626.6
Other/unknown hrdwds	143.1	5.8	22.8	171.7	89.8	17.6	669.6	5.7	462.9	1,245.60	931.6	485.7	1,417.30
Total	134,294.50	81,489.30	17,195.90	232,979.60	14,927.50	1,075.20	19,967.60	1,873.00	50,380.10	88,223.30	253,626.90	67,576.00	321,202.90
All species	204,503.70	94,606.90	22,180.40	321,291.10	19,593.50	1,785.20	20,710.40	3,480.10	75,777.20	121,346.40	344,679.80	97,957.70	442,637.40

Eastern Upper Peninsula

Softwoods													
Fir	2,372.90	767.6	171.3	3,311.80	88.7	34.8	9.1	20.2	1,038.10	1,190.90	3,293.30	1,209.40	4,502.70
Tamarack	450.4	166	27.1	643.6	17.1	7.3	1.6	2.5	200.2	228.8	645.1	227.3	872.4
Spruce	1,841.90	459.2	146.7	2,447.80	64.6	19.8	6.8	21.3	798.7	911.2	2,413.60	945.3	3,359.00
Jack pine	4,426.90	1,051.80	425.5	5,904.20	218.1	47.7	34.2	180.5	1,962.30	2,442.80	5,959.20	2,387.80	8,347.00
Red pine	2,295.60	561.7	119	2,976.40	116.1	39.6	86.6	58.9	947	1,248.20	3,158.60	1,066.10	4,224.70
White pine	835.2	91.9	41.6	968.7	25.8	5.9	15.4	13.3	295.6	356	987.5	337.2	1,324.60
N. white cedar	1,335.50	977.3	282.2	2,595.00	69.7	72.3	19.9	21.6	484.7	668.2	2,496.40	766.9	3,263.30
Hemlock	920.9	581.5	56.6	1,559.00	99.6	43	92.8	49.8	554.4	839.4	1,787.50	610.9	2,398.40
Total	14,479.50	4,657.00	1,269.90	20,406.40	699.8	270.4	266.4	368.1	6,280.90	7,885.60	20,741.10	7,550.90	28,292.00
Hardwoods													
Soft maple	3,841.80	4,077.00	671.9	8,590.70	640.7	25.6	601.4	124	1,807.60	3,199.30	9,310.50	2,479.50	11,790.00

(Table 9 continued on next page)

(Table 9 continued)

Species group	Source of material													
	Growing-stock					Non-growing-stock								
	Used for products			Logging residue (not used)	Total growing-stock	Used for products				Logging slash (not used)	Total non-growing-stock	Total wood material used	Total wood material not used	Total wood material harvested
	Sawtimber	Pole-timber	Limb-wood			Sap-lings	Cull trees	Dead trees	Nonforest trees					
Hard maple	5,924.80	1,587.70	869.4	848.7	8,361.20	1.2	2,448.20	0.4	--	3,598.90	6,918.10	10,831.80	4,447.60	15,279.40
White birch	1,511.90	1,185.30	189.1	260.3	2,957.60	8.1	183	35.5	--	610.3	1,026.10	3,113.10	870.6	3,983.70
Yellow birch	817.5	191.1	105.7	110.3	1,118.90	0	298.6	0	--	450.5	854.8	1,412.90	560.8	1,973.70
Beech	1,185.30	279.3	154.9	154	1,618.60	0.2	422.7	0.1	--	641.6	1,219.40	2,042.40	795.6	2,838.00
Ash	362.5	117.1	63	48	527.7	0.1	178	0	--	244.3	485.4	720.7	292.4	1,013.10
Yellow-poplar	23.3	1	0.3	3.7	27.9	--	0.1	--	--	4.8	5.3	24.7	8.6	33.2
Balsam poplar	305.4	439.2	67.9	55.4	800.1	2.3	65.6	13.6	--	175.3	324.7	894.1	230.7	1,124.80
Aspen	5,341.20	5,932.10	229.1	525.2	11,798.60	1.2	374.6	82.2	--	2,214.50	2,901.60	11,960.40	2,739.70	14,700.10
Black cherry	142.8	5.5	1.8	23.2	171.4	--	1.7	--	--	30.6	34.1	151.8	53.7	205.5
Other/unknown cherry	--	--	28.5	--	--	1	340.3	5.7	--	255.7	631.2	375.5	255.7	631.2
Red oak group	355	357	71	47.2	759.2	3.5	33.6	24.8	--	125.1	258	844.9	172.3	1,017.20
White oak group	87.4	57.6	12.1	10.7	155.8	0.5	5.9	4.5	--	24.1	47.2	168.1	34.8	203
Basswood	627.3	417.2	67.1	106.4	1,150.90	2.4	61.9	12.4	--	231.8	375.6	1,188.40	338.2	1,526.60
Elm	22.5	31.9	4.9	4.1	58.4	0.2	4.7	1	--	12.7	23.5	65.2	16.7	82
Other/unknown hrdwds	--	--	15.3	--	--	--	137.6	--	--	99.4	252.3	152.8	99.4	252.3
Total	20,548.80	14,679.10	2,869.20	2,869.20	38,097.00	46.3	5,157.90	304.2	--	10,527.20	18,556.70	43,257.30	13,396.30	56,653.70
All species	35,028.20	19,336.10	4,139.10	4,139.10	58,503.40	316.7	5,424.40	672.3	--	16,808.10	26,442.20	63,998.50	20,947.20	84,945.70

Northern Lower Peninsula

Softwoods														
Fir	402.7	88.7	73	15.8	507.2	3.4	0.9	10.4	--	107.7	195.4	579.1	123.5	702.6
Tamarack	272.8	63.2	9.4	22.5	358.5	2.7	1	3.4	--	117.9	134.4	352.5	140.4	492.9
Spruce	402.3	113.5	28.6	25.7	541.5	4.9	1.3	5.3	--	159.8	199.8	555.8	185.5	741.3
Jack pine	12,806.70	1,423.30	2,374.70	749.5	14,979.50	42.6	41.3	514.6	--	3,321.80	6,295.00	17,203.20	4,071.30	21,274.50
Red pine	21,090.30	1,648.50	446.3	1,108.70	23,847.50	98.4	58.1	208.8	--	6,533.90	7,345.50	23,550.40	7,642.60	31,193.00
White pine	740.2	54.2	39.9	31.8	826.2	2.9	7.4	12	--	231	293.3	856.6	262.8	1,119.40
Other/unknown pine	285.9	21.6	104.7	--	307.5	--	--	14	--	13.5	132.2	426.2	13.5	439.6
N. white cedar	352.7	308.5	27.4	81.8	742.9	23.1	6.2	6.2	--	114.7	177.7	724.1	196.5	920.6

(Table 9 continued on next page)

(Table 9 continued)

Species group	Source of material													
	Growing-stock					Non-growing-stock								
	Used for products			Logging residue (not used)	Total growing-stock	Used for products			Logging slash (not used)	Total non-growing-stock	Total wood			Total wood material harvested
	Sawtimber	Pole-timber	Limb-wood			Sap-lings	Cull trees	Dead trees			material used	material not used	material	
Hemlock	25.8	12.7	2.3	1.5	39.9	0.9	2	1.1	--	13.8	20.1	44.8	15.3	60.1
Other/unknown softwds	5.5	0.4	--	--	5.9	--	--	0.3	--	0.3	2.5	8.2	0.3	8.5
Total	36,384.90	3,734.40	2,037.20	2,037.20	42,156.50	3,108.30	178.9	118.1	776.2	--	10,614.50	44,300.90	12,651.60	56,952.50
Hardwoods														
Soft maple	6,820.40	7,746.40	967.6	967.6	15,534.50	1,667.00	274.5	709.4	191.6	--	2,282.40	17,409.30	3,250.00	20,659.20
Hard maple	9,986.50	2,273.60	1,375.90	1,375.90	13,635.90	971.1	94.3	1,089.20	30.1	--	3,108.60	14,444.80	4,484.50	18,929.40
White birch	824.3	1,217.00	121.2	121.2	2,162.50	220.7	38.3	119.6	32.1	--	340.6	2,452.00	461.8	2,913.80
Yellow birch	52.6	59.8	5.2	5.2	117.5	20.3	3	20	0.9	--	27.4	156.6	32.6	189.2
Hickory	131	94	14.7	14.7	239.7	27.3	4.7	36.7	1.5	--	58.9	129.1	73.5	368.8
Beech	849.7	387.3	98	98	1,334.90	138.7	18.2	155.5	5.8	--	301.2	1,555.20	399.1	1,954.30
Ash	1,577.70	439.3	186.5	186.5	2,203.60	179	20.9	148.2	6.6	--	425.7	2,371.70	612.3	2,984.00
Black walnut	7.9	0.1	1	1	9	0.2	--	0.2	--	--	1.6	8.4	2.6	11
Yellow-poplar	8.8	0.4	1.4	1.4	10.5	0.1	--	0.1	--	--	1.8	9.3	3.2	12.5
Cottonwood	86.6	4.1	13.8	13.8	104.5	1.8	0	0.6	--	--	18	93.2	31.8	125
Balsam poplar	296.7	566.2	44.1	44.1	907	99.2	16.1	58.9	15.4	--	149.1	1,052.50	193.3	1,245.80
Aspen	18,175.60	17,829.70	1,472.90	1,472.90	37,478.20	2,017.40	132.2	1,015.90	285.8	--	5,648.10	39,456.60	7,121.10	46,577.70
Black cherry	543.6	42.6	84.8	84.8	671	35.4	0.2	8.6	--	--	112.6	630.4	197.4	827.8
Other/unknown cherry	--	--	--	--	--	26.2	8.4	185	3.1	--	110.9	222.6	110.9	333.5
Red oak group	8,172.70	1,942.60	830.4	830.4	10,945.70	693.5	85.4	259.3	175.5	--	1,254.10	11,329.00	2,084.50	13,413.50
White oak group	1,049.10	712.8	103.1	103.1	1,864.90	216.1	29	59.8	36.5	--	204.2	2,103.30	307.3	2,410.50
Sassafras	0.3	0.4	--	--	0.8	0.6	0	0.1	--	--	0	1.4	0	1.4
Basswood	1,985.30	1,085.40	311.8	311.8	3,382.50	225.6	26	123	27.7	--	577.2	3,472.90	889	4,361.90
Elm	42.7	82.6	4.8	4.8	130	21	3.3	7	1.9	--	16	158.4	20.8	179.2
Other/unknown hrdwds	0.6	0	0.1	0.1	0.7	50.9	17.6	336.5	5.7	--	193.2	411.4	193.3	604.6
Total	50,612.20	34,484.10	5,637.30	5,637.30	90,733.70	6,611.90	772.1	4,333.40	820.5	--	14,831.70	97,634.30	20,469.00	118,103.30
All species	86,997.10	38,218.60	7,674.50	7,674.50	132,890.20	9,720.20	951.1	4,451.50	1,596.70	--	25,446.10	141,935.20	33,120.60	175,055.80

(Table 9 continued on next page)

(Table 9 continued)

Species group	Source of material														
	Growing-stock					Non-growing-stock									
	Used for products			Logging residue (not used)	Total growing-stock	Used for products					Logging slash (not used)	Total non-growing-stock	Total wood material used	Total wood material not used	Total wood material harvested
	Sawtimber	Pole-timber	Limb-wood			Sap-lings	Cull trees	Dead trees	Nonforest trees						
Southern Lower Peninsula															
Softwoods															
Fir	4.5	0.7	0.1	5.4	1.2	0	0	0.2	--	--	0.7	2.2	6.7	0.8	7.5
Tamarack	0.3	0.1	0	0.4	0	0	0	0	--	--	0.1	0.2	0.4	0.2	0.6
Spruce	1.2	0.2	0	1.4	0.3	0	0	0	--	--	0.2	0.6	1.7	0.3	2
Jack pine	143.1	99.5	7.1	249.7	13.9	4.7	2.4	11.1	--	--	71.4	103.5	274.6	78.5	353.2
Red pine	515.4	13.1	22.3	550.7	9.6	0.3	0.7	5.1	--	--	161.5	177.3	544.3	183.7	728
White pine	31	4.2	1.4	36.6	1.1	0.3	0.6	0.6	--	--	11.3	13.8	37.6	12.7	50.4
N. white cedar	0.5	0.1	0	0.5	0.1	0	0	0	--	--	0	0.2	0.7	0.1	0.8
Hemlock	1.9	0.2	0.1	2.3	0.1	0	0	0	--	--	0.7	0.8	2.3	0.8	3.1
Total	697.9	118	31.1	847	26.4	5.4	3.7	17	--	--	246	298.6	868.5	277.1	1,145.60
Hardwoods															
Soft maple	2,492.30	1,094.00	369	3,955.20	217.6	60.1	57.5	22.7	--	--	544.8	902.6	3,944.10	913.7	4,857.80
Hard maple	3,053.90	150.9	456.2	3,661.10	93.7	6	94.8	2	--	--	744.3	940.8	3,401.30	1,200.50	4,601.90
White birch	21.3	18.6	3.1	43.1	3.4	0.9	1.8	0.4	--	--	6.3	12.8	46.4	9.4	55.8
River birch	3.7	--	0.7	4.4	0	--	0.4	--	--	--	1.1	1.6	4.1	1.8	5.9
Yellow birch	3.3	6.1	0.3	9.7	1.4	0.4	1.1	0.1	--	--	1.6	4.6	12.5	1.9	14.3
Hickory	630.4	22	79.5	731.9	16	0.7	14.7	0.2	--	--	134.1	165.8	684.1	213.6	897.7
Hackberry	12.2	0.5	2	14.6	0.2	--	0.1	--	--	--	2.6	2.8	12.9	4.5	17.4
Beech	225.8	14.9	28.5	269.2	7	0.7	6.4	0.2	--	--	48.9	63.3	255	77.4	332.4
Ash	1,612.40	133.7	272.5	2,018.50	33.3	1.2	31.5	0.4	--	--	295.5	361.9	1,812.40	568	2,380.40
Black walnut	502.3	7	66.9	576.2	9.6	--	15.4	--	--	--	111.3	136.3	534.3	178.2	712.5
Yellow-poplar	188.8	7.1	30.7	226.6	2.3	--	2.7	--	--	--	40.8	45.8	200.9	71.5	272.4
Sycamore	25	1	4	30.1	0.3	--	0.2	--	--	--	5.2	5.7	26.5	9.2	35.8
Cottonwood	173.6	7.1	27.9	208.6	2.3	--	1	--	--	--	36.1	39.4	184.1	64	248.1
Balsam poplar	87.2	42	13	142.2	8.1	2.1	2.7	0.9	--	--	20.2	34	143	33.2	176.2
Aspen	816.3	790.7	54.2	1,661.30	129.1	11.2	40.6	14.6	--	--	196.5	392	1,802.60	250.7	2,053.30
Black cherry	2,485.30	98	401.8	2,985.00	31.9	--	25.2	--	--	--	526.6	583.6	2,640.30	928.4	3,568.70

(Table 9 continued on next page)

(Table 9 continued)

Species group	Source of material															
	Growing-stock					Non-growing-stock										
	Used for products			Logging	Total	Used for products					Logging	Total non-growing-stock	Total wood			Total wood
	Sawtimber	Pole-timber	Logging residue (not used)	Limb-wood	Sap-lings	Cull trees	Dead trees	Nonforest trees	slash (not used)	stock	material used	material not used	material harvested			
Other/unknown cherry	--	--	--	0.6	0.2	4.3	0.1	--	2.4	7.7	5.2	2.4	7.7			
Red oak group	5,828.70	965.5	619.7	7,413.90	297.2	48.3	171	111.2	--	900.3	1,527.90	7,421.80	1,520.00	8,941.80		
White oak group	2,024.30	843.5	243.7	3,111.60	190.3	51.5	71.7	41.5	--	384.6	739.6	3,222.90	628.3	3,851.20		
Black locust	1.8	0	0.2	2	0	--	0	--	--	0.4	0.4	1.9	0.6	2.5		
Sassafras	7.7	0.3	1.2	9.2	0.1	--	0	--	--	1.6	1.7	8.2	2.8	11		
Basswood	460.3	40.3	73.4	574.1	10	1.2	4	0.5	--	96.7	112.4	516.4	170.1	686.5		
Elm	58	9.5	9.5	77	2	0.4	1.4	0.2	--	13.5	17.5	71.6	23	94.5		
Other/unknown hrdwds	6.1	0.1	0.8	7	0.1	--	0.1	--	--	1.3	1.5	6.4	2.1	8.5		
Total	20,720.60	4,253.10	2,758.90	27,732.50	1,056.70	185	548.5	195	--	4,116.50	6,101.70	26,958.80	6,875.40	33,834.20		
All Species	21,418.50	4,371.10	2,789.90	28,579.50	1,083.10	190.4	552.3	212	--	4,362.50	6,400.20	27,827.30	7,152.40	34,979.70		

Western Upper Peninsula

Softwoods															
Fir	3,178.70	790.6	259	4,228.30	111.4	34.6	11.6	37.7	--	--	1,375.80	1,571.10	4,164.70	1,634.80	5,799.40
Tamarack	497.4	165.9	32.8	696.1	18.5	7.3	1.8	3.6	--	--	219.5	250.7	694.5	252.3	946.8
Spruce	5,710.20	993.1	526.8	7,230.10	188	41.4	23.7	87.1	--	--	2,435.50	2,775.70	7,043.60	2,962.30	10,005.80
Jack pine	4,548.30	718.3	473.7	5,740.30	186.2	31.4	28.1	156.6	--	--	1,971.80	2,374.10	5,668.90	2,445.40	8,114.40
Red pine	1,499.20	537.4	104.4	2,141.00	99.3	39.1	102.3	49.8	--	--	706.6	997.1	2,327.10	811	3,138.20
White pine	948.4	80.4	51	1,079.70	25.3	5	16.9	13.1	--	--	324.6	384.9	1,089.00	375.6	1,464.60
N. white cedar	578.9	292.9	96.3	968.2	25.7	20.5	6	9.4	--	--	223.8	285.4	933.5	320.1	1,253.60
Hemlock	1,685.80	1,029.40	102.5	2,817.70	177.1	76	164.1	88.6	--	--	998.1	1,503.80	3,221.00	1,100.60	4,321.60
Total	18,647.00	4,608.10	1,646.40	24,901.50	831.5	255.3	354.5	445.9	--	--	8,255.70	10,142.90	25,142.30	9,902.10	35,044.40
Hardwoods															
Soft maple	6,683.60	6,293.70	1,163.20	14,140.50	990.9	34.2	942.6	191.4	--	--	2,965.20	5,124.20	15,136.30	4,128.30	19,264.60
Hard maple	14,407.60	3,351.40	2,052.10	19,811.00	1,869.60	3.6	5,063.30	1.2	--	--	7,910.60	14,848.20	24,696.60	9,962.60	34,659.20
White birch	2,009.30	2,063.30	355.2	4,427.80	323.1	11.6	321.4	63.1	--	--	948.8	1,668.00	4,791.80	1,303.90	6,095.80
River birch	4.1	0.2	0.7	4.9	0.1	--	0	--	--	--	0.9	0.9	4.4	1.5	5.9
Yellow birch	1,958.40	369.4	262.5	2,590.20	206.2	0.7	565.7	0.2	--	--	931.4	1,704.20	3,100.50	1,193.90	4,294.40

(Table 9 continued on next page)

(Table 9 continued)

Species group	Source of material															
	Growing-stock					Non-growing-stock										
	Used for products			Logging residue (not used)	Total growing-stock	Used for products					Logging slash (not used)	Total non-growing-stock	Total wood material used	Total wood material not used	Total wood material harvested	
	Sawtimber	Pole-timber	Limb-wood			Sap-lings	Cull trees	Dead trees	Nonforest trees							
Hickory	8.1	2.9	355.4	114.1	1,316.70	189	0	547.1	0	--	--	700.7	1,436.80	1,938.70	814.8	2,753.50
Beech	847.2															
Ash	858.3	264.6		113.2	1,236.10	141.5	0.5	395.5	0.2	--	--	552.9	1,090.60	1,660.60	666.1	2,326.70
Butternut	1.8	2.5	0.3	0.3	4.6	0.4	0.1	0.3	0.1	--	--	0.8	1.7	5.1	1.1	6.3
Black walnut	2	--	0.4	0.4	2.4	0	--	0.2	--	--	--	0.6	0.8	2.2	1	3.2
Balsam poplar	601	864.3	109		1,574.30	133.7	4.5	129.1	26.7	--	--	344.9	638.9	1,759.30	453.9	2,213.20
Aspen	11,590.10	12,679.10	1,223.20	25,492.30		486.8	3.1	917.4	176.9	--	--	4,879.20	6,463.50	25,853.40	6,102.40	31,955.90
Black cherry	151.5	5.8	24.6		181.9	1.9	--	2.1	--	--	--	32.7	36.7	161.3	57.3	218.6
Other/unknown cherry	--	--	--	--	--	47	1.8	557.1	9.3	--	--	417.7	1,032.90	615.2	417.7	1,032.90
Red oak group	1,385.00	554.4	188.4		2,127.80	121.4	5.2	98.6	46.1	--	--	367.3	638.6	2,210.80	555.7	2,766.50
White oak group	23.1	1	2.6	26.7		0.6	0	0.7	0.4	--	--	3.6	5.3	25.8	6.2	32
Basswood	1,671.80	1,154.00	284.8		3,110.60	184.7	5.8	172.9	34.5	--	--	632.5	1,030.40	3,223.70	917.3	4,141.00
Elm	73.7	105.6	13.4	192.7		16.3	0.5	15.8	3.3	--	--	42.2	78.2	215.2	55.6	270.8
Other/unknown hrdwds	136.5	5.6	21.9	164		23.4	--	195.4	--	--	--	169	387.9	360.9	191	551.9
Total	42,412.90	28,073.00	5,930.50	76,416.50		4,737.80	71.8	9,927.70	553.4	--	--	20,904.80	36,195.40	85,776.50	26,835.30	112,611.80
All species	61,059.90	32,681.10	7,576.90	101,318.00		5,569.30	327.1	10,282.20	999.3	--	--	29,160.50	46,338.30	110,918.90	36,737.40	147,656.30

Based on factors obtained from regional utilization studies.

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 50 cubic feet.

Table may not sum due to rounding.

Table 10.—Growing-stock removals from timberland for industrial roundwood (thousand cubic feet) by Forest Survey Unit, county, and species group, Michigan 2004

Forest Inventory Unit and county	Softwoods										Hardwoods								
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/		N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory
								unknown	pine										
Eastern Upper Peninsula																			
Alger	7,439	452	208	233	234	571	241	--	--	99	361	--	2,400	1,208	1,392	457	--	224	--
Chippewa	5,648	261	31	267	749	345	23	--	--	140	188	--	2,003	792	635	235	--	76	--
Delta	9,308	764	107	575	431	387	72	--	--	783	263	--	3,383	1,234	1,498	439	--	177	--
Luce	10,252	345	44	214	1,940	382	151	--	--	166	151	--	3,393	1,519	1,671	475	--	194	--
Mackinac	6,855	311	30	246	888	463	80	--	--	181	61	--	2,260	1,005	761	358	--	122	--
Menominee	9,139	785	155	297	209	337	255	--	--	1,034	413	--	3,485	995	863	417	--	140	--
Schoolcraft	9,861	393	69	616	1,454	492	145	--	--	192	122	--	3,482	1,839	1,542	577	--	187	--
Total	58,503	3,312	644	2,448	5,904	2,976	969	--	--	2,595	1,559	--	20,406	8,591	8,361	2,958	--	1,119	--
Northern Lower Peninsula																			
Alcona	6,086	11	--	3	268	271	38	11	191	--	--	--	794	431	145	143	--	0	--
Alpena	3,436	69	12	38	23	97	20	12	292	--	--	--	563	468	132	191	--	0	--
Antrim	3,690	--	--	0	323	642	9	44	2	--	--	--	1,020	518	796	81	--	10	13
Arenac	1,380	--	--	--	94	1	1	--	3	--	--	--	99	322	76	28	--	0	0
Bay	445	--	--	--	10	--	--	0	--	--	--	--	10	113	8	19	--	0	0
Benzie	3,109	1	--	183	53	710	9	23	--	--	--	--	980	515	712	5	--	2	4
Charlevoix	3,223	--	--	--	69	278	2	--	4	1	--	--	354	466	908	88	--	13	13
Cheboygan	6,987	174	2	101	653	1,278	33	15	31	--	--	6	2,294	530	484	198	--	3	0
Clare	4,841	0	7	7	537	419	12	--	1	--	--	--	984	631	258	40	--	5	10
Crawford	6,787	14	--	4	2,872	919	31	--	8	--	--	--	3,847	646	305	98	--	3	4
Emmet	3,191	4	--	1	13	304	1	14	1	0	--	--	338	400	964	99	--	4	1
Gladwin	4,320	--	--	--	583	928	8	--	32	--	--	--	1,552	517	92	36	--	1	3
Grand Traverse	3,745	--	41	--	258	1,830	9	49	--	--	--	--	2,187	253	494	7	--	2	4
Iosco	3,205	5	237	0	235	699	109	1	34	33	--	--	1,354	236	95	68	--	0	0
Isabella	1,479	--	--	--	7	112	1	--	0	--	--	--	121	318	250	14	--	3	9
Kalkaska	6,074	0	--	1	461	2,637	51	24	--	--	--	--	3,175	631	692	55	--	10	18
Lake	3,987	--	2	--	409	847	24	--	2	--	--	--	1,284	322	247	5	--	2	3
Leelanau	707	--	7	0	14	99	16	--	--	--	--	--	137	114	270	2	--	0	0

(Table 10 continued on next page)

(Table 10 continued)

Forest Inventory Unit and county	Softwoods										Hardwoods							
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown pine	N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory
Manistee	3,416	--	15	--	124	581	17	1	--	--	--	738	534	711	9	--	0	52
Mason	2,412	--	--	--	67	276	8	--	--	2	--	353	459	365	11	--	4	9
Mecosta	2,554	--	2	3	29	455	85	--	--	1	--	575	349	292	14	--	5	10
Midland	2,550	--	--	--	15	7	31	--	--	--	--	53	835	196	69	--	5	11
Missaukee	5,267	0	2	0	576	1,247	34	--	15	--	--	1,876	767	458	53	--	10	17
Montmorency	5,649	48	--	56	1,067	400	38	1	16	--	--	1,627	530	379	112	--	1	--
Newaygo	4,946	--	7	--	238	761	36	--	--	--	--	1,042	621	493	11	--	5	15
Oceana	2,861	--	2	1	188	528	3	--	--	2	--	724	418	490	15	--	7	11
Ogemaw	4,070	0	--	0	1,018	404	10	9	12	--	--	1,453	278	136	42	--	0	0
Osceola	3,735	--	5	0	199	531	10	--	7	--	--	752	530	582	29	--	7	14
Oscoda	5,376	16	--	4	1,490	1,104	54	--	3	--	--	2,671	345	188	70	--	2	--
Otsego	6,556	1	0	0	532	957	24	91	2	0	--	1,608	970	1,288	242	--	6	8
Presque Isle	4,289	142	0	94	516	231	30	1	82	0	--	1,096	435	172	207	--	1	--
Roscommon	6,079	0	--	2	1,294	1,023	24	--	3	--	--	2,347	616	56	82	--	1	2
Wexford	6,436	20	15	41	743	3,271	46	10	--	--	--	4,146	414	902	17	--	4	8

Southern Lower Peninsula

Allegan	2,130	--	--	--	--	4	1	--	--	--	--	5	340	55	1	--	1	17
Barry	1,873	--	--	--	--	83	0	--	--	--	--	84	178	460	2	0	1	55
Berrien	639	--	--	--	--	--	--	--	--	--	--	--	14	225	0	1	--	4
Branch	307	--	--	--	--	--	--	--	--	--	--	--	72	78	--	--	--	2
Calhoun	860	--	--	--	--	--	--	--	--	--	--	--	119	28	--	0	--	58
Cass	1,195	--	--	--	--	0	--	--	--	--	--	0	224	88	--	0	--	22
Clinton	389	2	0	1	26	4	0	--	0	1	--	34	135	56	--	--	--	11
Eaton	521	--	--	--	--	7	--	--	--	--	--	7	20	197	--	--	--	13
Genesee	270	--	--	--	--	--	1	--	--	--	--	1	20	68	--	--	--	4
Gratiot	427	--	--	--	4	1	1	--	--	--	--	6	117	33	1	--	0	3
Hillsdale	216	--	--	--	--	--	--	--	--	--	--	--	4	135	--	--	--	2

(Table 10 continued on next page)

(Table 10 continued)

Forest Inventory Unit and county	All species	Softwoods										Hardwoods							
		Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown pine	N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	
Huron	233	--	--	--	0	--	--	--	--	--	0	25	15	5	--	--	--	0	
Ingham	490	--	--	--	--	195	--	--	--	--	195	42	74	--	--	--	--	6	
Ionia	845	--	--	--	89	3	0	--	--	--	93	46	111	0	--	0	0	34	
Jackson	852	--	--	--	--	--	--	--	--	--	--	14	5	--	0	--	--	94	
Kalamazoo	864	--	--	--	--	2	1	--	--	--	3	187	37	0	--	--	--	7	
Kent	2,654	--	--	--	22	12	11	--	--	--	46	447	554	12	1	2	2	32	
Lapeer	505	--	--	--	--	1	0	--	--	--	1	113	126	0	--	--	--	8	
Lenawee	394	--	--	--	--	--	--	--	--	--	--	4	191	--	--	--	--	45	
Livingston	422	--	--	--	--	--	--	--	--	--	--	22	4	--	--	--	--	8	
Macomb	351	--	--	--	32	3	1	--	--	--	35	22	27	--	--	--	--	4	
Monroe	322	--	--	--	--	--	--	--	--	--	--	11	21	0	--	0	--	30	
Montcalm	1,830	--	--	--	3	57	9	--	--	--	69	345	128	7	0	2	2	20	
Muskegon	2,731	--	--	--	1	133	7	--	--	2	143	416	143	5	--	2	2	32	
Oakland	702	--	--	--	--	--	0	--	--	--	0	57	70	--	--	--	--	18	
Ottawa	960	--	--	--	45	32	3	--	--	--	80	139	122	1	--	1	1	1	
Saginaw	689	--	--	--	5	8	1	--	--	--	14	176	43	1	--	0	0	21	
Sanilac	226	--	--	--	16	1	--	--	--	--	17	41	18	1	--	--	--	0	
Shiawassee	260	--	--	--	--	--	--	--	--	--	--	25	37	--	--	--	--	29	
St Clair	467	--	--	--	--	--	0	--	--	--	0	82	70	--	--	--	--	3	
St Joseph	735	--	--	--	--	0	1	--	--	--	1	48	26	--	0	--	--	64	
Tuscola	552	--	--	--	--	--	--	--	--	--	--	49	55	5	--	--	--	1	
Van Buren	2,021	--	--	--	--	4	--	--	--	--	4	377	326	--	1	--	--	29	
Washtenaw	507	3	--	1	5	0	0	--	0	--	10	15	17	1	0	0	0	54	
Wayne	142	--	--	--	--	--	--	--	--	--	--	11	20	--	--	--	--	1	
Total	28,579	5	0	1	250	551	37	--	1	2	--	847	3,955	3,661	43	4	10	732	

Western Upper Peninsula

Baraga	12,857	326	66	960	692	146	40	--	103	497	--	2,830	2,419	3,299	691	--	438	0
Dickinson	10,248	742	121	1,060	503	196	149	--	178	112	--	3,060	1,030	1,111	431	2	161	--

(Table 10 continued on next page)

(Table 10 continued)

Forest Inventory Unit and county	Softwoods										Hardwoods							
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown pine	N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory
Gogebic	11,319	232	21	333	72	160	52	--	22	125	--	1,016	2,238	3,023	600	2	310	8
Houghton	11,912	238	21	629	552	361	20	--	88	333	--	2,242	1,838	3,037	460	--	418	0
Iron	14,500	972	142	1,906	597	479	66	--	141	223	--	4,526	1,514	2,192	710	2	374	0
Keweenaw	4,305	56	21	318	20	24	18	--	28	60	--	544	1,098	1,226	236	--	188	3
Marquette	23,944	1,519	284	1,587	3,234	534	675	--	231	1,127	--	9,191	2,431	3,053	786	--	374	--
Ontonagon	12,233	144	21	437	72	242	58	--	177	341	--	1,493	1,571	2,869	515	--	329	1
Total	101,318	4,228	696	7,230	5,740	2,141	1,080	--	968	2,818	--	24,901	14,140	19,811	4,428	5	2,590	12
State total	321,291	8,053	1,699	10,221	26,874	29,516	2,911	307	4,307	4,419	6	88,311	42,221	45,469	9,591	9	3,836	984

Forest Inventory Unit and county	Hardwoods																	Other/ unknown hwds.	Total hwds.
	Hack- berry	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm		
Eastern Upper Peninsula																			
Alger	--	395	68	--	--	13	--	--	84	792	47	61	5	--	--	289	5	0 5,039	
Chippewa	--	107	42	--	--	--	--	--	123	1,523	1	35	0	--	--	70	6	0 3,646	
Delta	--	182	59	--	--	6	--	--	118	1,919	42	70	--	--	--	180	1	0 5,925	
Luce	--	394	130	--	--	5	--	--	139	1,854	37	189	68	--	--	167	17	0 6,859	
Mackinac	--	106	32	--	--	1	--	--	123	1,858	20	90	39	--	--	78	2	0 4,595	
Menominee	--	123	64	--	--	--	--	--	155	2,579	3	130	--	--	--	175	11	0 5,654	
Schoolcraft	--	310	133	--	--	2	--	--	58	1,272	22	185	43	--	--	192	17	0 6,379	
Total	--	1,619	528	--	--	28	--	--	800	11,799	171	759	156	--	--	1,151	58	0 38,097	

Northern Lower Peninsula																		
Alcona	--	23	234	--	--	--	--	--	63	3,067	6	1,040	25	--	--	114	0	0 5,292
Alpena	--	27	55	--	--	--	--	--	62	1,618	--	262	5	--	--	52	0	0 2,873
Antrim	--	47	76	--	--	--	--	--	41	788	14	21	1	--	--	255	9	0 2,670
Arenac	--	18	56	--	--	--	--	--	6	645	0	96	10	--	--	15	0	-- 1,281
Bay	--	2	18	--	--	--	--	--	2	227	1	12	15	--	--	15	0	0 435

(Table 10 continued on next page)

(Table 10 continued)

Forest Inventory Unit and county	Hardwoods																		
	Hack- berry	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm	Other/ unknown hwd.s.	Total hwd.s.
Benzie	--	64	88	--	--	--	--	--	8	450	24	161	11	--	--	84	2	0	2,129
Charlevoix	--	92	95	--	--	--	--	--	45	787	8	23	0	--	--	323	9	--	2,868
Cheboygan	--	42	42	--	--	--	--	--	46	2,947	1	84	25	--	--	289	1	0	4,693
Clare	--	34	55	--	--	--	--	11	27	2,162	19	497	73	--	--	31	6	--	3,857
Crawford	--	20	20	--	--	--	--	--	12	1,189	4	533	35	--	--	66	3	--	2,939
Emmet	--	86	86	--	--	--	--	--	3	859	22	17	0	--	--	312	1	0	2,853
Gladwin	--	15	46	--	--	--	--	17	9	1,620	2	270	111	--	--	26	2	--	2,768
Grand Traverse	--	24	46	--	0	--	--	--	12	424	15	149	40	--	--	83	3	0	1,558
Iosco	--	5	43	--	--	--	--	44	34	1,160	2	143	8	--	--	13	0	0	1,851
Isabella	--	18	34	--	--	--	--	8	17	435	10	136	66	--	0	35	5	--	1,358
Kalkaska	--	38	57	--	--	--	--	--	55	1,063	26	109	7	--	--	128	11	0	2,899
Lake	--	32	59	--	2	--	--	0	11	438	26	1,198	322	--	0	35	2	--	2,703
Leelanau	--	34	41	--	--	--	--	--	0	34	4	23	0	--	--	45	1	--	571
Manistee	--	100	91	--	--	11	--	--	2	427	89	506	101	--	--	43	1	0	2,678
Mason	--	49	50	--	--	--	--	0	26	648	21	331	48	--	--	30	6	--	2,058
Mecosta	--	28	48	--	5	--	--	--	27	887	34	199	47	--	0	27	6	--	1,979
Midland	--	31	113	--	--	--	--	11	29	889	5	129	119	--	--	48	6	--	2,497
Missaukee	--	32	72	--	0	--	--	--	63	1,585	18	202	23	--	--	77	13	--	3,392
Montmorency	--	35	54	--	--	--	--	--	31	2,046	5	565	12	--	--	250	0	0	4,022
Newaygo	--	62	86	--	1	--	--	1	25	744	92	1,306	389	--	0	47	6	0	3,904
Oceana	--	54	49	--	2	--	--	2	38	478	46	409	78	--	0	30	8	0	2,137
Ogemaw	--	11	106	--	0	--	--	--	34	1,496	1	466	22	--	--	25	0	0	2,617
Osceola	--	103	79	--	--	--	--	--	34	1,062	37	377	75	--	--	45	7	--	2,983
Oscoda	--	21	32	--	--	--	--	--	13	1,235	9	553	16	--	--	221	0	--	2,705
Otsego	--	119	91	--	--	--	--	--	43	1,613	5	76	11	--	--	470	8	0	4,948
Presque Isle	--	23	37	--	--	--	--	--	51	2,085	0	120	2	--	--	57	3	0	3,193
Roscommon	--	7	59	--	--	--	--	0	13	1,955	2	769	154	--	--	13	2	--	3,732
Wexford	--	41	84	--	--	--	--	--	24	412	121	167	16	--	--	76	6	0	2,291
Total	--	1,335	2,204	--	9	11	--	105	907	37,478	671	10,946	1,865	--	1	3,382	130	1	90,734

(Table 10 continued on next page)

(Table 10 continued)

Forest Inventory Unit and county	Hardwoods																	Other/ unknown hwds.	Total hwds.
	Hack- berry	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm		
Southern Lower Peninsula																			
Allegan	2	14	79	--	23	162	--	--	11	103	160	732	415	0	1	9	1	1 2,125	
Barry	2	13	23	--	36	5	--	--	9	57	286	515	103	0	1	40	2	1 1,790	
Berrien	2	7	8	--	10	50	30	4	--	--	185	46	32	0	1	5	12	1 639	
Branch	--	--	42	--	10	0	--	--	--	--	37	45	17	--	--	2	2	0 307	
Calhoun	1	1	96	--	15	2	--	--	13	18	221	134	74	0	1	76	3	1 860	
Cass	2	0	8	--	70	2	--	--	--	--	420	315	22	0	1	3	16	1 1,195	
Clinton	--	--	12	--	10	--	--	--	--	4	61	41	15	--	--	12	--	-- 355	
Eaton	--	3	74	--	23	0	--	1	--	1	49	46	42	--	--	42	5	-- 515	
Genesee	--	1	62	--	6	--	--	4	--	2	6	57	23	--	--	16	1	-- 269	
Gratiot	--	1	36	--	--	--	--	9	2	49	2	108	34	--	--	25	1	-- 421	
Hillsdale	--	--	7	--	12	--	--	--	--	--	18	15	19	--	--	3	--	0 216	
Huron	--	--	23	--	--	--	--	50	37	44	4	22	4	--	--	4	--	-- 232	
Ingham	--	3	71	--	1	--	--	4	--	0	26	26	16	--	--	24	2	-- 295	
Ionia	--	54	47	--	8	--	--	3	12	40	133	175	43	--	--	45	0	-- 752	
Jackson	2	--	81	--	58	--	--	--	--	0	159	249	166	0	1	22	0	1 852	
Kalamazoo	1	0	9	--	6	2	--	--	0	58	148	209	196	0	0	1	0	-- 862	
Kent	1	11	106	--	12	--	--	1	25	158	172	795	238	0	0	37	4	-- 2,608	
Lapeer	--	1	32	--	1	--	--	8	--	6	15	99	84	--	--	10	0	-- 503	
Lenawee	0	13	16	--	12	--	--	1	0	--	32	19	26	--	--	37	0	-- 394	
Livingston	0	--	46	--	0	--	--	1	--	--	60	191	88	--	--	1	--	-- 422	
Macomb	0	3	91	--	0	0	0	1	--	99	10	37	15	--	--	5	--	-- 315	
Monroe	0	0	171	--	19	--	--	8	0	3	6	39	11	--	--	2	0	-- 322	
Montcalm	--	18	126	--	--	--	--	1	11	264	25	564	218	--	--	20	12	-- 1,761	
Muskegon	--	55	22	--	0	--	--	1	13	191	31	1,274	386	--	--	13	3	-- 2,588	
Oakland	0	5	236	--	1	--	--	5	--	13	50	169	67	--	--	10	0	0 701	
Ottawa	--	31	34	--	--	0	--	15	8	76	37	329	78	--	--	5	2	-- 880	
Saginaw	--	3	95	--	--	--	--	12	0	18	4	136	142	--	--	23	0	-- 675	
Sanilac	--	0	20	--	--	--	--	10	--	104	5	3	1	--	--	6	--	-- 209	

(Table 10 continued on next page)

(Table 10 continued)

Forest Inventory Unit and county	Hardwoods																		
	Hack- berry	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm	Other/ unknown hwd.	Total hwd.
Shiawassee	--	1	70	--	2	--	--	2	--	0	16	52	13	--	--	13	0	--	260
St Clair	--	7	37	--	--	--	--	42	--	1	12	67	133	--	--	12	0	--	467
St Joseph	1	0	43	--	179	1	--	--	--	9	105	201	50	0	1	4	2	0	735
Tuscola	--	--	38	--	0	--	--	21	--	306	10	31	13	--	--	23	0	--	552
Van Buren	2	21	44	--	5	2	0	2	--	37	448	558	154	0	1	5	6	1	2,017
Washtenaw	0	0	70	--	59	--	--	1	--	--	29	85	163	--	--	3	0	--	497
Wayne	--	0	45	--	0	--	--	3	--	0	3	32	10	--	--	15	2	--	142
Total	15	269	2,019	--	576	227	30	209	142	1,661	2,985	7,414	3,112	2	9	574	77	7	27,732

Western Upper Peninsula

Baraga	--	244	161	0	--	--	--	--	154	1,957	24	176	3	--	--	403	29	28	10,027
Dickinson	--	104	77	--	--	--	--	--	273	3,333	7	117	--	--	--	529	13	0	7,188
Gogebic	--	133	254	4	0	--	--	--	140	2,800	35	305	6	--	--	365	70	11	10,303
Houghton	--	115	164	0	1	--	--	--	148	2,671	21	328	3	--	--	361	12	95	9,670
Iron	--	111	154	0	1	--	--	--	260	3,814	36	243	3	--	--	511	34	15	9,975
Keweenaw	--	109	68	--	0	--	--	--	28	360	7	277	3	--	--	159	--	0	3,761
Marquette	--	390	128	--	1	--	--	--	448	6,455	25	395	7	--	--	249	11	0	14,753
Ontonagon	--	111	229	0	--	--	--	--	123	4,102	27	288	2	--	--	533	23	16	10,740
Total	--	1,317	1,236	5	2	--	--	--	1,574	25,492	182	2,128	27	--	--	3,111	193	164	76,416
State total	15	4,539	5,986	5	588	265	30	313	3,424	76,430	4,009	21,247	5,159	2	10	8,218	458	172	232,980

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 cubic feet.

Table may not sum due to rounding.

Table 11.—Sawtimber removals (thousand cubic feet) from timberland for industrial roundwood by Forest Survey Unit, county, and species group, Michigan 2004

Forest Inventory Unit and county	Softwoods										Hardwoods									
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/		N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack- berry
								unknown pine	unknown pine											
Eastern Upper Peninsula																				
Alger	23,427	1,244	561	659	534	2,518	1,259	--	--	297	901	--	7,974	2,530	5,456	1,348	--	954	--	--
Chippewa	14,308	738	82	817	2,885	1,434	106	--	--	658	471	--	7,191	1,212	1,920	431	--	219	--	--
Delta	28,777	2,604	288	2,158	1,579	1,392	309	--	--	1,891	658	--	10,880	3,209	6,335	1,400	--	734	--	--
Luce	31,726	932	117	595	7,183	1,897	825	--	--	357	376	--	12,283	3,096	6,464	1,057	--	753	--	--
Mackinac	18,695	1,007	81	828	3,117	1,863	279	--	--	710	153	--	8,037	1,801	2,798	948	--	490	--	--
Menominee	24,047	2,073	422	848	458	1,395	1,323	--	--	2,563	1,033	--	10,115	2,049	2,931	1,111	--	539	--	--
Schoolcraft	27,952	1,214	186	2,212	6,138	1,817	763	--	--	610	304	--	13,245	3,333	5,000	1,233	--	612	--	--
Total	168,932	9,811	1,738	8,116	21,894	12,316	4,864	--	--	7,087	3,896	--	69,724	17,231	30,904	7,528	--	4,300	--	--
Northern Lower Peninsula																				
Alcona	20,689	39	--	11	1,014	1,499	193	40	257	--	--	--	3,053	1,163	694	277	--	0	--	--
Alpena	9,446	228	59	117	84	511	114	43	517	--	--	--	1,671	1,285	473	378	--	0	--	--
Antrim	13,186	--	--	1	1,132	3,512	45	156	8	--	--	--	4,854	913	3,734	84	--	22	22	--
Arenac	3,194	--	--	--	306	4	4	--	5	--	--	--	319	734	169	54	--	0	0	--
Bay	1,079	--	--	--	21	--	--	0	--	--	--	--	21	276	14	28	--	0	0	--
Benzie	11,171	3	--	494	131	3,900	23	83	--	--	--	--	4,636	882	3,132	12	--	5	15	--
Charlevoix	10,556	--	--	--	186	1,572	13	--	19	5	--	--	1,795	768	3,983	253	--	36	12	--
Cheboygan	22,165	521	12	292	2,363	7,216	184	54	142	--	--	21	10,805	1,084	2,118	367	--	7	1	--
Clare	15,200	1	35	35	2,254	2,141	67	--	4	--	--	--	4,538	1,544	967	62	--	8	17	--
Crawford	23,581	51	--	13	11,486	4,810	143	--	14	--	--	--	16,517	990	1,103	108	--	3	4	--
Emmet	11,386	16	--	4	37	1,707	5	49	6	1	--	--	1,826	763	4,770	135	--	12	1	--
Gladwin	15,484	--	--	--	2,416	5,274	42	--	156	--	--	--	7,887	1,328	403	88	--	3	11	--
Grand Traverse	17,021	--	200	--	937	10,071	48	174	--	--	--	--	11,429	624	2,508	15	--	4	10	--
Iosco	12,051	16	638	1	894	3,926	626	4	162	84	--	--	6,352	807	448	132	--	0	0	--
Isabella	5,103	--	--	--	15	522	7	--	2	--	--	--	547	917	1,211	22	--	3	25	--
Kalkaska	23,863	1	--	7	1,674	14,098	188	87	--	--	--	--	16,055	1,075	3,078	102	--	15	26	--
Lake	14,923	--	12	--	1,619	4,130	138	--	11	--	--	--	5,910	759	1,160	9	--	4	7	--

(Table 11 continued on next page)

(Table 11 continued)

Forest Inventory Unit and county	Softwoods											Hardwoods							
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown		N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hack- berry
								pine	pine										
Leelanau	2,943	--	35	1	30	523	50	--	--	--	--	--	638	259	1,304	8	--	0	--
Manistee	13,638	--	71	--	539	2,873	87	5	--	--	--	--	3,574	1,326	3,467	22	--	1	283
Mason	7,335	--	--	--	182	1,116	47	--	--	--	11	--	1,355	952	1,542	16	--	10	23
Mecosta	9,054	--	12	14	86	2,459	487	--	--	--	7	--	3,065	877	1,345	17	--	7	16
Midland	6,304	--	--	--	33	30	152	--	--	--	--	--	215	1,831	426	88	--	7	23
Missaukee	17,813	1	12	2	2,361	6,761	131	--	--	72	--	--	9,342	1,431	1,964	90	--	30	43
Montmorency	19,845	137	--	155	4,129	2,238	202	4	34	--	--	--	6,900	1,685	1,699	212	--	2	--
Newaygo	18,088	--	35	--	635	3,645	209	--	--	--	--	--	4,524	1,844	2,425	16	--	11	55
Oceana	10,893	--	12	3	654	2,633	18	--	--	--	10	--	3,328	1,042	2,439	23	--	16	25
Ogemaw	14,810	2	--	1	3,977	2,052	40	32	39	--	--	--	6,144	791	648	101	--	0	--
Osceola	13,241	--	23	2	860	2,889	57	--	33	--	--	--	3,864	1,124	2,780	49	--	16	41
Oscoda	21,705	59	--	15	6,341	5,584	300	--	10	--	--	--	12,309	1,072	876	153	--	10	--
Otsego	20,751	2	0	2	2,209	4,985	130	324	12	2	2	--	7,666	1,469	5,390	365	--	10	8
Presque Isle	11,658	421	0	280	1,880	1,258	161	5	355	0	0	--	4,362	875	673	316	--	1	--
Roscommon	19,889	1	--	10	5,046	5,461	132	--	15	--	--	--	10,666	1,296	195	153	--	3	6
Wexford	30,070	97	71	200	3,099	17,638	216	34	--	--	--	--	21,355	850	4,634	25	--	9	20

Southern Lower Peninsula

Allegan	8,191	--	--	--	--	22	6	--	--	--	--	--	28	802	272	1	--	1	89	8
Barry	9,608	--	--	--	--	480	0	--	--	--	--	--	480	780	2,570	4	2	2	299	12
Berrien	3,439	--	--	--	--	--	--	--	--	--	--	--	--	75	1,275	1	6	--	25	9
Branch	1,647	--	--	--	--	--	--	--	--	--	--	--	--	369	440	--	--	--	13	--
Calhoun	3,941	--	--	--	--	--	--	--	--	--	--	--	--	427	159	--	2	--	321	7
Cass	6,249	--	--	--	--	1	--	--	--	--	--	--	1	1,149	501	--	2	--	119	10
Clinton	1,948	5	1	2	57	13	0	--	0	1	1	--	80	693	316	--	--	--	61	--
Eaton	2,844	--	--	--	--	38	--	--	--	--	--	--	38	101	1,114	--	--	--	70	--
Genesee	1,451	--	--	--	--	--	4	--	--	--	--	--	4	103	384	--	--	--	20	--
Gratiot	1,952	--	--	--	9	2	5	--	--	--	--	--	16	522	157	1	--	0	12	--

(Table 11 continued on next page)

(Table 11 continued)

Forest Inventory Unit and county	Softwoods												Hardwoods							
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown		N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack- berry
								pine	pine											
Hillsdale	1,200	--	--	--	--	--	--	--	--	--	--	--	--	21	764	--	--	--	11	--
Huron	1,081	--	--	--	1	--	--	--	--	--	--	--	1	129	84	16	--	--	0	--
Ingham	2,709	--	--	--	--	1,121	--	--	--	--	--	--	1,121	214	421	--	--	--	35	--
Ionia	3,992	--	--	--	193	8	0	--	--	--	--	--	201	211	617	0	--	0	184	--
Jackson	4,532	--	--	--	--	--	--	--	--	--	--	--	--	70	31	--	2	--	516	8
Kalamazoo	2,412	--	--	--	--	10	6	--	--	--	--	--	16	278	210	0	--	--	37	4
Kent	11,216	--	--	--	48	71	33	--	--	--	--	--	152	1,415	2,974	40	3	2	155	4
Lapeer	2,678	--	--	--	--	7	0	--	--	--	--	--	8	580	714	3	--	--	41	--
Lenawee	2,171	--	--	--	--	--	--	--	--	--	--	--	--	20	1,080	--	--	--	248	0
Livingston	2,217	--	--	--	--	--	--	--	--	--	--	--	--	112	21	--	--	--	46	0
Macomb	1,360	--	--	--	69	7	4	--	--	--	--	--	80	113	155	--	--	--	23	0
Monroe	1,636	--	--	--	--	--	--	--	--	--	--	--	--	51	115	0	--	0	164	0
Montcalm	7,557	--	--	--	7	322	50	--	--	--	--	--	379	1,265	594	13	1	3	94	--
Muskegon	10,546	--	--	--	3	766	43	--	--	--	10	--	821	1,280	626	7	--	4	160	--
Oakland	3,488	--	--	--	--	--	2	--	--	--	--	--	2	232	370	--	--	--	98	0
Ottawa	3,957	--	--	--	98	185	15	--	--	--	--	--	298	414	648	1	--	3	3	--
Saginaw	3,477	--	--	--	11	46	4	--	--	--	--	--	61	840	219	3	--	0	115	--
Sanilac	675	--	--	--	35	2	--	--	--	--	--	--	37	125	99	5	--	--	0	--
Shiawassee	1,393	--	--	--	--	--	--	--	--	--	--	--	--	127	209	--	--	--	160	--
St Clair	2,462	--	--	--	--	--	2	--	--	--	--	--	2	420	399	--	--	--	15	--
St Joseph	3,598	--	--	--	--	1	3	--	--	--	--	--	4	141	145	--	1	--	354	4
Tuscola	2,338	--	--	--	--	--	--	--	--	--	--	--	--	171	309	24	--	--	4	--
Van Buren	9,334	--	--	--	--	24	--	--	--	--	--	--	24	1,498	1,848	--	3	--	158	9
Washtenaw	2,640	12	--	3	18	0	0	--	--	2	--	--	35	64	91	1	1	0	298	0
Wayne	735	--	--	--	--	--	--	--	--	--	--	--	--	56	111	--	--	--	7	--
Total	130,673	17	1	5	548	3,126	177	--	--	2	11	--	3,888	14,866	20,045	121	25	16	3,954	75

Western Upper Peninsula

Baraga	41,322	909	178	4,116	3,049	559	165	--	--	456	1,276	--	10,708	5,717	13,715	1,305	--	1,925	0	--
Dickinson	27,811	2,534	326	3,587	2,060	622	770	--	--	485	281	--	10,665	1,890	4,207	1,001	9	645	--	--

(Table 11 continued on next page)

(Table 11 continued)

Forest Inventory Unit and county	Softwoods										Hardwoods								
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ N.		Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hack- berry	
								unknown pine	white cedar										
Gogebic	30,596	972	76	1,499	307	873	289	--	100	348	--	4,465	3,931	10,278	927	9	1,172	26	--
Houghton	39,825	937	56	2,804	1,903	1,231	93	--	249	856	--	8,129	5,715	13,973	987	--	1,908	1	--
Iron	44,316	3,206	383	6,322	2,318	1,488	255	--	457	571	--	15,001	3,394	9,838	1,737	8	1,764	0	--
Keweenaw	14,292	168	76	1,450	43	71	90	--	107	150	--	2,155	2,396	5,123	701	--	798	14	--
Marquette	71,891	4,916	847	5,608	13,509	1,703	3,637	--	852	2,873	--	33,944	5,014	11,848	1,708	--	1,491	--	--
Ontonagon	30,133	454	56	1,780	187	1,107	315	--	265	884	--	5,048	3,145	9,036	792	--	1,067	2	--
Total	300,187	14,096	1,999	27,166	23,375	7,654	5,613	--	2,971	7,239	--	90,114	31,203	78,017	9,158	25	10,770	43	--

Forest Inventory Unit and county	Hardwoods																				
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syc- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red		White		Black locust	Sassa- fras	Bass- wood	Elm	Other/ unknown hwds.	Total hwds.	
											oak group	oak group	oak group	oak group							
Eastern Upper Peninsula																					
Alger	1,740	234	--	--	65	--	--	123	1,426	245	140	28	--	--	--	1,157	7	--	--	15,453	
Chippewa	317	112	--	--	--	--	--	180	2,576	3	27	1	--	--	--	107	11	--	--	7,117	
Delta	588	220	--	--	32	--	--	172	4,072	216	235	--	--	--	--	681	1	--	--	17,897	
Luce	1,750	472	--	--	28	--	--	203	4,365	190	404	218	--	--	--	417	25	--	--	19,443	
Mackinac	314	86	--	--	7	--	--	179	3,237	101	320	203	--	--	--	170	3	--	--	10,659	
Menominee	343	206	--	--	--	--	--	227	5,664	15	545	--	--	--	--	287	16	--	--	13,932	
Schoolcraft	1,148	417	--	--	12	--	--	85	2,174	114	134	21	--	--	--	400	25	--	--	14,708	

Northern Lower Peninsula																	
Alcona	105	1,264	--	--	--	--	--	93	7,949	31	5,399	131	--	--	531	0	17,636
Alpena	79	231	--	--	--	--	--	90	4,108	--	971	16	--	--	141	1	7,775
Antrim	176	325	--	--	--	--	--	50	1,892	73	105	1	--	--	924	11	8,332
Arenac	22	225	--	--	--	--	44	9	1,297	2	278	15	--	--	26	1	2,875
Bay	3	92	--	--	--	--	8	3	439	6	37	80	--	--	69	0	1,057

(Table 11 continued on next page)

(Table 11 continued)

Forest inventory Unit and county	Hardwoods																Other/ unknown hwrds.	Total hwrds.
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syc- amore	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm		
Benzie	160	280	--	--	--	--	--	11	844	113	816	34	--	--	229	3	--	6,535
Charlevoix	347	400	--	--	--	--	--	45	1,674	39	117	0	--	--	1,077	10	--	8,761
Cheboygan	122	163	--	--	--	--	--	60	6,180	6	420	132	--	--	698	2	--	11,360
Clare	105	189	--	--	--	--	55	29	5,100	96	2,115	295	--	--	72	9	--	10,661
Crawford	52	64	--	--	--	--	--	10	2,372	22	2,097	105	--	--	132	3	--	7,064
Emmet	361	427	--	--	--	--	--	3	2,013	111	87	0	--	--	876	2	--	9,560
Gladwin	58	232	--	--	--	--	87	12	3,859	12	1,120	277	--	--	103	3	--	7,596
Grand Traverse	83	186	--	0	--	--	--	14	887	77	708	123	--	--	349	4	--	5,592
Iosco	10	216	--	--	--	--	227	50	3,035	10	677	43	--	--	44	0	--	5,699
Isabella	83	132	--	--	--	--	37	16	971	45	652	293	--	0	139	10	--	4,556
Kalkaska	119	186	--	--	--	--	--	60	2,039	125	503	25	--	--	443	13	--	7,808
Lake	122	265	--	9	--	--	0	15	984	128	4,515	903	--	0	130	4	--	9,013
Leelanau	143	172	--	--	--	--	--	1	84	18	98	2	--	--	211	3	--	2,305
Manistee	401	334	--	--	54	--	--	3	892	445	2,248	422	--	--	162	1	--	10,063
Mason	152	132	--	--	--	--	0	36	1,201	105	1,554	183	--	--	65	8	--	5,979
Mecosta	122	202	--	25	--	--	--	30	1,992	168	939	162	--	0	78	9	--	5,989
Midland	37	462	--	--	--	--	58	32	1,771	25	631	558	--	--	132	8	--	6,089
Missaukee	105	289	--	1	--	--	--	91	3,082	89	958	92	--	--	185	18	--	8,472
Montmorency	115	251	--	--	--	--	--	46	5,162	23	2,830	60	--	--	859	0	--	12,945
Newaygo	267	364	--	3	--	--	4	35	1,535	463	5,308	1,060	--	1	162	11	1	13,565
Oceana	249	187	--	11	--	--	11	54	958	228	1,961	275	--	1	72	12	1	7,565
Ogemaw	29	554	--	1	--	--	--	50	4,347	4	2,031	39	--	--	70	1	--	8,666
Osceola	474	313	--	--	--	--	--	45	2,424	183	1,692	87	--	--	139	10	--	9,377
Oscoda	105	165	--	--	--	--	--	18	3,002	47	2,812	76	--	--	1,060	0	--	9,396
Otsego	357	295	--	--	--	--	--	47	3,406	27	249	47	--	--	1,406	9	--	13,085
Presque Isle	58	148	--	--	--	--	--	72	4,414	1	592	8	--	--	129	10	--	7,296
Roscommon	17	302	--	--	--	--	1	20	4,081	11	2,792	310	--	--	32	3	--	9,224
Wexford	170	382	--	--	--	--	--	32	891	607	781	41	--	--	262	10	1	8,714
Total	4,805	9,433	--	50	54	--	533	1,181	84,886	3,339	48,096	5,894	--	2	11,009	191	3	270,610

(Table 11 continued on next page)

(Table 11 continued)

Forest Inventory Unit and county	Hardwoods																	Total hwds.
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm	Other/ unknown hwds.	
Southern Lower Peninsula																		
Allegan	75	424	--	125	835	--	--	40	187	820	3,058	1,372	1	5	40	2	4	8,163
Barry	71	121	--	198	26	--	--	22	93	1,471	2,688	561	2	7	192	4	4	9,128
Berrien	38	43	--	54	260	152	23	--	--	959	239	180	1	6	27	62	4	3,439
Branch	--	230	--	52	2	--	--	--	--	189	232	94	--	--	12	11	3	1,647
Calhoun	7	525	--	82	9	--	--	66	38	1,134	536	218	1	4	387	13	4	3,941
Cass	2	43	--	386	9	--	--	--	--	2,157	1,637	121	2	6	17	82	4	6,248
Clinton	--	64	--	54	--	--	--	--	17	310	211	82	--	--	60	--	--	1,867
Eaton	18	406	--	130	2	--	3	--	4	250	238	233	--	--	214	24	--	2,807
Genesee	5	339	--	31	--	--	19	--	11	33	298	119	--	--	84	3	--	1,447
Gratiot	3	191	--	--	--	--	46	2	133	13	558	172	--	--	123	3	--	1,936
Hillsdale	--	41	--	68	--	--	--	--	--	93	76	105	--	--	18	--	3	1,200
Huron	--	126	--	--	--	--	256	190	103	20	114	22	--	--	20	--	--	1,080
Ingham	14	391	--	5	--	--	20	--	0	131	133	88	--	--	125	11	--	1,588
Ionia	296	259	--	43	--	--	17	60	77	684	900	215	--	--	227	2	--	3,791
Jackson	--	442	--	319	--	--	--	--	0	819	1,302	899	1	5	113	2	4	4,532
Kalamazoo	1	50	--	36	11	--	--	0	106	758	497	398	1	2	5	2	--	2,396
Kent	45	554	--	63	--	--	3	75	311	889	3,691	669	1	2	160	8	--	11,064
Lapeer	7	174	--	3	--	--	41	--	19	78	516	439	--	--	54	2	--	2,670
Lenawee	69	86	--	67	--	--	4	0	--	163	98	146	--	--	189	2	--	2,171
Livingston	--	255	--	1	--	--	3	--	--	309	996	467	--	--	5	--	--	2,217
Macomb	17	457	--	0	0	1	4	--	160	53	191	80	--	--	25	--	--	1,280
Monroe	2	850	--	104	--	--	43	1	5	29	202	58	--	--	12	0	--	1,636
Montcalm	90	669	--	--	--	--	3	10	543	129	2,658	972	--	--	81	51	--	7,178
Muskegon	284	97	--	1	--	--	7	16	401	161	5,680	958	--	--	36	7	--	9,725
Oakland	22	1,174	--	6	--	--	26	--	24	258	873	352	--	--	47	2	2	3,486
Ottawa	169	178	--	--	1	--	75	29	200	190	1,529	191	--	--	21	7	--	3,659
Saginaw	11	511	--	--	--	--	64	0	69	21	708	741	--	--	114	0	--	3,416
Sanilac	2	111	--	--	--	--	51	--	168	25	16	3	--	--	33	--	--	638

(Table 11 continued on next page)

(Table 11 continued)

Forest Inventory Unit and county	Hardwoods																Other/ unknown hwrds.	Total hwrds.
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm		
Shiawassee	5	381	--	11	--	--	10	--	1	84	268	68	--	--	68	1	--	1,393
St Clair	40	204	--	--	--	--	216	--	6	60	349	690	--	--	59	1	--	2,460
St Joseph	1	234	--	987	7	--	--	--	16	543	956	166	1	4	18	13	3	3,594
Tuscola	--	210	--	1	--	--	108	--	1,110	50	164	65	--	--	119	2	--	2,338
Van Buren	117	239	--	27	8	1	10	--	69	2,322	2,527	409	1	5	26	29	4	9,310
Washtenaw	0	347	--	329	--	--	3	--	--	149	441	863	--	--	17	0	--	2,605
Wayne	1	223	--	0	--	--	17	--	1	14	166	52	--	--	74	11	--	735
Total	1,414	10,648	--	3,181	1,171	154	1,070	512	3,873	15,368	34,747	12,267	11	47	2,823	359	38	126,785
Western Upper Peninsula																		
Baraga	676	546	1	--	--	--	--	226	4,065	125	647	15	--	--	1,467	42	141	30,614
Dickinson	276	254	--	--	--	--	--	399	6,738	36	427	--	--	--	1,244	19	--	17,146
Gogebic	359	876	5	2	--	--	--	205	5,994	181	1,197	32	--	--	782	103	54	26,132
Houghton	315	599	0	3	--	--	--	217	5,053	109	1,268	17	--	--	1,029	17	485	31,696
Iron	298	541	1	3	--	--	--	381	8,126	185	1,085	13	--	--	1,811	51	79	29,315
Keweenaw	296	261	--	1	--	--	--	40	787	35	1,200	13	--	--	472	--	--	12,137
Marquette	1,162	436	--	4	--	--	--	655	12,836	133	1,875	37	--	--	732	16	--	37,947
Ontonagon	295	702	1	--	--	--	--	180	8,296	137	350	12	--	--	955	33	82	25,086
Total	3,677	4,216	8	13	--	--	--	2,302	51,896	940	8,049	139	--	--	8,493	283	841	210,073
State total	16,096	26,044	8	3,244	1,369	154	1,603	5,164	164,171	20,531	92,699	18,772	11	49	25,545	920	882	706,678

All table cells without observations in the inventory sample are indicated by --.

Table value of 0 indicates the volume rounds to less than 500 board feet.

Table may not sum due to rounding.

^a International 1/4-inch rule.

Table 12.—Harvest residue (thousand cubic feet) generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, Michigan, 2004

Forest Inventory Unit and county	Softwoods										Hardwoods								
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown		N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hack- berry
Eastern Upper Peninsula																			
Alger	2,747	161	74	84	76	200	83	--	33	141	--	--	851	353	716	137	--	101	--
Chippewa	2,005	94	11	99	303	123	8	--	64	74	--	--	777	217	373	64	--	46	--
Delta	3,290	298	38	236	174	143	26	--	210	103	--	--	1,228	364	728	133	--	84	--
Luce	3,722	122	15	76	787	132	51	--	41	59	--	--	1,284	443	863	141	--	97	--
Mackinac	2,324	118	11	96	349	164	30	--	71	24	--	--	862	280	395	102	--	57	--
Menominee	3,022	270	55	107	67	122	89	--	283	162	--	--	1,155	290	482	124	--	69	--
Schoolcraft	3,835	147	24	247	631	181	49	--	65	48	--	--	1,393	534	892	170	--	107	--
Total	20,947	1,209	227	945	2,388	1,066	337	--	767	611	--	--	7,551	2,479	4,448	871	--	561	--
Northern Lower Peninsula																			
Alcona	1,565	1	--	0	95	91	13	0	33	--	--	--	234	126	59	41	--	0	--
Alpena	886	11	6	10	9	29	7	1	60	--	--	--	133	136	69	55	--	0	--
Antrim	867	--	--	0	18	207	2	2	1	--	--	--	231	78	263	6	--	3	4
Arenac	293	--	--	--	10	0	0	--	1	--	--	--	11	65	18	8	--	0	--
Bay	91	--	--	--	3	--	--	0	--	--	--	--	3	29	2	4	--	0	--
Benzie	803	0	--	65	14	230	3	1	--	--	--	--	313	62	211	1	--	1	2
Charlevoix	717	--	--	--	15	93	1	--	2	0	--	--	110	47	287	15	--	2	1
Cheboygan	1,617	45	1	32	150	421	10	1	12	--	0	0	673	123	197	44	--	1	0
Clare	1,186	0	3	3	193	131	4	--	0	--	--	--	335	133	76	9	--	1	2
Crawford	1,528	1	--	0	690	287	6	--	1	--	--	--	985	124	105	8	--	0	--
Emmet	807	1	--	0	2	101	0	1	0	0	--	--	106	66	340	9	--	1	0
Gladwin	1,202	--	--	--	178	309	2	--	15	--	--	--	504	148	37	11	--	1	2
Grand Traverse	1,092	--	19	--	82	598	3	2	--	--	--	--	704	44	149	1	--	1	1
Iosco	909	2	84	0	68	233	36	0	16	13	--	--	451	65	33	20	--	0	--
Isabella	311	--	--	--	2	35	0	--	0	--	--	--	38	66	68	3	--	0	1
Kalkaska	1,559	0	--	1	83	843	18	1	--	--	--	--	946	107	209	11	--	2	4
Lake	993	--	1	--	172	257	8	--	1	--	--	--	439	74	81	1	--	1	2

(Table 12 continued on next page)

(Table 12 continued)

Forest Inventory Unit and county	Softwoods											Hardwoods								
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/		N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack- berry
								unknown pine	swds.											
Leelanau	177	--	3	0	4	34	6	--	--	--	--	--	48	11	75	0	--	0	0	--
Manistee	827	--	7	--	48	180	6	0	--	--	--	--	241	82	201	2	--	0	15	--
Mason	495	--	--	--	24	78	3	--	--	--	1	--	104	78	108	3	--	2	4	--
Mecosta	584	--	1	1	11	147	28	--	--	--	0	--	189	66	86	2	--	1	2	--
Midland	441	--	--	--	5	2	11	--	--	--	--	--	18	154	32	10	--	1	3	--
Missaukee	1,532	0	1	0	214	403	12	--	--	7	--	--	638	197	184	14	--	6	10	--
Montmorency	1,335	15	--	20	191	133	10	0	4	4	--	--	373	138	153	24	--	0	--	--
Newaygo	1,121	--	3	--	83	238	12	--	--	--	--	--	336	130	153	2	--	2	5	--
Oceana	758	--	1	0	74	162	1	--	--	--	1	--	239	94	163	4	--	3	5	--
Ogemaw	900	0	--	0	175	123	1	0	4	4	--	--	304	73	45	11	--	0	0	--
Osceola	958	--	2	0	87	172	3	--	3	3	--	--	269	107	182	7	--	2	5	--
Oscoda	1,538	1	--	0	511	340	17	--	0	0	--	--	870	102	79	20	--	1	--	--
Otsego	1,639	0	0	0	149	305	7	4	1	1	0	--	466	176	447	48	--	1	0	--
Presque Isle	888	37	0	31	80	76	8	0	33	0	0	--	265	89	58	43	--	0	--	--
Roscommon	1,590	0	--	1	410	332	7	--	1	1	--	--	751	172	23	22	--	1	2	--
Wexford	1,913	9	7	19	222	1,053	15	0	--	--	--	--	1,327	87	289	3	--	2	4	--
Total	33,121	123	140	186	4,071	7,643	263	13	197	15	0	12,652	3,250	4,485	462	--	--	33	74	--

Southern Lower Peninsula

Allegan	424	--	--	--	--	1	0	--	--	--	--	--	2	46	16	0	--	0	5	0
Barry	557	--	--	--	--	28	0	--	--	--	--	--	28	54	159	1	0	1	17	1
Berrien	205	--	--	--	--	--	--	--	--	--	--	--	--	5	78	0	0	--	1	1
Branch	92	--	--	--	--	--	--	--	--	--	--	--	--	22	25	--	--	--	1	--
Calhoun	218	--	--	--	--	--	--	--	--	--	--	--	--	25	9	--	0	--	17	0
Cass	341	--	--	--	--	0	--	--	--	--	--	--	0	69	28	--	0	--	6	1
Clinton	117	1	0	0	8	1	0	--	--	0	0	--	11	41	18	--	--	--	3	--
Eaton	160	--	--	--	--	2	--	--	--	--	--	--	2	6	63	--	--	--	4	--
Genesee	78	--	--	--	--	--	0	--	--	--	--	--	0	6	24	--	--	--	1	--
Gratiot	103	--	--	--	1	0	0	--	--	--	--	--	2	32	9	0	--	0	1	--

(Table 12 continued on next page)

(Table 12 continued)

Softwoods														Hardwoods						
Forest Inventory Unit and county	All species	Fir	Tamarack	Spruce	Jack pine	Red pine	White pine	Other/unknown			Hemlock	N. white cedar	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hackberry
								pine	unknown	Other/unknown										
Hillsdale	71	--	--	--	--	--	--	--	--	--	--	--	--	1	46	--	--	--	1	--
Huron	66	--	--	--	0	--	--	--	--	--	--	--	0	8	5	2	--	--	0	--
Ingham	153	--	--	--	--	65	--	--	--	--	--	--	65	13	24	--	--	--	2	--
Ionia	236	--	--	--	29	1	0	--	--	--	--	--	30	13	35	0	--	0	10	--
Jackson	241	--	--	--	--	--	--	--	--	--	--	--	--	4	2	--	0	--	28	0
Kalamazoo	127	--	--	--	--	1	0	--	--	--	--	--	1	14	12	0	--	--	2	0
Kent	599	--	--	--	7	4	4	--	--	--	--	--	16	87	180	2	0	0	9	0
Lapeer	144	--	--	--	--	0	0	--	--	--	--	--	0	35	43	0	--	--	2	--
Lenawee	126	--	--	--	--	--	--	--	--	--	--	--	--	1	64	--	--	--	13	0
Livingston	110	--	--	--	--	--	--	--	--	--	--	--	--	7	1	--	--	--	2	0
Macomb	91	--	--	--	10	1	0	--	--	--	--	--	12	7	9	--	--	--	1	0
Monroe	85	--	--	--	--	--	--	--	--	--	--	--	--	3	7	0	--	0	9	0
Montcalm	407	--	--	--	1	19	3	--	--	--	--	--	23	81	34	1	0	0	5	--
Muskegon	549	--	--	--	0	44	2	--	--	1	--	--	48	84	50	1	--	1	9	--
Oakland	177	--	--	--	--	--	0	--	--	--	--	--	0	14	21	--	--	--	5	0
Ottawa	216	--	--	--	14	11	1	--	--	--	--	--	26	24	41	0	--	0	0	--
Saginaw	181	--	--	--	2	3	0	--	--	--	--	--	5	50	12	0	--	0	6	--
Sanilac	60	--	--	--	5	0	--	--	--	--	--	--	5	12	6	0	--	--	0	--
Shiawassee	73	--	--	--	--	--	--	--	--	--	--	--	--	8	12	--	--	--	8	--
St Clair	125	--	--	--	--	--	0	--	--	--	--	--	0	25	22	--	--	--	1	--
St Joseph	188	--	--	--	--	0	0	--	--	--	--	--	0	8	8	--	0	--	19	0
Tuscola	151	--	--	--	--	--	--	--	--	--	--	--	--	15	20	2	--	--	0	--
Van Buren	509	--	--	--	--	1	--	--	--	--	--	--	1	88	107	--	0	--	9	1
Washtenaw	133	0	--	0	0	0	0	--	--	--	--	0	0	4	5	0	0	0	16	0
Wayne	37	--	--	--	--	--	--	--	--	--	--	--	--	3	6	--	--	--	0	--
Total	7,152	1	0	0	79	184	13	--	--	1	1	0	277	914	1,201	9	2	2	214	5

Western Upper Peninsula

Baraga	4,894	117	23	421	308	55	15	--	--	46	194	--	1,178	710	1,586	202	--	187	0	--
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(Table 12 continued on next page)

(Table 12 continued)

Forest Inventory Unit and county	Softwoods											Hardwoods							
	All species	Fir	Tama- rack	Spruce	Jack pine	Red pine	White pine	Other/ unknown pine	N. white cedar	Hemlock	Other/ unknown swds.	Total swds.	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack- berry
Dickinson	3,481	289	43	413	215	75	52	--	53	44	--	1,184	299	575	128	1	77	--	--
Gogebic	4,267	100	8	149	32	57	18	--	10	48	--	423	639	1,649	169	1	147	3	--
Houghton	4,189	100	7	282	216	137	8	--	27	130	--	907	546	1,317	135	--	172	0	--
Iron	4,994	375	50	736	248	185	25	--	49	87	--	1,755	444	991	210	0	151	0	--
Keweenaw	1,669	21	8	144	6	9	7	--	11	24	--	230	321	589	76	--	87	1	--
Marquette	8,676	579	105	631	1,396	205	231	--	90	441	--	3,678	711	1,577	235	--	186	--	--
Ontonagon	4,567	54	7	186	25	87	21	--	34	133	--	547	458	1,679	149	--	187	0	--
Total	36,737	1,635	252	2,962	2,445	811	376	--	320	1,101	--	9,902	4,128	9,963	1,304	2	1,194	5	--

Forest Inventory Unit and county	Hardwoods																
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Other/ unknown cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm

Eastern Upper Peninsula

Alger	167	36	--	--	4	--	--	24	182	15	43	14	1	--	--	87	1	14
Chippewa	63	26	--	--	--	--	--	35	340	0	24	8	0	--	--	20	2	12
Delta	103	29	--	--	2	--	--	34	449	13	43	16	--	--	--	54	0	10
Luce	165	68	--	--	2	--	--	40	438	11	40	43	15	--	--	49	5	19
Mackinac	62	19	--	--	0	--	--	35	421	6	23	20	9	--	--	22	0	11
Menominee	76	37	--	--	--	--	--	45	619	1	33	29	--	--	--	51	3	10
Schoolcraft	158	77	--	--	1	--	--	17	291	7	50	42	10	--	--	56	5	25
Total	796	292	--	--	9	--	--	231	2,740	54	256	172	35	--	--	338	17	99

Northern Lower Peninsula

Alcona	10	72	--	--	--	--	--	18	729	2	--	227	6	--	--	35	0	7
Alpena	16	25	--	--	--	--	--	18	371	--	--	41	1	--	--	15	0	8
Antrim	13	21	--	--	--	--	--	7	130	4	2	4	0	--	--	71	2	28
Arenac	3	14	--	--	--	--	3	2	141	0	6	20	2	--	--	3	0	--

(Table 12 continued on next page)

(Table 12 continued)

Forest Inventory Unit and county	Hardwoods																	Other/ unknown hwd.
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Other/ unknown cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm	
Bay	0	5	--	--	--	--	0	1	36	0	0	3	3	--	--	4	0	0
Benzie	10	15	--	--	--	--	--	2	91	6	15	35	2	--	--	20	0	15
Charlevoix	29	22	--	--	--	--	--	4	102	2	2	5	0	--	--	89	0	--
Cheboygan	22	19	--	--	--	--	--	10	411	0	1	18	6	--	--	83	0	10
Clare	10	13	--	--	--	--	3	3	465	6	9	100	14	--	--	6	1	--
Crawford	5	3	--	--	--	--	--	1	186	1	1	88	4	--	--	15	0	--
Emmet	32	25	--	--	--	--	--	0	148	7	1	4	0	--	--	61	0	9
Gladwin	6	15	--	--	--	--	5	2	382	1	4	53	24	--	--	7	1	--
Grand Traverse	6	10	--	0	--	--	--	2	73	5	3	31	8	--	--	22	0	31
Iosco	2	13	--	--	--	--	14	10	262	1	1	31	2	--	--	4	0	1
Isabella	4	7	--	--	--	--	2	1	70	3	--	27	12	--	0	8	1	--
Kalkaska	9	14	--	--	--	--	--	7	171	7	4	21	1	--	--	30	1	13
Lake	9	17	--	0	--	--	0	3	90	8	6	201	51	--	0	9	1	--
Leelanau	7	9	--	--	--	--	--	0	7	1	2	4	0	--	--	12	0	--
Manistee	21	18	--	--	3	--	--	0	83	26	12	94	17	--	--	9	0	1
Mason	9	10	--	--	--	--	0	6	76	6	9	66	7	--	--	6	1	--
Mecosta	8	13	--	1	--	--	--	4	148	10	1	39	7	--	0	6	1	--
Midland	2	26	--	--	--	--	3	4	114	1	9	28	26	--	--	9	1	--
Missaukee	11	25	--	0	--	--	--	17	352	5	4	40	4	--	--	21	3	--
Montmorency	17	20	--	--	--	--	--	9	404	1	0	119	2	--	--	73	0	1
Newaygo	16	22	--	0	--	--	0	5	132	28	5	228	46	--	0	11	1	0
Oceana	15	14	--	1	--	--	1	9	91	13	2	83	13	--	0	7	2	0
Ogemaw	3	31	--	0	--	--	--	10	322	0	1	85	2	--	--	7	0	6
Osceola	27	20	--	--	--	--	--	7	216	11	6	75	12	--	--	11	1	--
Oscoda	7	10	--	--	--	--	--	4	254	3	--	118	3	--	--	67	0	--
Otsego	46	30	--	--	--	--	--	6	213	2	2	11	2	--	--	131	0	57
Presque Isle	10	15	--	--	--	--	--	13	353	0	--	25	0	--	--	14	1	1
Roscommon	2	18	--	--	--	--	0	4	436	1	1	126	26	--	--	3	1	--
Wexford	10	22	--	--	--	--	--	6	63	36	3	33	3	--	--	19	1	5

(Table 12 continued)

Forest inventory Unit and county	Hardwoods																Other/ unknown hwrds.	
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Other/ unknown cherry	Red oak group	White oak group	Black locust	Sassa- fras wood	Bass- wood		Elm
Southern Lower Peninsula																		
Allegan	4	23	--	7	51	--	--	3	3	49	--	133	79	0	0	2	0	0
Barry	4	7	--	10	2	--	--	3	13	89	--	119	37	0	0	12	1	0
Berrien	2	2	--	3	16	9	1	--	--	59	--	10	12	0	0	2	4	0
Branch	--	13	--	3	0	--	--	--	--	11	--	10	6	--	--	1	1	0
Calhoun	0	29	--	4	1	--	--	4	1	68	--	23	12	0	0	23	1	0
Cass	0	2	--	21	1	--	--	--	--	130	--	69	7	0	0	1	5	0
Clinton	--	3	--	3	--	--	--	--	1	19	--	9	4	--	--	4	--	--
Eaton	1	22	--	7	0	--	0	--	0	15	--	10	15	--	--	13	2	--
Genesee	0	18	--	2	--	--	1	--	1	2	--	13	5	--	--	5	0	--
Gratiot	0	10	--	--	--	--	3	0	7	1	--	23	7	--	--	7	0	--
Hillsdale	--	2	--	4	--	--	--	--	--	6	--	3	7	--	--	1	--	0
Huron	--	7	--	--	--	--	15	11	10	1	--	5	1	--	--	1	--	--
Ingham	1	21	--	0	--	--	1	--	0	8	--	6	5	--	--	8	1	--
Ionia	16	14	--	2	--	--	1	4	8	41	--	38	13	--	--	14	0	--
Jackson	--	24	--	17	--	--	--	--	0	50	--	58	50	0	0	7	0	0
Kalamazoo	0	3	--	2	1	--	--	0	1	45	--	21	24	0	0	0	0	--
Kent	2	30	--	3	--	--	0	4	4	54	0	166	31	0	0	9	1	--
Lapeer	0	9	--	0	--	--	2	--	1	5	--	22	20	--	--	3	0	--
Lenawee	4	5	--	4	--	--	0	0	--	10	--	4	10	--	--	11	0	--
Livingston	--	13	--	0	--	--	0	--	--	19	--	44	23	--	--	0	--	--
Macomb	1	23	--	0	0	0	0	--	23	3	--	8	3	--	--	1	--	--
Monroe	0	43	--	6	--	--	3	0	1	2	--	8	2	--	--	1	0	--
Montcalm	5	38	--	--	--	--	0	1	37	8	0	121	45	--	--	5	3	--
Muskegon	16	7	--	0	--	--	0	2	24	10	1	252	41	--	--	3	1	--
Oakland	1	59	--	0	--	--	2	--	0	15	1	39	17	--	--	3	0	0
Ottawa	9	10	--	--	0	--	4	2	9	11	0	69	8	--	--	1	0	--
Saginaw	1	28	--	--	--	--	4	0	4	1	1	30	32	--	--	7	0	--
Sanilac	0	6	--	--	--	--	3	--	24	1	--	1	0	--	--	2	--	--

(Table 12 continued on next page)

(Table 12 continued)

Forest Inventory Unit and county	Hardwoods																	Other/ unknown hwd.
	Beech	Ash	Butter- nut	Black walnut	Yellow poplar	Syca- more	Cotton- wood	Balsam poplar	Aspen	Black cherry	Other/ unknown cherry	Red oak group	White oak group	Black locust	Sassa- fras	Bass- wood	Elm	
Shiawassee	0	21	--	1	--	--	1	--	0	5	--	11	3	--	--	4	0	--
St Clair	2	11	--	--	--	--	13	--	0	4	--	15	29	--	--	4	0	--
St Joseph	0	13	--	56	0	--	--	--	0	33	--	40	8	0	0	1	1	0
Tuscola	--	11	--	0	--	--	6	--	77	3	--	7	3	--	--	7	0	--
Van Buren	8	13	--	1	0	0	1	--	1	143	--	108	23	0	0	2	2	0
Washtenaw	0	18	--	19	--	--	0	--	--	9	--	19	42	--	--	1	0	--
Wayne	0	11	--	0	--	--	1	--	0	1	--	7	2	--	--	4	1	--

Western Upper Peninsula

Baraga	152	88	0	--	--	--	--	45	467	8	76	40	1	--	--	121	8	26
Dickinson	66	43	--	--	--	--	--	79	798	2	27	29	--	--	--	155	4	14
Gogebic	83	131	1	0	--	--	--	40	654	11	82	77	1	--	--	106	20	28
Houghton	72	84	0	0	--	--	--	43	636	7	29	87	1	--	--	107	3	44
Iron	70	82	0	0	--	--	--	75	925	11	27	66	1	--	--	153	10	20
Keweenaw	68	34	--	0	--	--	--	8	90	2	22	74	1	--	--	47	--	21
Marquette	233	70	--	0	--	--	--	129	1,530	8	110	114	2	--	--	74	3	18
Ontonagon	71	134	0	--	--	--	--	35	1,002	8	45	69	1	--	--	155	7	20
Total	815	666	1	1	--	--	--	454	6,102	57	418	556	6	--	--	917	56	191
State total	2,087	2,139	1	182	83	9	96	911	16,214	1,237	787	4,332	977	1	3	2,315	116	486

All table cells without observations in the inventory sample are indicated by --.
Table value of 0 indicates the volume rounds to less than 500 cubic feet.
Table may not sum due to rounding.

Table 13.—Disposition of residues produced (thousand tons, green weight) at primary wood-using mills by Forest Inventory Unit, disposition, residue type, and softwoods and hardwoods, Michigan, 2004

Forest Inventory Unit and disposition	Residue type									
	Wood residue									
	Total all residues		Total wood residue		Coarse ^a		Fine ^b		Bark	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
All Units										
Fiber products	473.88	442.05	473.88	439.06	308.44	419.97	165.44	19.10	--	2.99
Charcoal	0.02	11.88	0.02	11.88	--	--	0.02	11.88	--	--
Industrial fuel-mill	161.02	662.97	59.85	268.62	6.76	46.09	53.09	222.52	101.17	394.36
Industrial fuel-sold	112.33	368.75	64.64	189.49	23.95	57.27	40.69	132.21	47.69	179.27
Domestic fuel	3.91	44.87	2.87	35.77	2.72	33.65	0.15	2.12	1.04	9.10
Miscellaneous ^c	278.89	449.21	160.12	244.77	104.80	64.17	55.32	180.61	118.77	204.44
Not used	8.85	24.73	6.80	18.21	3.94	6.04	2.86	12.18	2.05	6.51
State Total	1,038.90	2,004.46	768.19	1,207.80	450.62	627.19	317.56	580.62	270.72	796.67
Eastern Upper Peninsula										
Fiber products	4.32	45.91	4.32	45.91	2.03	44.27	2.29	1.64	--	--
Charcoal	0.02	1.74	0.02	1.74	--	--	0.02	1.74	--	--
Industrial fuel-mill	97.37	193.80	32.20	83.30	0.06	17.36	32.14	65.94	65.17	110.50
Industrial fuel-sold	29.64	25.58	23.22	16.09	16.98	5.45	6.24	10.64	6.42	9.49
Domestic fuel	0.57	3.68	0.43	2.18	0.43	1.94	--	0.23	0.14	1.50
Miscellaneous ^c	23.31	49.60	16.08	9.09	7.38	3.26	8.70	5.83	7.23	40.51
Not used	0.12	0.37	0.11	0.29	0.02	0.18	0.09	0.11	0.01	0.08
Total	155.34	320.67	76.38	158.60	26.90	72.47	49.48	86.13	78.96	162.07
Northern Lower Peninsula										
Fiber products	132.15	184.38	132.15	181.39	64.53	163.93	67.62	17.46	--	2.99
Industrial fuel-mill	19.82	108.42	13.19	45.31	6.64	17.67	6.55	27.64	6.63	63.11
Industrial fuel-sold	50.91	168.55	39.86	113.18	6.10	37.86	33.77	75.32	11.05	55.37
Domestic fuel	3.15	30.69	2.30	24.66	2.15	23.61	0.15	1.05	0.85	6.03
Miscellaneous ^c	171.27	216.34	99.68	118.64	86.74	25.22	12.93	93.42	71.59	97.70
Not used	8.56	9.26	6.56	7.22	3.83	1.29	2.73	5.93	2.00	2.04
Total	385.86	717.65	293.74	490.40	169.99	269.58	123.75	220.82	92.12	227.25

(Table 13 continued on next page)

(Table 13 continued)

Forest Inventory Unit and disposition	Residue type									
	Wood residue									
	Total all residues		Total wood residue		Coarse ^a		Fine ^b		Bark	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Southern Lower Peninsula										
Fiber products	--	81.04	--	81.04	--	81.04	--	--	--	--
Industrial fuel-mill	0.01	62.84	0.01	39.21	0.01	11.05	--	28.16	*	23.63
Industrial fuel-sold	--	10.72	--	10.63	--	6.59	--	4.04	--	0.09
Domestic fuel	0.14	10.43	0.10	8.85	0.10	8.01	--	0.83	0.04	1.58
Miscellaneous ^c	0.17	168.02	0.16	107.32	0.03	35.68	0.13	71.63	0.01	60.70
Not used	0.13	8.43	0.09	6.85	0.09	4.57	0.00	2.29	0.04	1.58
Total	0.46	341.48	0.36	253.90	0.22	146.94	0.13	106.95	0.10	87.58
Western Upper Peninsula										
Fiber products	337.41	130.72	337.41	130.72	241.88	130.72	95.53	--	--	--
Charcoal	--	10.14	--	10.14	--	--	--	10.14	--	--
Industrial fuel-mill	43.82	297.92	14.45	100.80	0.05	0.01	14.40	100.79	29.37	197.12
Industrial fuel-sold	31.78	163.91	1.56	49.59	0.87	7.38	0.69	42.21	30.22	114.32
Domestic fuel	0.06	0.09	0.05	0.09	0.05	0.09	--	--	0.01	--
Miscellaneous ^c	84.14	15.24	44.20	9.72	10.65	--	33.55	9.72	39.94	5.52
Not used	0.04	6.66	0.04	3.85	0.00	--	0.03	3.85	*	2.81
Total	497.25	624.67	397.71	304.90	253.51	138.20	144.20	166.70	99.54	319.77

^a Suitable for chipping such as slabs, edgings, veneer cores, etc.^b Not suitable for chipping such as sawdust, veneer clippings, etc.^c Livestock bedding, mulch, small dimension, and specialty items, etc.

* = Less than 5 tons

All table cells without observations in the inventory sample are indicated by --.

Table may not sum due to rounding.

Haugen, David E.; Weatherspoon, Anthony K. 2010. **Michigan timber industry: An assessment of timber product output and use, 2004**. Resour. Bull.

NRS-40. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 91 p.

Reports forest-industry trends, production and receipts of industrial roundwood, and production of saw logs, veneer logs, excelsior/shavings, and other products for Michigan's timber industry in 2004. Also reports logging residue generated from timber harvest operations in Michigan as well as the generation and disposition of wood and bark residue generated by state's primary wood-using mills.

KEY WORDS: Industrial roundwood, harvest residue, mill residue, production, receipts, saw logs, veneer logs

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