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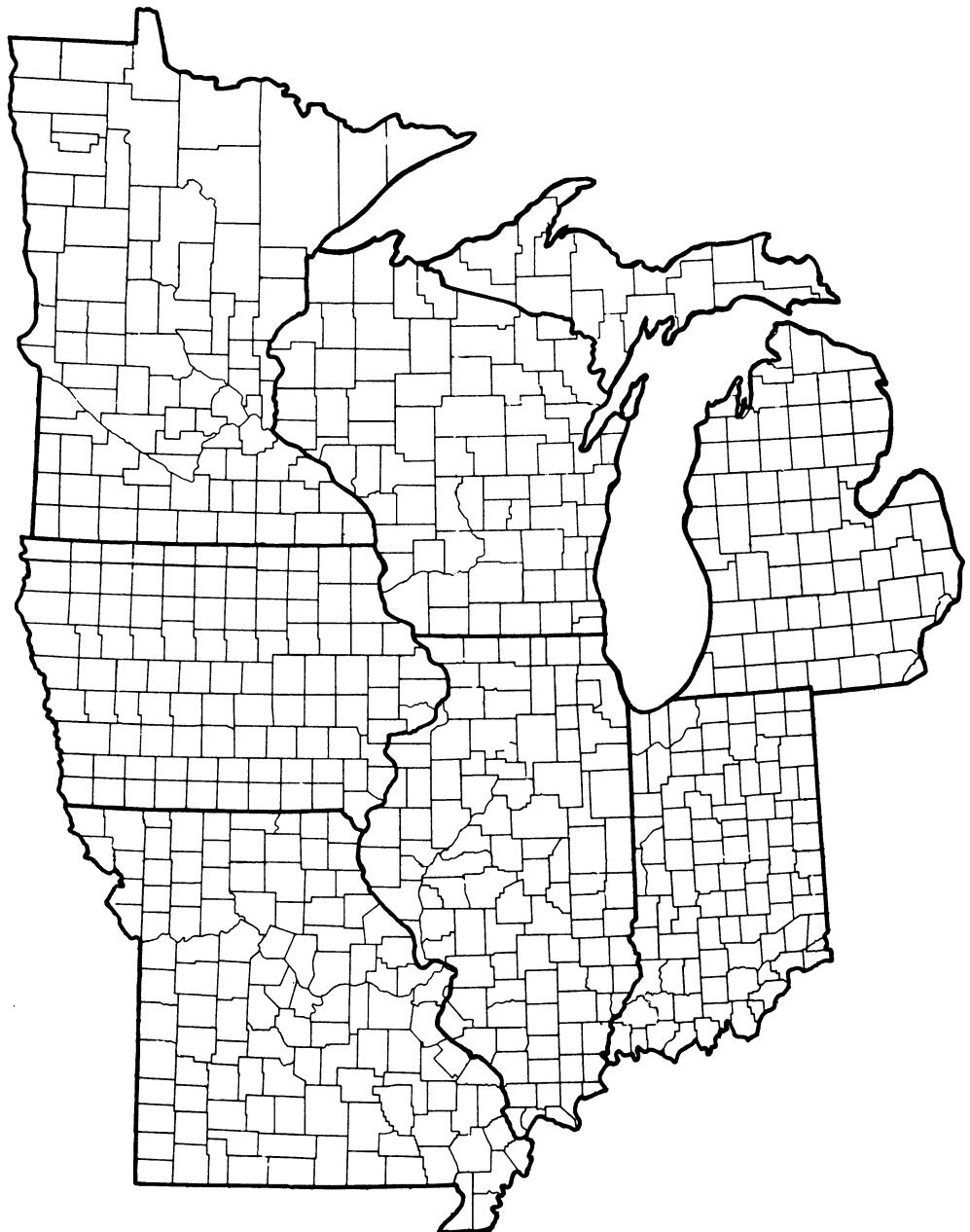
North Central  
Forest Experiment  
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Research  
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# **Pulpwood Production in the North-Central Region by County, 1983**

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## **HIGHLIGHTS**

### **Lake States**

Pulpwood production rose 18 percent to a record 6.54 million cords in 1983. The aspen harvest accounted for most of the gain, rising 923,000 cords, and shattering the previous aspen record harvest in 1981 by 37 percent. Birch and balsam poplar harvests also reached all-time highs. Output from softwoods fell in every species group except cedar and white pine. Nine percent of the total production was whole-tree chips; aspen remained the preferred species. Output nearly doubled for flakeboard plants and gained 8 percent for pulpmills. Production broke records in each State and climbed 29 percent in Minnesota, 23 percent in Michigan, and 8 percent in Wisconsin. Michigan output exceeded 2 million cords for the first time. Aspen constituted 77 percent of the roundwood cut in Minnesota.

For the third straight year, softwood residue imports from Canada fell and were slightly more than one-third of the peak imports in 1980. Twenty-three percent of Wisconsin's pulpwood requirements came from out-of-State.

### **Central States**

Central States pulpwood production increased to 448,000 cords, the highest level since 1979. Nearly 7 out of 10 cords were residue from wood-using mills. Indiana, the leading producer, topped all previous years. Each of the other Central States had production gains. Exports, 68 percent of the total, rose for the fifth consecutive year.

Pulpwood receipts expanded to 148,000 cords from 106,000 cords in 1982. Nevertheless, receipts were the second lowest since 1958. Only 5,000 cords were imported.

Except for 1982, production has exceeded 400,000 cords annually since 1969. More than 3 out of 5 cords produced are likely to continue being exported to states adjacent to the Central States.

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# PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION BY COUNTY, 1983

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This is the 25th annual report of the pulpwood harvest in Lake States counties and the 24th annual report of the Central States harvest. Pulpwood constitutes more than half the industrial timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa, and Missouri).

Current detailed pulpwood production<sup>1</sup> information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, researchers need current pulpwood information to plan projects.

Since 1979, we have included logs, bolts and wood residue used in manufacturing particleboard, waferboard, and oriented strand board in this annual series. Together, these boards are called flakeboards. Wood used at flakeboard plants is identical or nearly identical to wood used at pulpmills.

Because flakeboard plants primarily use aspen and wood residue, including them does not distort roundwood use trends for other species nor preclude comparing survey results with 1978 and previous year.

Pulpmills and flakeboard plants using North Central States timber in 1983 reported their pulpwood receipts<sup>2</sup> by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1982 or

earlier years, and discusses trends in pulpwood production and use.

The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills).

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports and exports between Minnesota and Canada are not reported. Thus, some Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated.

## LAKE STATES Production

Pulpwood production climbed from 5.52 million cords<sup>3</sup> in 1982 to a record 6.54 million cords in 1983, a gain of 18 percent (table 1). Of each 100 cords produced, 92 cords were roundwood (including chips from roundwood); the remainder was residue from wood-using plants.<sup>4</sup>

Major species cut were aspen (3,306,000 cords), jack pine (450,000 cords), red pine (302,000 cords), white birch (277,000 cords), and balsam fir (276,000 cords).

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<sup>1</sup>Pulpwood production, determined from mill receipts, is the annual volume of pulpwood cut in a specific county or region, plus the annual wood residue volume produced by sawmills, veneer mills, etc., in a specific State or region that was used for pulp, particleboard, waferboard, or oriented-strand-board.

<sup>2</sup>Pulpwood receipts are the volume of wood received by mills in a specific State or region, regardless of the geographic source.

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<sup>3</sup>All references to cords are in standard cords. A standard cord is 128 cubic feet of wood, bark, and air space.

<sup>4</sup>Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using plants that is used for pulping and flakeboard. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.

Table 1.--Production and imports of pulpwood, Lake States, 1983

(In standard cords, unpeeled)

| Species and destination | Production by States <sup>1/</sup> |           |           |                | Imports                  |        |                     | Total receipts        |
|-------------------------|------------------------------------|-----------|-----------|----------------|--------------------------|--------|---------------------|-----------------------|
|                         | Michigan                           | Minnesota | Wisconsin | Regional total | Other U.S. <sup>2/</sup> | Canada | Total imports       |                       |
| Roundwood               |                                    |           |           |                |                          |        |                     |                       |
| Cedar                   |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 23,579                             | --        | 303       | 23,882         | --                       | --     | --                  | 23,882                |
| Total                   | 23,579                             | --        | 303       | 23,882         | --                       | --     | --                  | 23,882                |
| Balsam fir              |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 62,137                             | --        | 640       | 62,777         | --                       | --     | --                  | 62,777                |
| Minnesota               | --                                 | 86,804    | 233       | 87,037         | --                       | --     | --                  | 87,037                |
| Wisconsin               | 29,549                             | 769       | 83,942    | 114,260        | --                       | --     | --                  | 114,260               |
| Exported <sup>3/</sup>  | 9,616                              | 2,592     | --        | 12,208         | --                       | --     | --                  | --                    |
| Total                   | 101,302                            | 90,165    | 84,815    | 276,282        | --                       | --     | --                  | 264,074               |
| Hemlock                 |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 45,078                             | --        | 821       | 45,899         | --                       | --     | --                  | 45,899                |
| Wisconsin               | 3,361                              | --        | 39,617    | 42,978         | --                       | --     | --                  | 42,978                |
| Total                   | 48,439                             | --        | 40,438    | 88,877         | --                       | --     | --                  | 88,877                |
| Jack pine               |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 109,706                            | --        | 68        | 109,774        | --                       | --     | --                  | 109,774               |
| Minnesota               | --                                 | 90,437    | 7,202     | 97,639         | --                       | --     | --                  | 97,639                |
| Wisconsin               | 35,972                             | 9,175     | 194,896   | 240,043        | 4,783 <sup>4/</sup>      | --     | 4,783 <sup>4/</sup> | 244,826 <sup>5/</sup> |
| Exported <sup>3/</sup>  | 1,131                              | 1,391     | --        | 2,522          | --                       | --     | --                  | --                    |
| Total                   | 146,809                            | 101,003   | 202,166   | 449,978        | 4,783 <sup>4/</sup>      | --     | 4,783 <sup>4/</sup> | 452,239 <sup>5/</sup> |
| Red pine                |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 78,353                             | --        | 155       | 78,508         | --                       | --     | --                  | 78,508                |
| Minnesota               | --                                 | 19,703    | 4,583     | 24,286         | --                       | --     | --                  | 24,286                |
| Wisconsin               | 15,108                             | 5,500     | 178,426   | 199,034        | --                       | --     | --                  | 199,034               |
| Total                   | 93,461                             | 25,203    | 183,164   | 301,828        | --                       | --     | --                  | 301,828               |
| White pine              |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 15,142                             | --        | 195       | 15,337         | --                       | --     | --                  | 15,337                |
| Minnesota               | --                                 | 14,190    | 1,310     | 15,500         | --                       | --     | --                  | 15,500                |
| Wisconsin               | 1,120                              | 35        | 25,353    | 26,508         | --                       | --     | --                  | 26,508                |
| Total                   | 16,262                             | 14,225    | 26,858    | 57,345         | --                       | --     | --                  | 57,345                |
| Spruce                  |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 50,607                             | --        | 502       | 51,109         | --                       | --     | --                  | 51,109                |
| Minnesota               | --                                 | 74,126    | 110       | 74,236         | --                       | 3,708  | 3,708               | 77,944                |
| Wisconsin               | 18,502                             | 18,794    | 27,147    | 64,443         | --                       | 186    | 186                 | 64,629                |
| Exported <sup>3/</sup>  | 8,523                              | 2,034     | --        | 10,557         | --                       | --     | --                  | --                    |
| Total                   | 77,632                             | 94,954    | 27,759    | 200,345        | --                       | 3,894  | 3,894               | 193,682               |
| Tamarack                |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 3,147                              | --        | 38        | 3,185          | --                       | --     | --                  | 3,185                 |
| Minnesota               | --                                 | 8,258     | --        | 8,258          | --                       | --     | --                  | 8,258                 |
| Wisconsin               | 3,700                              | 17,802    | 5,903     | 27,405         | --                       | --     | --                  | 27,405                |
| Total                   | 6,847                              | 26,060    | 5,941     | 38,848         | --                       | --     | --                  | 38,848                |
| Ash                     |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 8,419                              | --        | --        | 8,419          | --                       | --     | --                  | 8,419                 |
| Wisconsin               | 2,634                              | 316       | 46,836    | 49,786         | --                       | --     | --                  | 49,786                |
| Total                   | 11,053                             | 316       | 46,836    | 58,205         | --                       | --     | --                  | 58,205                |
| Aspen                   |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 744,116                            | --        | 2,175     | 746,291        | --                       | --     | --                  | 746,291               |
| Minnesota               | --                                 | 1,274,316 | 38,376    | 1,312,692      | --                       | --     | --                  | 1,312,692             |
| Wisconsin               | 144,863                            | 90,776    | 984,579   | 1,220,218      | --                       | --     | --                  | 1,220,218             |
| Exported <sup>3/</sup>  | --                                 | 26,474    | --        | 26,474         | --                       | --     | --                  | --                    |
| Total                   | 888,979                            | 1,391,566 | 1,025,130 | 3,305,675      | --                       | --     | --                  | 3,279,201             |
| Balsam poplar           |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 38,972                             | --        | --        | 38,972         | --                       | --     | --                  | 38,972                |
| Minnesota               | --                                 | 67,540    | 1,204     | 68,744         | --                       | --     | --                  | 68,744                |
| Wisconsin               | 634                                | --        | 260       | 894            | --                       | --     | --                  | 894                   |
| Total                   | 39,606                             | 67,540    | 1,464     | 108,610        | --                       | --     | --                  | 108,610               |
| Basswood                |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 20,668                             | --        | --        | 20,668         | --                       | --     | --                  | 20,668                |
| Wisconsin               | 732                                | --        | 12,512    | 13,244         | --                       | --     | --                  | 13,244                |
| Total                   | 21,400                             | --        | 12,512    | 33,912         | --                       | --     | --                  | 33,912                |
| Beech                   |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 17,530                             | --        | --        | 17,530         | --                       | --     | --                  | 17,530                |
| Wisconsin               | 759                                | --        | 1,128     | 1,887          | --                       | --     | --                  | 1,887                 |
| Total                   | 18,289                             | --        | 1,128     | 19,417         | --                       | --     | --                  | 19,417                |
| White birch             |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 87,745                             | --        | 948       | 88,693         | --                       | --     | --                  | 88,693                |
| Minnesota               | --                                 | 1,258     | --        | 1,258          | --                       | --     | --                  | 1,258                 |
| Wisconsin               | 8,479                              | 2,855     | 175,743   | 187,077        | --                       | --     | --                  | 187,077               |
| Total                   | 96,224                             | 4,113     | 176,691   | 277,028        | --                       | --     | --                  | 277,028               |
| Yellow birch            |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 25,312                             | --        | --        | 25,312         | --                       | --     | --                  | 25,312                |
| Wisconsin               | 8,135                              | 42        | 21,244    | 29,421         | --                       | --     | --                  | 29,421                |
| Total                   | 33,447                             | 42        | 21,244    | 54,733         | --                       | --     | --                  | 54,733                |
| Cottonwood              |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 2,111                              | --        | --        | 2,111          | --                       | --     | --                  | 2,111                 |
| Total                   | 2,111                              | --        | --        | 2,111          | --                       | --     | --                  | 2,111                 |
| Elm                     |                                    |           |           |                |                          |        |                     |                       |
| Michigan                | 18,013                             | --        | --        | 18,013         | --                       | --     | --                  | 18,013                |
| Wisconsin               | 21,572                             | 137       | 55,802    | 77,511         | --                       | --     | --                  | 77,511                |
| Total                   | 39,585                             | 137       | 55,802    | 95,524         | --                       | --     | --                  | 95,524                |

(Table 1 continued on next page)

(Table 1 continued)

| Species and destination | Production by States <sup>1/</sup> |           |           |                | Imports                  |        |               | Total receipts |
|-------------------------|------------------------------------|-----------|-----------|----------------|--------------------------|--------|---------------|----------------|
|                         | Michigan                           | Minnesota | Wisconsin | Regional total | Other U.S. <sup>2/</sup> | Canada | Total imports |                |
| Hickory                 |                                    |           |           |                |                          |        |               |                |
| Michigan                | 620                                | --        | --        | 620            | --                       | --     | --            | 620            |
| Wisconsin               | --                                 | --        | 374       | 374            | --                       | --     | --            | 374            |
| Total                   | 620                                | --        | 374       | 994            | --                       | --     | --            | 994            |
| Hard maple              |                                    |           |           |                |                          |        |               |                |
| Michigan                | 58,371                             | --        | --        | 58,371         | --                       | --     | --            | 58,371         |
| Wisconsin               | 36,673                             | 400       | 141,571   | 178,644        | --                       | --     | --            | 178,644        |
| Total                   | 95,044                             | 400       | 141,571   | 237,015        | --                       | --     | --            | 237,015        |
| Soft maple              |                                    |           |           |                |                          |        |               |                |
| Michigan                | 110,004                            | --        | --        | 110,004        | --                       | --     | --            | 110,004        |
| Wisconsin               | 13,783                             | 129       | 95,451    | 109,363        | --                       | --     | --            | 109,363        |
| Total                   | 123,787                            | 129       | 95,451    | 219,367        | --                       | --     | --            | 219,367        |
| Red oak                 |                                    |           |           |                |                          |        |               |                |
| Michigan                | 68,086                             | --        | --        | 68,086         | --                       | --     | --            | 68,086         |
| Wisconsin               | 1,309                              | --        | 47,138    | 48,447         | --                       | --     | --            | 48,447         |
| Total                   | 69,395                             | --        | 47,138    | 116,533        | --                       | --     | --            | 116,533        |
| White oak               |                                    |           |           |                |                          |        |               |                |
| Michigan                | 22,899                             | --        | --        | 22,899         | --                       | --     | --            | 22,899         |
| Wisconsin               | 292                                | --        | 11,978    | 12,270         | --                       | --     | --            | 12,270         |
| Total                   | 23,191                             | --        | 11,978    | 35,169         | --                       | --     | --            | 35,169         |
| Other hardwoods         |                                    |           |           |                |                          |        |               |                |
| Michigan                | 5,491                              | --        | --        | 5,491          | --                       | --     | --            | 5,491          |
| Wisconsin               | 1,858                              | --        | 7,369     | 9,227          | --                       | --     | --            | 9,227          |
| Total                   | 7,349                              | --        | 7,369     | 14,718         | --                       | --     | --            | 14,718         |
| Total roundwood         |                                    |           |           |                |                          |        |               |                |
| Michigan                | 1,616,106                          | --        | 5,845     | 1,621,951      | --                       | --     | --            | 1,621,951      |
| Minnesota               | --                                 | 1,636,632 | 53,018    | 1,689,650      | --                       | 3,708  | 3,708         | 1,693,358      |
| Wisconsin <sup>3/</sup> | 349,035                            | 146,730   | 2,157,269 | 2,653,034      | 4,783                    | 186    | 4,969         | 2,658,003      |
| Exported <sup>3/</sup>  | 19,270                             | 32,491    | --        | 51,761         | --                       | --     | --            | --             |
| Total                   | 1,984,411                          | 1,815,853 | 2,216,132 | 6,016,396      | 4,783                    | 3,894  | 8,677         | 5,973,312      |
| Softwood residue        |                                    |           |           |                |                          |        |               |                |
| Michigan                | 16,790                             | --        | 185       | 16,975         | --                       | --     | --            | 16,975         |
| Minnesota               | --                                 | 46,363    | --        | 46,363         | --                       | 1,274  | 1,274         | 47,637         |
| Wisconsin <sup>3/</sup> | 3,983                              | 7,704     | 47,759    | 59,446         | 131,836                  | 31,003 | 162,839       | 222,285        |
| Exported <sup>3/</sup>  | --                                 | 1,167     | --        | 1,167          | --                       | --     | --            | --             |
| Total                   | 20,773                             | 55,234    | 47,944    | 123,951        | 131,836                  | 32,277 | 164,113       | 286,897        |
| Hardwood residue        |                                    |           |           |                |                          |        |               |                |
| Michigan                | 114,065                            | --        | 16,627    | 130,692        | 17,390                   | --     | 17,390        | 148,082        |
| Minnesota               | --                                 | 36,657    | --        | 36,657         | --                       | 4,203  | 4,203         | 40,860         |
| Wisconsin <sup>3/</sup> | 38,192                             | 1,110     | 193,802   | 233,104        | --                       | 415    | 415           | 233,519        |
| Exported <sup>3/</sup>  | --                                 | 929       | --        | 929            | --                       | --     | --            | --             |
| Total                   | 152,257                            | 38,696    | 210,429   | 401,382        | 17,390                   | 4,618  | 22,008        | 422,461        |
| All wood material       |                                    |           |           |                |                          |        |               |                |
| Michigan                | 1,746,961                          | --        | 22,657    | 1,769,618      | 17,390                   | --     | 17,390        | 1,787,008      |
| Minnesota               | --                                 | 1,719,652 | 53,018    | 1,772,670      | --                       | 9,185  | 9,185         | 1,781,855      |
| Wisconsin <sup>3/</sup> | 391,210                            | 155,544   | 2,398,830 | 2,945,584      | 136,619                  | 31,604 | 168,223       | 3,113,807      |
| Exported <sup>3/</sup>  | 19,270                             | 34,587    | --        | 53,857         | --                       | --     | --            | --             |
| Total                   | 2,157,441                          | 1,909,783 | 2,474,505 | 6,541,729      | 154,009                  | 40,789 | 194,798       | 6,682,670      |

<sup>1/</sup>Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

<sup>2/</sup>Mostly western States.

<sup>3/</sup>Pulpwood shipped to mills outside of region.

<sup>4/</sup>Ponderosa pine.

<sup>5/</sup>Includes ponderosa pine from other U.S.

Other important species, each contributing more than 200,000 cords, were hard maple, soft maple, and spruce.

Pulpwood production from hardwoods rose above the previous high in 1981 by 915,000 cords. Pulpwood output from hardwood roundwood set a record, but the higher output from hardwood mill residue fell 56,000 cords short of the peak in 1981. Harvests of aspen, birch, and balsam poplar advanced to record levels. Aspen eclipsed the 1981 peak by 887,000 cords. Birch surpassed the 1980 high by 28,000 cords and balsam poplar reached a new high for the fourth consecutive year.

Softwood production fell 184,000 cords from 1982, although production from mill residue increased to a

record 124,000 cords. Output dropped in each softwood species except cedar and white pine. Major declines were in jack pine (86,000 cords) and red pine (44,000 cords). Red pine set production records the previous 4 years and, despite the decline, had the second highest output in 1983.

Lake States loggers produced a record 604,000 cords of whole-tree chips<sup>5</sup> (WTC), up 31 percent from 1982. WTC accounted for 9 percent of the Lake States pulpwood output. One out of 5 cords produced in Michigan was WTC. Minnesota WTC output doubled from 1982; Wisconsin WTC output remained nominal even

<sup>5</sup>Pulpwood produced from chipping entire trees (all portions of trees above ground, except the stumps).

though production more than doubled. Production of WTC by species group and State was:

| State                        | Softwoods | Aspen | Other<br>hardwoods |
|------------------------------|-----------|-------|--------------------|
| ----- (Thousand cords) ----- |           |       |                    |
| Michigan                     | 18.0      | 292.4 | 124.7              |
| Minnesota                    | --        | 129.4 | 13.6               |
| Wisconsin                    | --        | 23.2  | 2.5                |

**Michigan.**--For the first time, Michigan production exceeded 2 million cords. Pulpwood production rose to 2.16 million cords, a gain of 23 percent from 1982 and 9 percent from the previous high in 1979. Demand for aspen and birch reached peak levels. Marquette, Iron, Delta, Menominee, and Baraga Counties were the leading producers.

**Minnesota.**--Minnesota's output of 1.91 million cords broke the old high in 1974 by 21 percent and surpassed 1982 by 29 percent. Aspen provided most of the gain, rising 526,000 cords (61 percent) from 1982. Demand for aspen was strong at flakeboard plants.

Aspen dominated the harvest, accounting for 77 percent of all roundwood cut and 95 percent of all hardwood harvested. Demand for softwoods weakened, with pine and spruce production at all-time lows. Five counties--St. Louis, Itasca, Koochiching, Beltrami, and Cass--supplied 71 percent of the roundwood.

**Wisconsin.**--Wisconsin producers furnished 2.47 million cords of pulpwood, 8 percent more than in 1982 and 4 percent more than the record set in 1981. The aspen harvest exceeded 1 million cords for the first time. Birch production nudged above the high in 1980. Contrary to the general uptrend, pine output dropped 82,000 cords. Top-producing counties were Marinette, Bayfield, Oneida, Forest, Douglas, Vilas, Sawyer, Price, and Langlade.

In this report we show the distribution of the harvest in two ways: first, the amount of pulpwood cut relative to the growing stock volume in each of five major pulpwood species (fig. 1); and, second, the amount of pulpwood cut relative to commercial forest area (fig. 2). For the major supply areas, pulpwood harvesting was most intensive for jack pine in the

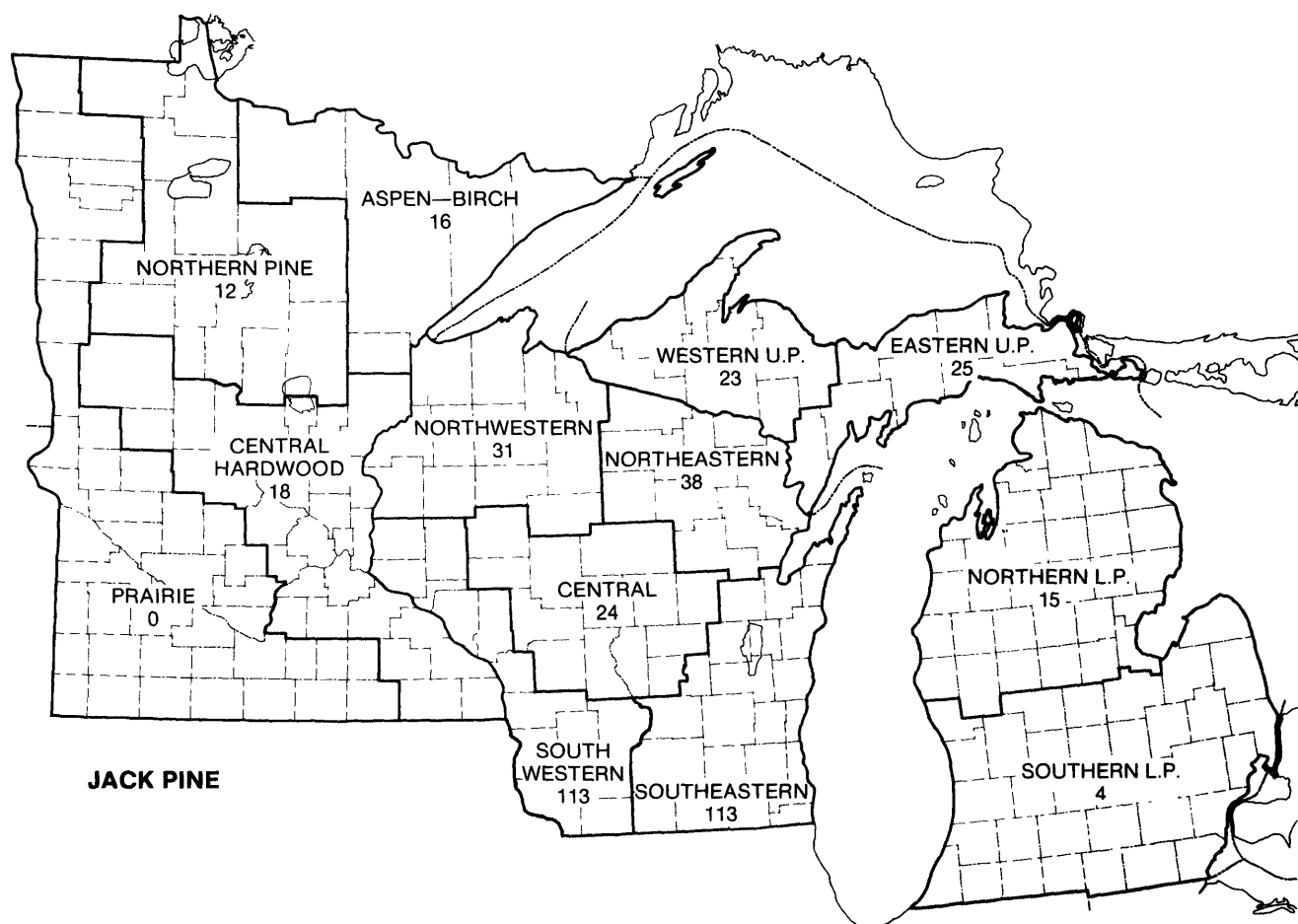
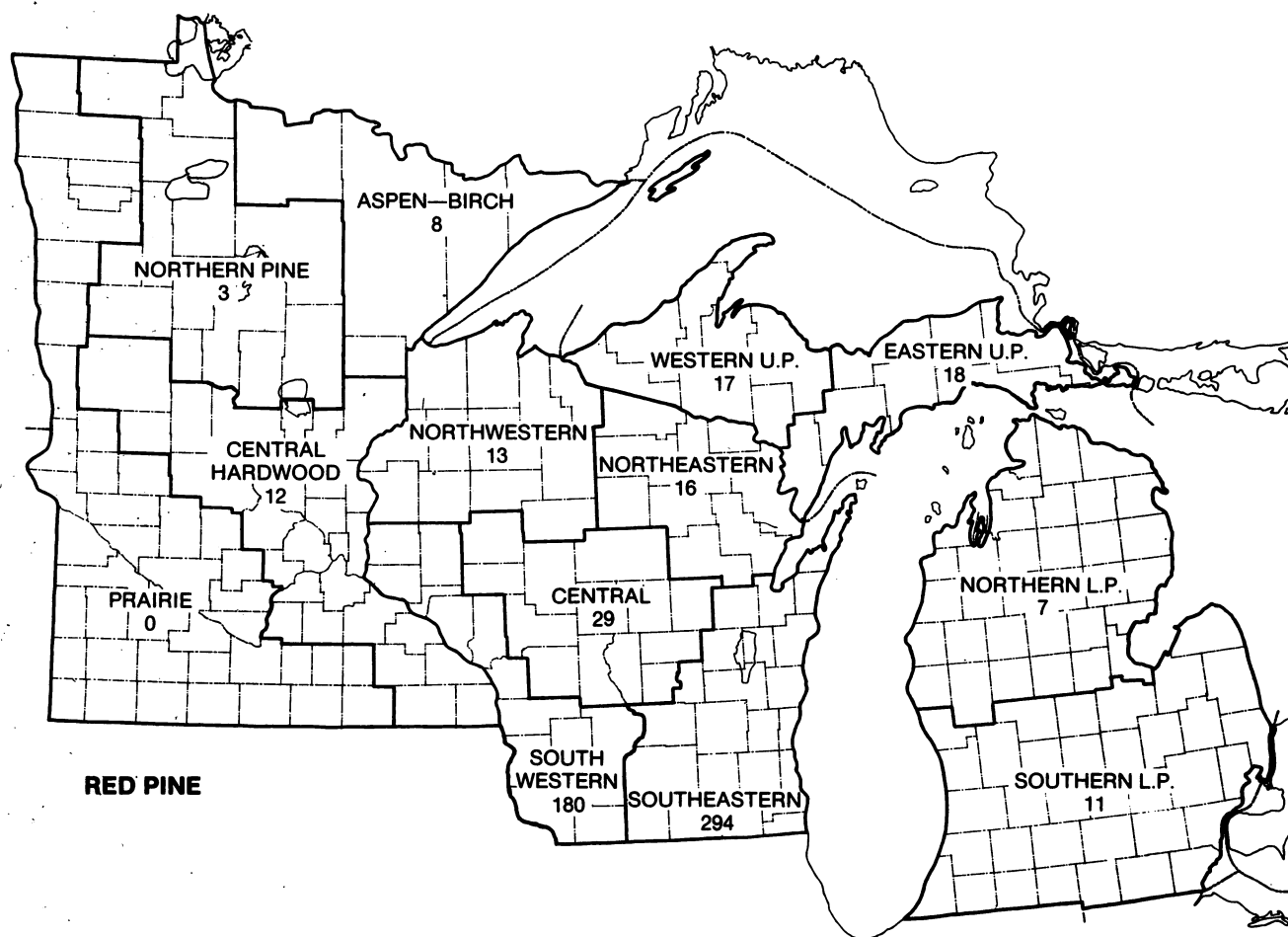


Figure 1.--Cords of roundwood pulpwood (including chips from roundwood) harvested per 1,000 cords of merchantable volume in five principal pulpwood species by Forest Survey Unit, 1983. Merchantable volume was determined during the last forest inventory in each State.

(Figure 1 continued)



Northeastern and Northwestern Wisconsin Survey Units; for red pine in the Central Unit of Wisconsin; for spruce in the Northern Pine Unit of Minnesota; for balsam fir in northeastern Wisconsin; and for aspen in northern Wisconsin, northern Minnesota, and the northern Lower Peninsula of Michigan.

Pulpwood harvesting was more than 200 cords per thousand acres of stocked commercial forest land in the following counties:

**Michigan**

Mason  
Delta  
Dickinson  
Menominee  
Iron

**Minnesota**

Itasca  
Hubbard  
Koochiching

**Wisconsin**

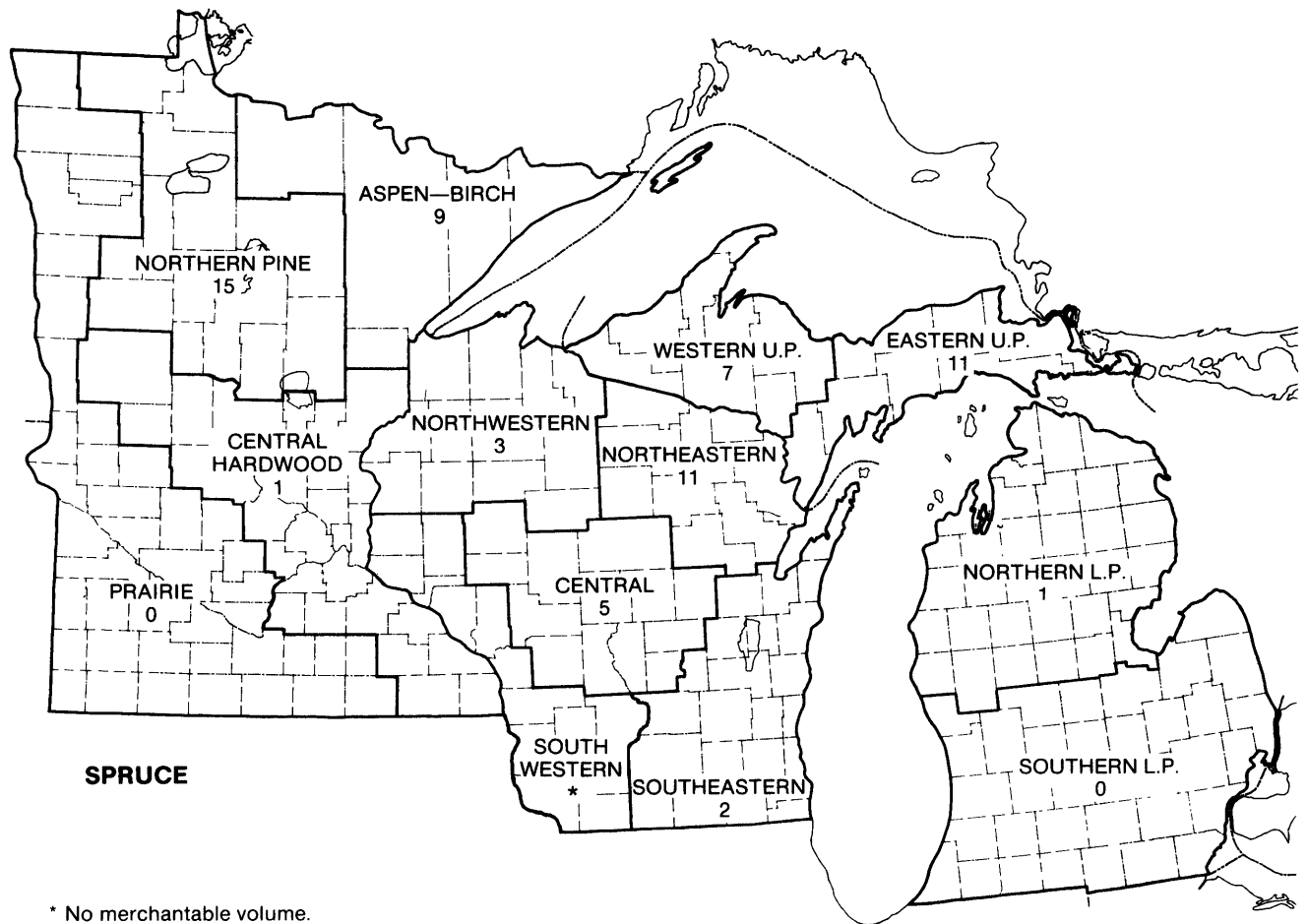
Vilas  
Langlade  
Marinette  
Florence  
Menominee  
Forest  
Oneida  
Bayfield  
Douglas  
Price

## Receipts

Thirty-eight pulp, three particleboard, three waferboard, and three oriented-strand-board mills received 6.68 million cords of pulpwood in 1983, more than a million-cord increase from 1982. Forty-three of the 47 operating mills used aspen and 22 used birch (table 2).

Imports of Canadian softwood residue fell for the third consecutive year to slightly more than one-third of the peak imports set in 1980. After 3 declining years, softwood residue shipments to the Lake States from other areas of the U.S. increased, but, excluding 1982, remained lower than in any year since 1967; South Dakota and Wyoming were the principal suppliers.

Lake States mills have never imported hardwood roundwood in quantity from other States and Canada. These hardwood imports topped out in 1969 at 21,000 cords; none has been received in the Lake States since 1980.



\* No merchantable volume.

**Michigan.**--Out-of-State sources supplied only 2 percent of the 1.79 million cords received in Michigan. Hardwood mill residue was the chief import. Demand was highest for aspen, jack pine, soft maple, and white birch.

**Wisconsin.**--Twenty-three percent of the 3.11 million cords received at 25 Wisconsin mills came from out-of-State. Michigan furnished 391,000 cords, Minnesota 156,000 cords, other (primarily western) States 137,000 cords, and Canada 32,000 cords. Nearly three-fifths of the spruce and nearly four-fifths of the tamarack was imported. Wisconsin mills received 73 out of every 100 cords of softwood residue from Canada and States beyond the Lake States.

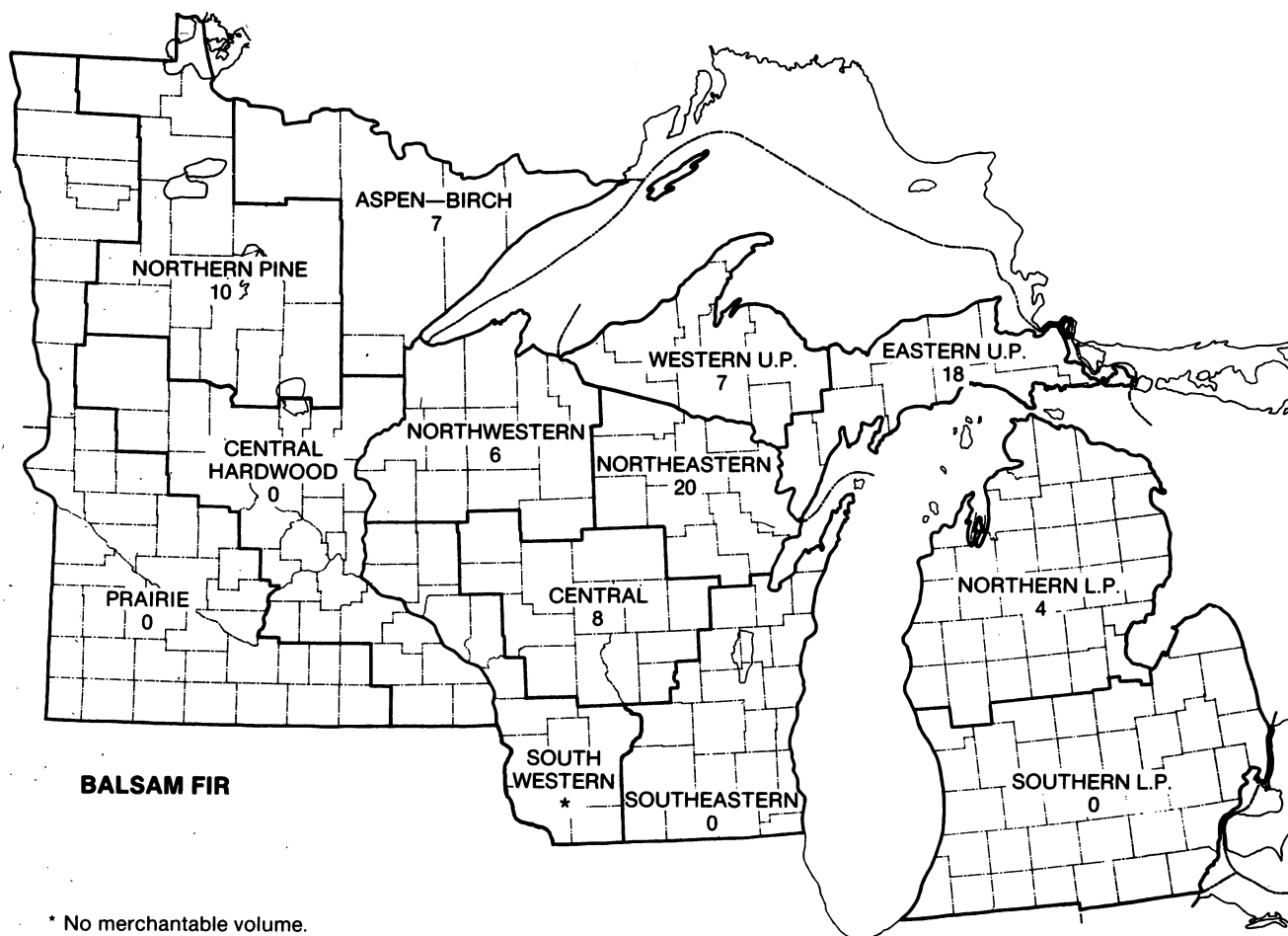
**Minnesota.**--Minnesota pulpwood receipts are not fully reported (see earlier explanation).

## Industry Trends and Analysis

### Pulpmills

Average daily pulp production remained unchanged from 10,770 tons per day in 1982 (table 3). Three pulp mills each had average daily production of 800 tons or more; six each averaged less than 100 tons. Average mill size has been increasing for more than a decade as smaller mills closed and larger mills expanded their capacity. In 1970, 10 mills each produced less than 100 tons daily, and only one mill had a daily capacity of

(Figure 1 continued)



800 tons or more. Six more pulp mills operated in 1970 than in 1983, but daily capacity was at least 11 percent lower during 1970 in the Lake States.

Lake States pulpwood production for pulpmills in 1981, 1982, and 1983 was:

| Species       | Production       |       |       |
|---------------|------------------|-------|-------|
|               | 1981             | 1982  | 1983  |
| Roundwood     | (Thousand cords) |       |       |
| Aspen         | 2,037            | 1,828 | 2,133 |
| Other species | 2,568            | 2,621 | 2,618 |
| Residue       | 496              | 384   | 445   |
| Total         | 5,101            | 4,833 | 5,196 |

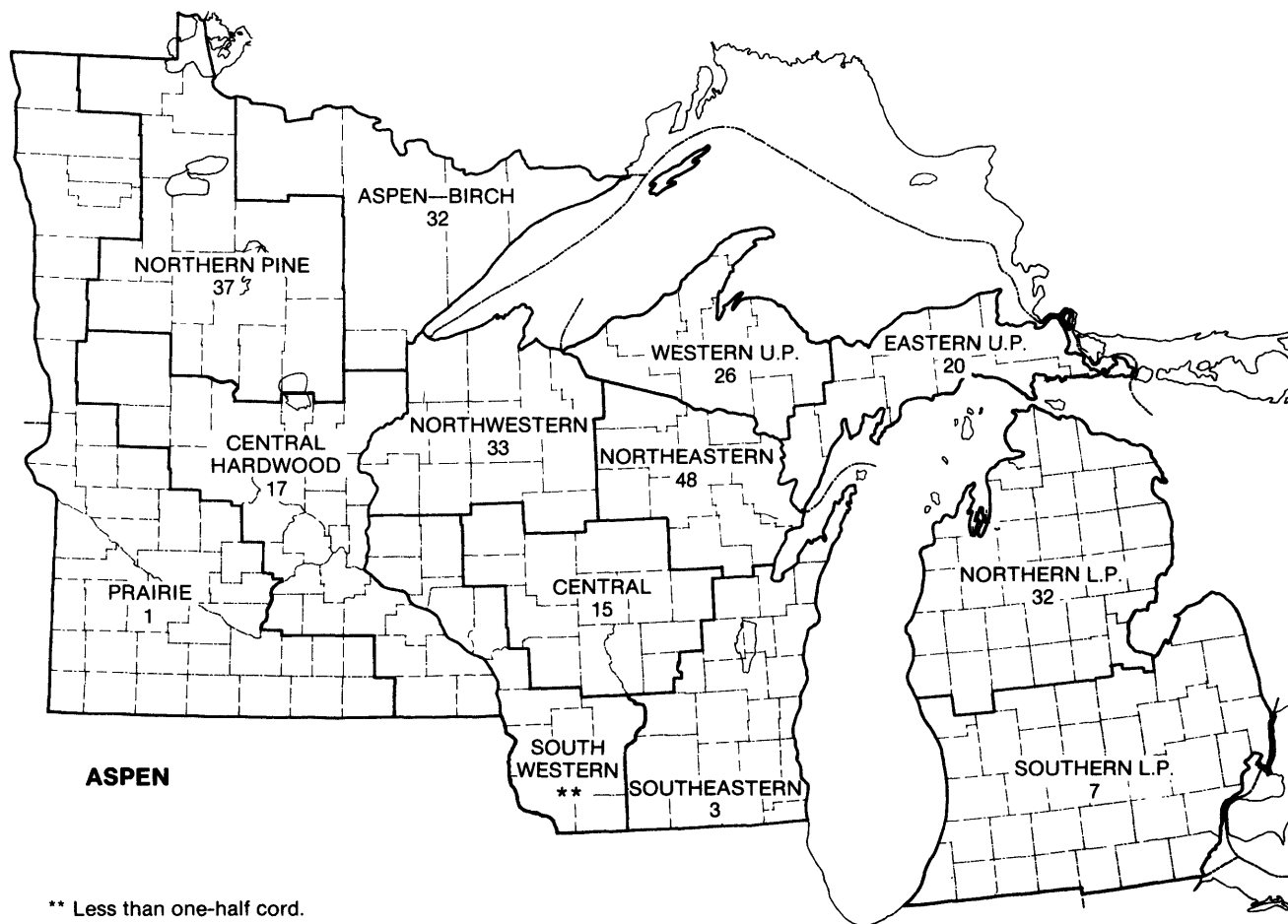
Pulpwood production destined for pulpmills rose 7.5 percent in the Lake States during 1983. This increase compares favorably with the 6.5 percent rise in U.S. woodpulp production in 1983.

#### Flakeboard mills

Minnesota's second oriented-strand-board (OSB) plant began operating in 1983. Annual production capacity of the Lake States flakeboard plants was 860 million square feet as shown below:

| Company                      | Location         | Capacity<br>(Million square<br>feet<br>¾-inch basis) |
|------------------------------|------------------|------------------------------------------------------|
| Champion International Corp. | Gaylord, MI      | 175                                                  |
| Weyerhaeuser Co.             | Grayling, MI     | 105                                                  |
| Blandin Wood Products Co.    | Grand Rapids, MN | 135                                                  |
| Northwood Panelboard Co.     | Bemidji, MN      | 80                                                   |
| Potlatch Corp.               | Bemidji, MN      | 75                                                   |
| Potlatch Corp.               | Cook, MN         | 80                                                   |
| Louisiana — Pacific          | Hayward, WI      | 130                                                  |
| Rodman Industries            | Marinette, WI    | 15                                                   |
| Weyerhaeuser Co.             | Marshfield, WI   | 65                                                   |
|                              |                  | <b>860</b>                                           |

(Figure 1 continued)



Lake States pulpwood production for flakeboard plants in 1981, 1982, and 1983 was:

| Species       | Production       |      |       |
|---------------|------------------|------|-------|
|               | 1981             | 1982 | 1983  |
| Roundwood     | (Thousand cords) |      |       |
| Aspen         | 382              | 554  | 1,173 |
| Other species | 54               | 61   | 93    |
| Residue       | 60               | 73   | 80    |
| Total         | 496              | 688  | 1,346 |

Aspen continued to gain market share as the newer mills prefer aspen.

Pulpwood production for flakeboard nearly doubled because new plants were gearing up toward capacity and U.S. housing starts reached 1.7 million units, up 60 percent from the 36-year low set in 1982. New hous-

ing, including the furniture purchased for new homes, is a major consumer of flakeboard. Overall, furniture markets were strong in 1983.

During the next 2 years, massive increases in waferboard and OSB capacity are expected in the U.S. Two firms have major multi-plant programs.

Another waferboard plant is planned for Minnesota, and the first Lake States medium density fiberboard plant is planned for Michigan's Upper Peninsula. In addition, at least two pulpmills are increasing their capacity.

Demand for paper and paperboard in 1984 is high and demand for new housing is holding near the 1983 level. With these strong market forces nationally and new Lake States flakeboard plants able to operate closer to capacity, Lake States pulpwood output is likely to set another record in 1984.

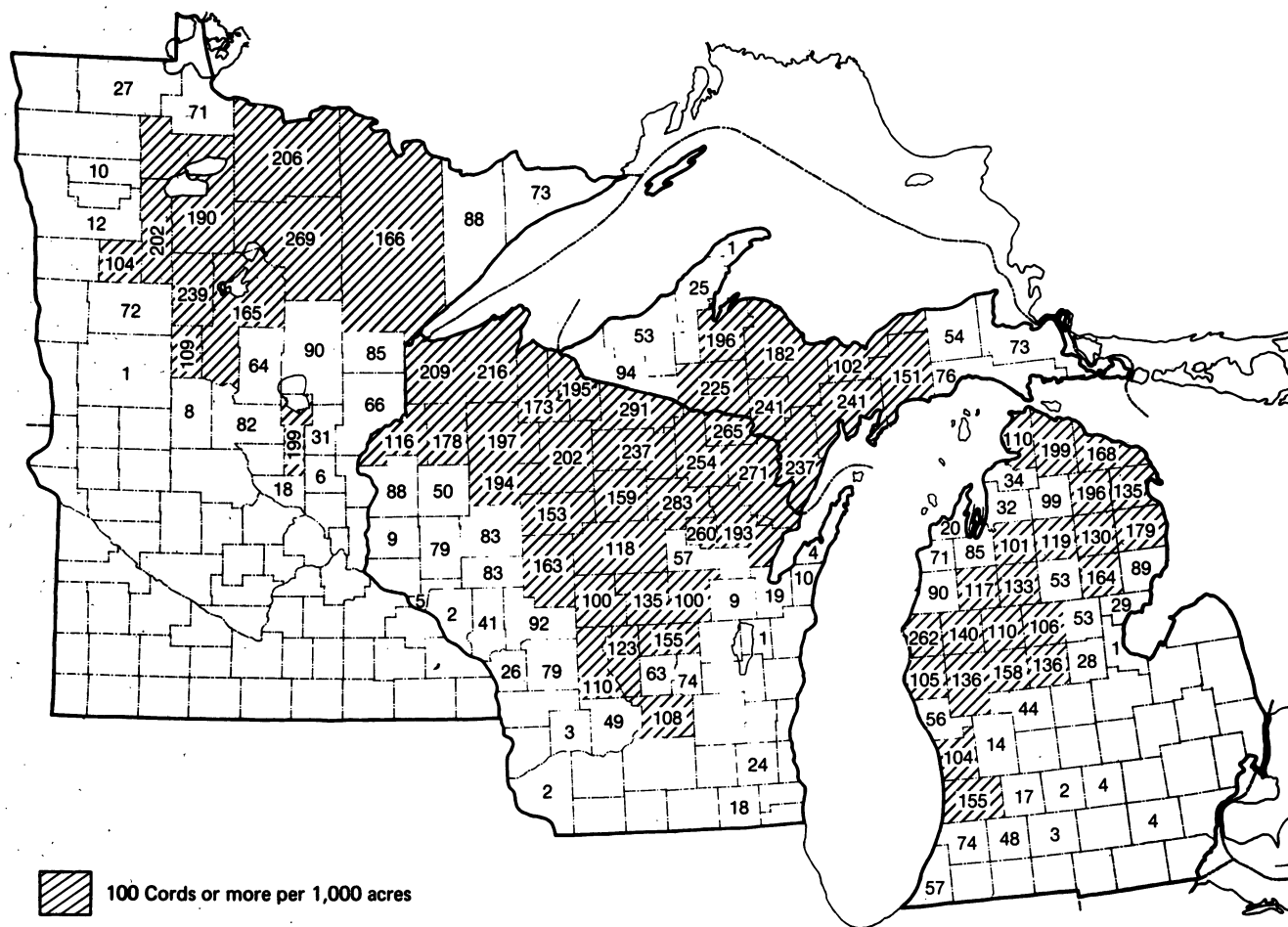


Figure 2.--Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1983. Acres of stocked commercial forest land were determined during the last forest inventory in each State.

Table 2.--Numbers of industrial plants in the Lake States using a particular species or residue for pulping and flakeboard in 1983

| Species and kind of material | Total Lake States | Michigan | Minnesota | Wisconsin |
|------------------------------|-------------------|----------|-----------|-----------|
| Aspen                        | 43                | 9        | 13        | 21        |
| Balsam fir                   | 17                | 3        | 5         | 9         |
| Birch                        | 22                | 7        | 2         | 13        |
| Hemlock                      | 8                 | 1        | -         | 7         |
| Pine                         | 11                | 5        | 2         | 4         |
| Spruce                       | 15                | 2        | 5         | 8         |
| Tamarack                     | 7                 | 1        | 2         | 3         |
| Maple                        | 16                | 7        | -         | 9         |
| Oak                          | 16                | 7        | -         | 9         |
| Other hardwoods              | 21                | 7        | 5         | 9         |
| Softwood residue             | 12                | 2        | 2         | 8         |
| Hardwood residue             | 20                | 7        | 2         | 11        |
| Total plants <sup>1/</sup>   | 47                | 9        | 13        | 25        |

<sup>1/</sup>Some plants use more than one species, so numbers in columns are not additive.

Table 3.--Active woodpulp mills in the Lake States, by location, type of pulp produced, and average daily production, 1983

(In tons per 24 hours)<sup>1/</sup>

|                               |                     | Average production |         |       |                                       |                   |
|-------------------------------|---------------------|--------------------|---------|-------|---------------------------------------|-------------------|
| Company                       | Location            | Total              | Sulfite | Kraft | Groundwood<br>and other<br>mechanical | Semi-<br>chemical |
| Michigan                      |                     |                    |         |       |                                       |                   |
| Abitibi-Price, Inc.           | Alpena              | 430                | --      | --    | 430                                   | --                |
| Champion International        | Ontonagon           | 440                | --      | --    | --                                    | 440               |
| Manistique Pulp and Paper Co. | Manistique          | 90                 | --      | --    | 90                                    | --                |
| Mead Corp.                    | Escanaba            | 800                | --      | 600   | 200                                   | --                |
| Menasha Corp.                 | Otsego              | 225                | --      | --    | --                                    | 225               |
| Packaging Corp. of America    | Filer City          | 600                | --      | --    | --                                    | 600               |
| Warren Co., S.D.              | Muskegon            | 250                | --      | 250   | --                                    | --                |
| Total                         | 7 Mills             | 2,835              | --      | 850   | 720                                   | 1,265             |
| Minnesota                     |                     |                    |         |       |                                       |                   |
| Blandin Paper Co.             | Grand Rapids        | 300                | --      | --    | 300                                   | --                |
| Hennepin Paper Co.            | Little Falls        | 75                 | --      | --    | 75                                    | --                |
| Boise Cascade Corp.           | International Falls | 920                | --      | 380   | 540                                   | --                |
| Potlatch Corp.                | Cloquet             | 475                | --      | 475   | --                                    | --                |
| Superwood Corp.               | Bemidji             | 100                | --      | --    | 100                                   | --                |
| St. Regis Paper Co.           | Sartell             | 385                | --      | --    | 385                                   | --                |
| Superwood Corp.               | Duluth              | 350                | --      | --    | 350                                   | --                |
| Conwed Corp.                  | Cloquet             | 50                 | --      | --    | 50                                    | --                |
| Certain-Teed Corp.            | Shakopee            | 80                 | --      | --    | 80                                    | --                |
| Total                         | 9 Mills             | 2,735              | --      | 855   | 1,880                                 | --                |
| Wisconsin                     |                     |                    |         |       |                                       |                   |
| James River Corp.             | Green Bay           | 150                | 150     | --    | --                                    | --                |
| Weyerhaeuser Co.              | Rothschild          | 200                | 200     | --    | --                                    | --                |
| Badger Paper Mills            | Peshigo             | 100                | 100     | --    | --                                    | --                |
| Appleton Papers Inc.          | Combined Locks      | 200                | --      | --    | 200                                   | --                |
| Consolidated Papers, Inc.     | Stevens Point       | 230                | --      | --    | 230                                   | --                |
| Consolidated Papers, Inc.     | Wisconsin Rapids    | 750                | --      | 450   | 300                                   | --                |
| Green Bay Packaging, Inc.     | Green Bay           | 200                | --      | --    | --                                    | 200               |
| Flambeau Paper Co.            | Park Falls          | 110                | 110     | --    | --                                    | --                |
| Midtec Paper Corp.            | Kimberly            | 180                | --      | --    | 180                                   | --                |
| Pentair, Inc.                 | Niagara             | 210                | --      | --    | 210                                   | --                |
| Mosinee Paper Mills Co.       | Mosinee             | 210                | --      | 210   | --                                    | --                |
| Nekoosa Papers, Inc.          | Nekoosa             | 335                | --      | 335   | --                                    | --                |
| Nekoosa Papers, Inc.          | Port Edwards        | 235                | 235     | --    | --                                    | --                |
| Owens-Illinois                | Tomahawk            | 1,000              | --      | --    | --                                    | 1,000             |
| Procter and Gamble, Inc.      | Green Bay           | 2/                 | 2/      | 2/    | 2/                                    | 2/                |
| Rhineland Paper Co.           | Rhineland           | 75                 | 75      | --    | --                                    | --                |
| Genstar Corp.                 | Cornell             | 100                | --      | --    | 100                                   | --                |
| Superior Fiber Products Co.   | Superior            | 180                | --      | --    | 180                                   | --                |
| Thilmany Pulp and Paper Co.   | Kaukauna            | 400                | --      | 400   | --                                    | --                |
| Tomahawk Pulp Co., Inc.       | Tomahawk            | 50                 | --      | --    | 50                                    | --                |
| Wausau Paper Mills Co.        | Brokaw              | 185                | 185     | --    | --                                    | --                |
| Superwood Corp.               | Phillips            | 100                | --      | --    | 100                                   | --                |
| Total                         | 22 Mills            | 5,200              | 1,055   | 1,395 | 1,550                                 | 1,200             |
| All states                    | 38 Mills            | 10,770             | 1,055   | 3,100 | 4,150                                 | 2,465             |

<sup>1/</sup>Lockwood's Directory of the Paper and Allied Industries -- 1984.

<sup>2/</sup>Capacity not available.

## CENTRAL STATES

### Production

Pulpwood production climbed 26 percent to 448,000 cords (table 4), the highest output since 1979. About 7 out of 10 cords were residue from wood-using mills. Demand rose for roundwood in each species group and for Central States mill residue. For the fifth consecutive year, exports from the Central States (chiefly hardwood residue) reached a new high. Kentucky, Michigan, Wisconsin, and Ohio mills received 68 percent of the pulpwood produced.

Indiana, the leading producer, surpassed the previous peak output of 1979. Most of the gain came from hardwood residue, which accounted for more than four-fifths of Indiana's production. Output rose in the other Central States with Missouri having the largest increase. Illinois pulpwood production was the second lowest since 1959, and Iowa production was the second lowest since 1958.

Loggers harvested pulpwood in 21 Illinois counties, 19 Indiana counties, 18 Missouri counties, and 9 Iowa counties (fig. 3). Logging areas expanded in southeast

Table 4.--Production and imports of pulpwood, Central States, 1983

(In standard cords, unpeeled)<sup>1/</sup>

| Species and destination      | Production by States <sup>2/</sup> |         |        |          |                | Imports     |            |               |                |
|------------------------------|------------------------------------|---------|--------|----------|----------------|-------------|------------|---------------|----------------|
|                              | Illinois                           | Indiana | Iowa   | Missouri | Regional total | Lake States | Other U.S. | Total imports | Total receipts |
| Roundwood                    |                                    |         |        |          |                |             |            |               |                |
| Softwoods                    |                                    |         |        |          |                |             |            |               |                |
| Central States <sup>3/</sup> | 302                                | --      | --     | --       | 302            | --          | --         | --            | 302            |
| Exported <sup>4/</sup>       | 17,899                             | --      | --     | 1,384    | 19,283         | --          | --         | --            | --             |
| Total                        | 18,201                             | --      | --     | 1,384    | 19,585         | --          | --         | --            | 302            |
| Soft hardwoods               |                                    |         |        |          |                |             |            |               |                |
| Central States <sup>3/</sup> | 10,585                             | 13,915  | 2,825  | 6,812    | 34,137         | --          | 1,431      | 1,431         | 35,568         |
| Exported <sup>4/</sup>       | 9,053                              | --      | --     | 1,437    | 10,490         | --          | --         | --            | --             |
| Total                        | 19,638                             | 13,915  | 2,825  | 8,249    | 44,627         | --          | 1,431      | 1,431         | 35,568         |
| Hard hardwoods               |                                    |         |        |          |                |             |            |               |                |
| Central States <sup>3/</sup> | 4,377                              | 13,842  | 4,684  | 8,807    | 31,710         | --          | 1,424      | 1,424         | 33,134         |
| Exported <sup>4/</sup>       | 14,806                             | 13,302  | --     | 13,275   | 41,383         | --          | --         | --            | --             |
| Total                        | 19,183                             | 27,144  | 4,684  | 22,082   | 73,093         | --          | 1,424      | 1,424         | 33,134         |
| Total roundwood              |                                    |         |        |          |                |             |            |               |                |
| Central States <sup>3/</sup> | 15,264                             | 27,757  | 7,509  | 15,619   | 66,149         | --          | 2,855      | 2,855         | 69,004         |
| Exported <sup>4/</sup>       | 41,758                             | 13,302  | --     | 16,096   | 71,156         | --          | --         | --            | --             |
| Total                        | 57,022                             | 41,059  | 7,509  | 31,715   | 137,305        | --          | 2,855      | 2,855         | 69,004         |
| Softwood residue             |                                    |         |        |          |                |             |            |               |                |
| Exported <sup>4/</sup>       | 3,395                              | --      | 5,562  | 2,237    | 11,194         | --          | --         | --            | --             |
| Total                        | 3,395                              | --      | 5,562  | 2,237    | 11,194         | --          | --         | --            | --             |
| Hardwood residue             |                                    |         |        |          |                |             |            |               |                |
| Central States <sup>3/</sup> | 15,779                             | 34,061  | 3,420  | 23,446   | 76,706         | --          | 2,438      | 2,438         | 79,144         |
| Exported <sup>4/</sup>       | 14,730                             | 151,051 | --     | 56,543   | 222,324        | --          | --         | --            | --             |
| Total                        | 30,509                             | 185,112 | 3,420  | 79,989   | 299,030        | --          | 2,438      | 2,438         | 79,144         |
| All wood material            |                                    |         |        |          |                |             |            |               |                |
| Central States <sup>3/</sup> | 31,043                             | 61,818  | 10,929 | 39,065   | 142,855        | --          | 5,293      | 5,293         | 148,148        |
| Exported <sup>4/</sup>       | 59,883                             | 164,353 | 5,562  | 74,876   | 304,674        | --          | --         | --            | --             |
| Total                        | 90,926                             | 226,171 | 16,491 | 113,941  | 447,529        | --          | 5,293      | 5,293         | 148,148        |

<sup>1/</sup> Factors used in converting to standard green cords (128 cu. ft. including bark and air space) were:

- 4,500 pounds of soft hardwood roundwood;
- 5,000 pounds of hard hardwood or coniferous roundwood;
- 4,100 pounds of softwood chips (green);
- 4,400 pounds of hardwood chips (green);
- 2,500 pounds of chips (all species, dry).

<sup>2/</sup> Vertical columns of figures under box heading--Production by States--present the amount of pulpwood cut in each State.<sup>3/</sup> Combined to prevent disclosure of individual mill receipts.<sup>4/</sup> Pulpwood shipped to mills outside the region.

Iowa and west central Illinois and contracted in southwestern Indiana.

## Receipts

Three Central States pulpmills received 148,000 cords compared to 106,000 cords in 1982. Despite the good recovery, receipts were the second lowest since 1958. Both roundwood and residue from wood-using mills contributed to the increase. Imports were only 5,000 cords.

## Industry Trends and Analysis

Average daily pulp production remained at 470 tons (table 5). Most of the mills that closed during the last

6 years depended on some segment of the housing industry (including maintenance and repairs) for their finished products. Now only one of three active mills is dependent on housing. The other two produce corrugating medium, and their markets fluctuate more with general economic conditions.

In 1983, exports to other States climbed above 300,000 cords for the first time. Mills adjacent to the Central States are likely to continue procuring more than 3 out of every 5 cords of Central States pulpwood.

Except for the recessionary year 1982, pulpwood production has been more than 400,000 cords annually since 1969. As pulpmills closed in the Central States, mills in nearby States procured more Central States pulpwood. As a result, pulpwood production remained relatively steady during the last decade.

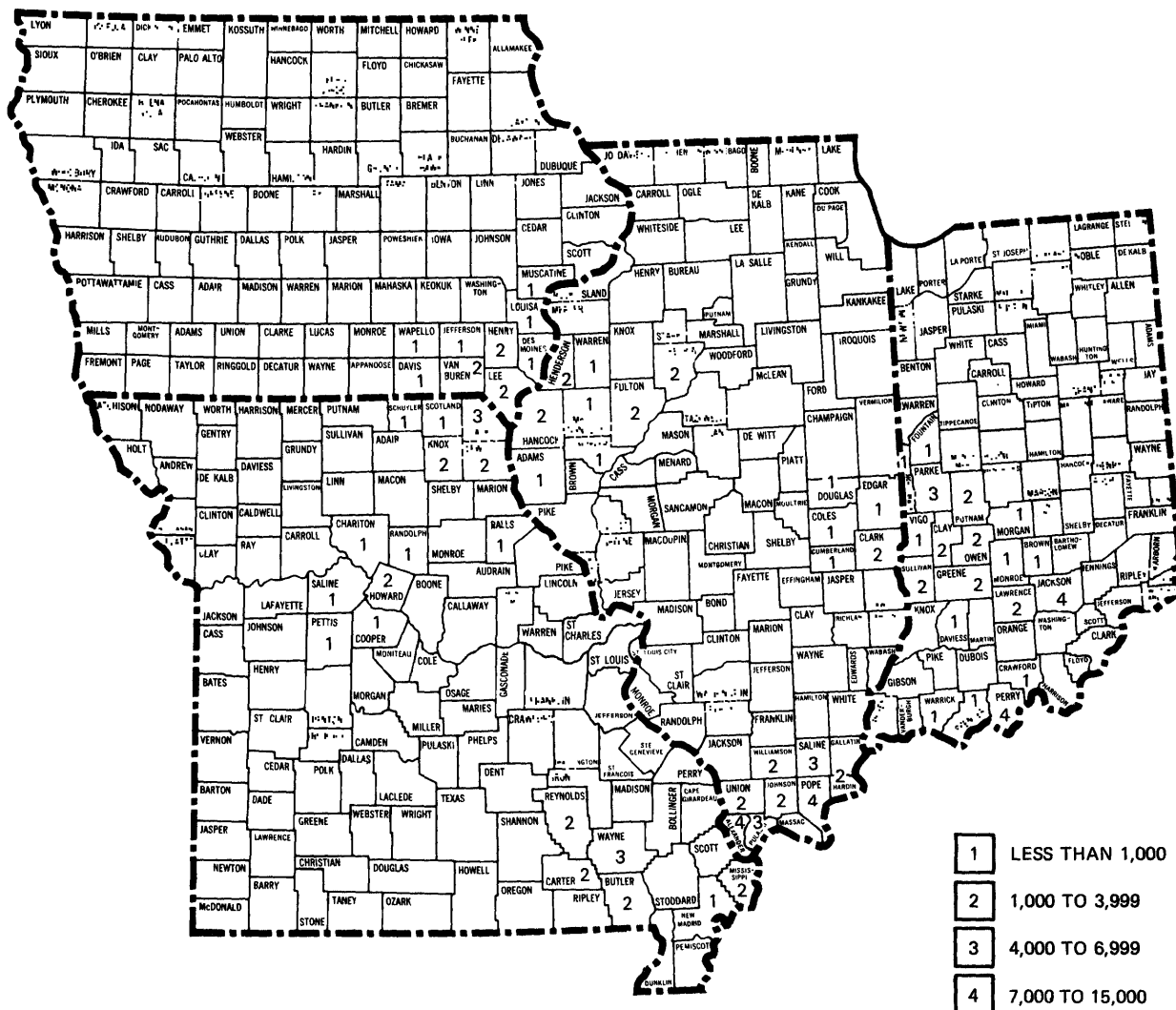


Figure 3.--Production of pulpwood from roundwood (including chips from roundwood) in the Central States by counties, in standard cords, 1983.

Table 5.--Active woodpulp mills in the Central States, by location, type of pulp produced, and average daily production, 1983

(In tons per 24 hours)<sup>1/</sup>

|                              |              | Average production |         |       |                                 |               |
|------------------------------|--------------|--------------------|---------|-------|---------------------------------|---------------|
| Company                      | Location     | Total              | Sulfite | Kraft | Groundwood and other mechanical | Semi-chemical |
| Illinois                     |              |                    |         |       |                                 |               |
| (no current operations)      |              |                    |         |       |                                 |               |
| Total                        | 0 Mills      | --                 | --      | --    | --                              | --            |
| Indiana                      |              |                    |         |       |                                 |               |
| Weston Paper and Mfg. Co.    | Terre Haute  | 270                | --      | --    | --                              | 270           |
| Total                        | 1 Mill       | 270                | --      | --    | --                              | 270           |
| Iowa                         |              |                    |         |       |                                 |               |
| Consolidated Packaging Corp. | Fort Madison | 140                | --      | --    | --                              | 140           |
| Total                        | 1 Mill       | 140                | --      | --    | --                              | 140           |
| Missouri                     |              |                    |         |       |                                 |               |
| Huebert Fibreboard, Inc.     | Booneville   | 60                 | --      | --    | 60                              | --            |
| Total                        | 1 Mill       | 60                 | --      | --    | 60                              | --            |
| All states                   | 3 Mills      | 470                | --      | --    | 60                              | 410           |

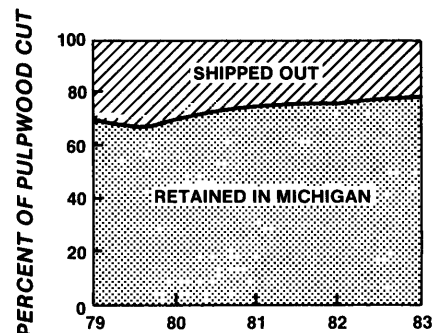
<sup>1/</sup>Lockwood's Directory of the Paper and Allied Industries -- 1984.

## APPENDIX

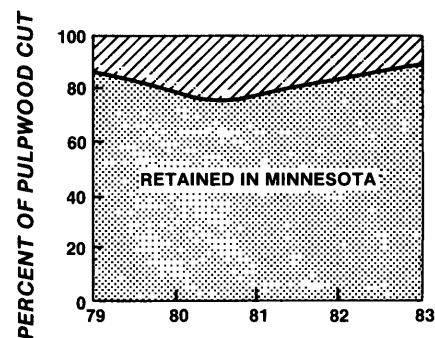
Table 6.--Lake States pulpwood production by State of origin and destination, 1979-1983

(In thousand standard cords, unpeeled)

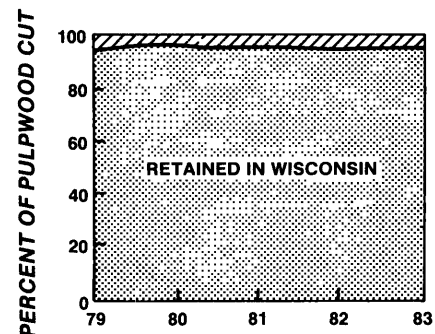
|                | MICHIGAN  |                         |           |          |       |
|----------------|-----------|-------------------------|-----------|----------|-------|
|                | Total cut | Destination of pulpwood |           |          |       |
|                |           | Minnesota               | Wisconsin | Michigan | Other |
| 1979           | 1,981     | 1/                      | 516       | 1,428    | 37    |
| 1980           | 1,969     | -                       | 490       | 1,443    | 36    |
| 1981           | 1,838     | -                       | 419       | 1,402    | 17    |
| 1982           | 1,751     | -                       | 396       | 1,340    | 15    |
| 1983           | 2,157     | -                       | 391       | 1,747    | 19    |
| 5-year average | 1,939     | 1/                      | 442       | 1,472    | 25    |



|                | MINNESOTA |                         |           |          |       |
|----------------|-----------|-------------------------|-----------|----------|-------|
|                | Total cut | Destination of pulpwood |           |          |       |
|                |           | Minnesota               | Wisconsin | Michigan | Other |
| 1979           | 1,458     | 1,226                   | 169       | -        | 63    |
| 1980           | 1,333     | 1,044                   | 216       | -        | 73    |
| 1981           | 1,371     | 1,119                   | 177       | -        | 75    |
| 1982           | 1,484     | 1,264                   | 179       | -        | 41    |
| 1983           | 1,910     | 1,720                   | 155       | -        | 35    |
| 5-year average | 1,511     | 1,275                   | 179       | -        | 57    |



|                | WISCONSIN |                         |           |          |       |
|----------------|-----------|-------------------------|-----------|----------|-------|
|                | Total cut | Destination of pulpwood |           |          |       |
|                |           | Minnesota               | Wisconsin | Michigan | Other |
| 1979           | 2,109     | 20                      | 2,024     | 47       | 18    |
| 1980           | 2,362     | 18                      | 2,297     | 35       | 12    |
| 1981           | 2,389     | 34                      | 2,320     | 26       | 9     |
| 1982           | 2,286     | 27                      | 2,231     | 28       | -     |
| 1983           | 2,475     | 53                      | 2,399     | 23       | -     |
| 5-year average | 2,324     | 30                      | 2,254     | 32       | 9     |



1/ Less than 500 cords.

Table 7.--Lake States pulpwood production by Forest Survey Unit  
and destination by State, 1983

(In hundred standard cords, unpeeled)

| MICHIGAN           |              |                         |           |           |       |
|--------------------|--------------|-------------------------|-----------|-----------|-------|
| Unit               | Total<br>cut | Destination of pulpwood |           |           |       |
|                    |              | Michigan                | Minnesota | Wisconsin | Other |
| Roundwood          |              |                         |           |           |       |
| E. Upper Peninsula | 5,000        | 3,991                   | --        | 870       | 139   |
| W. Upper Peninsula | 6,196        | 3,657                   | --        | 2,538     | 1     |
| N. Lower Peninsula | 8,017        | 7,882                   | --        | 82        | 53    |
| S. Lower Peninsula | 632          | 632                     | --        | --        | --    |
| Total              | 19,845       | 16,162                  | --        | 3,490     | 193   |
| Residue            | 1,731        | 1,309                   | --        | 422       | --    |
| Total pulpwood     | 21,576       | 17,471                  | --        | 3,912     | 193   |
| MINNESOTA          |              |                         |           |           |       |
| Roundwood          |              |                         |           |           |       |
| Aspen-Birch        | 8,026        | --                      | 7,042     | 659       | 325   |
| Northern Pine      | 9,421        | --                      | 8,687     | 734       | --    |
| Central Hardwood   | 702          | --                      | 630       | 72        | --    |
| Prairie            | 11           | --                      | 8         | 3         | --    |
| Total              | 18,160       | --                      | 16,367    | 1,468     | 325   |
| Residue            | 939          | --                      | 830       | 88        | 21    |
| Total pulpwood     | 19,099       | --                      | 17,197    | 1,556     | 346   |
| WISCONSIN          |              |                         |           |           |       |
| Roundwood          |              |                         |           |           |       |
| Northeastern       | 9,511        | 28                      | --        | 9,483     | --    |
| Northwestern       | 9,252        | 31                      | 530       | 8,691     | --    |
| Central            | 2,994        | --                      | --        | 2,994     | --    |
| Southwestern       | 262          | --                      | --        | 262       | --    |
| Southeastern       | 142          | --                      | --        | 142       | --    |
| Total              | 22,161       | 59                      | 530       | 21,572    | --    |
| Residue            | 2,584        | 168                     | --        | 2,416     | --    |
| Total pulpwood     | 24,745       | 227                     | 530       | 23,988    | --    |

Table 8.--Lake States pulpwood production<sup>1/</sup> from roundwood by species, State, and Forest Survey Unit, 1979-1983.  
(In thousand standard cords, unpeeled)

| Unit                     | MICHIGAN          |       |       |       |       | MICHIGAN          |      |      |      |      | MICHIGAN          |      |      |      |      | MICHIGAN          |      |      |      |      |
|--------------------------|-------------------|-------|-------|-------|-------|-------------------|------|------|------|------|-------------------|------|------|------|------|-------------------|------|------|------|------|
|                          | Aspen             |       |       |       |       | Balsam fir        |      |      |      |      | Pine              |      |      |      |      | Spruce            |      |      |      |      |
|                          | Annual production |       |       |       |       | Annual production |      |      |      |      | Annual production |      |      |      |      | Annual production |      |      |      |      |
|                          | 1979              | 1980  | 1981  | 1982  | 1983  | 1979              | 1980 | 1981 | 1982 | 1983 | 1979              | 1980 | 1981 | 1982 | 1983 | 1979              | 1980 | 1981 | 1982 | 1983 |
| Eastern Upper Peninsula  | 125               | 116   | 89    | 93    | 109   | 43                | 57   | 57   | 56   | 59   | 119               | 70   | 56   | 77   | 95   | 21                | 34   | 24   | 33   | 45   |
| Western Upper Peninsula  | 204               | 209   | 201   | 210   | 242   | 41                | 46   | 42   | 45   | 36   | 48                | 53   | 45   | 52   | 52   | 17                | 23   | 19   | 34   | 31   |
| Northern Lower Peninsula | 375               | 374   | 350   | 315   | 523   | 1                 | 6    | 5    | 4    | 6    | 166               | 124  | 118  | 118  | 102  | 1                 | 1    | 2    | 1    | 1    |
| Southern Lower Peninsula | 5                 | 6     | 12    | 14    | 15    | --                | --   | --   | --   | --   | 17                | 21   | 18   | 15   | 8    | --                | --   | --   | --   | --   |
| Total                    | 709               | 705   | 652   | 632   | 889   | 85                | 109  | 104  | 105  | 101  | 350               | 268  | 237  | 262  | 257  | 39                | 58   | 45   | 68   | 77   |
| MINNESOTA                |                   |       |       |       |       |                   |      |      |      |      |                   |      |      |      |      |                   |      |      |      |      |
| Aspen-Birch              | 392               | 313   | 352   | 308   | 563   | 72                | 73   | 69   | 68   | 51   | 75                | 66   | 71   | 92   | 68   | 119               | 127  | 93   | 98   | 66   |
| Northern Pine            | 404               | 357   | 422   | 504   | 766   | 46                | 38   | 31   | 35   | 39   | 75                | 76   | 70   | 80   | 67   | 34                | 43   | 34   | 36   | 29   |
| Central Hardwood         | 41                | 29    | 27    | 54    | 62    | (1/)              | --   | --   | (1/) | --   | 8                 | 9    | 6    | 7    | 5    | (1/)              | (1/) | (1/) | --   | (1/) |
| Prairie                  | 1                 | (1/)  | (1/)  | --    | 1     | --                | --   | --   | --   | --   | --                | --   | (1/) | (1/) | --   | --                | (1/) | (1/) | --   | --   |
| Total                    | 838               | 699   | 801   | 866   | 1,392 | 118               | 111  | 100  | 106  | 90   | 158               | 151  | 147  | 179  | 140  | 153               | 170  | 127  | 134  | 95   |
| WISCONSIN                |                   |       |       |       |       |                   |      |      |      |      |                   |      |      |      |      |                   |      |      |      |      |
| Northeastern             | 364               | 459   | 415   | 392   | 451   | 60                | 66   | 79   | 70   | 61   | 95                | 95   | 111  | 156  | 114  | 14                | 27   | 22   | 23   | 21   |
| Northwestern             | 319               | 326   | 469   | 420   | 481   | 23                | 35   | 25   | 32   | 22   | 113               | 113  | 131  | 141  | 125  | 4                 | 5    | 5    | (1/) | 7    |
| Central                  | 66                | 85    | 79    | 71    | 91    | 1                 | 1    | 1    | 1    | 2    | 127               | 149  | 150  | 166  | 137  | (1/)              | (1/) | (1/) | (1/) | (1/) |
| Southeastern             | 1                 | 1     | 1     | (1/)  | (1/)  | --                | --   | (1/) | (1/) | --   | 20                | 22   | 20   | 23   | 25   | --                | (1/) | (1/) | (1/) | (1/) |
| Total                    | 751               | 873   | 965   | 884   | 1,025 | 84                | 102  | 105  | 103  | 85   | 361               | 387  | 419  | 494  | 412  | 19                | 33   | 27   | 28   | 28   |
| Lake States              | 2,298             | 2,277 | 2,418 | 2,382 | 3,306 | 287               | 322  | 309  | 314  | 276  | 869               | 806  | 803  | 935  | 809  | 211               | 261  | 199  | 230  | 200  |

<sup>1/</sup>Less than 500 cords.

<sup>2/</sup>Includes small quantity of cedar not shown in other parts of table.

(Table 8 continued)

| MICHIGAN                 |                   |      |      |      |                   |      |       |      |                   |      |      |      |
|--------------------------|-------------------|------|------|------|-------------------|------|-------|------|-------------------|------|------|------|
| Unit                     | Tamarack          |      |      |      | Other hardwoods   |      |       |      | Birch             |      |      |      |
|                          | Annual production |      |      |      | Annual production |      |       |      | Annual production |      |      |      |
|                          | 1979              | 1980 | 1981 | 1982 | 1983              | 1979 | 1980  | 1981 | 1982              | 1983 | 1979 | 1980 |
| Eastern Upper Peninsula  | 1                 | 3    | 3    | 3    | 4                 | 83   | 124   | 119  | 97                | 106  | 35   | 29   |
| Western Upper Peninsula  | 1                 | 3    | 3    | 7    | 3                 | 174  | 163   | 143  | 135               | 161  | 53   | 40   |
| Northern Lower Peninsula | --                | --   | --   | --   | --                | 194  | 206   | 194  | 128               | 144  | 21   | 34   |
| Southern Lower Peninsula | --                | --   | --   | --   | --                | 5    | 8     | 17   | 36                | 40   | (1/) | (1/) |
| Total                    | 2                 | 6    | 6    | 10   | 7                 | 456  | 501   | 473  | 396               | 451  | 109  | 103  |
| MINNESOTA                |                   |      |      |      |                   |      |       |      |                   |      |      |      |
| Aspen-Birch              | 18                | 22   | 11   | 24   | 12                | 18   | 30    | 31   | 27                | 40   | 3    | 11   |
| Northern Pine            | 16                | 18   | 18   | 20   | 14                | 9    | 16    | 19   | 28                | 26   | 1    | 4    |
| Central Hardwood         | (1/)              | (1/) | (1/) | (1/) | (1/)              | 4    | 2     | 3    | 4                 | 3    | 3    | (1/) |
| Prairie                  | 2                 | 3    | 1    | (1/) | (1/)              | --   | (1/)  | --   | --                | --   | --   | --   |
| Total                    | 36                | 43   | 30   | 44   | 26                | 31   | 48    | 53   | 59                | 69   | 7    | 15   |
| WISCONSIN                |                   |      |      |      |                   |      |       |      |                   |      |      |      |
| Northeastern             | 1                 | 2    | 1    | 2    | 2                 | 150  | 181   | 154  | 134               | 190  | 76   | 91   |
| Northwestern             | 1                 | 1    | 3    | 4    | 3                 | 165  | 186   | 160  | 152               | 175  | 63   | 80   |
| Central                  | (1/)              | (1/) | 1    | 1    | 1                 | 121  | 82    | 70   | 53                | 56   | 11   | 15   |
| Southwestern             | --                | --   | --   | (1/) | --                | 4    | 4     | 3    | (1/)              | (1/) | (1/) | (1/) |
| Southeastern             | --                | --   | --   | --   | --                | 1    | 2     | 2    | 1                 | 1    | 1    | (1/) |
| Total                    | 2                 | 3    | 5    | 7    | 6                 | 441  | 455   | 389  | 340               | 422  | 151  | 186  |
| Lake States              | 40                | 52   | 41   | 61   | 39                | 928  | 1,004 | 915  | 795               | 942  | 267  | 304  |

(Table 8 continued on next page)

(Table 8 continued)

| Unit                     | MICHIGAN                  |       |       |       |       |
|--------------------------|---------------------------|-------|-------|-------|-------|
|                          | All species <sup>2/</sup> |       |       |       |       |
|                          | Annual production         |       |       |       |       |
|                          | 1979                      | 1980  | 1981  | 1982  | 1983  |
| Eastern Upper Peninsula  | 457                       | 469   | 414   | 425   | 500   |
| Western Upper Peninsula  | 561                       | 566   | 517   | 554   | 619   |
| Northern Lower Peninsula | 759                       | 745   | 693   | 585   | 802   |
| Southern Lower Peninsula | 27                        | 35    | 48    | 66    | 63    |
| Total                    | 1,804                     | 1,815 | 1,672 | 1,630 | 1,984 |

| MINNESOTA        |       |       |       |       |
|------------------|-------|-------|-------|-------|
| Aspen-Birch      | 696   | 642   | 635   | 618   |
| Northern Pine    | 585   | 552   | 597   | 708   |
| Central Hardwood | 56    | 40    | 36    | 65    |
| Prairie          | 3     | 3     | 2     | (1/)  |
| Total            | 1,340 | 1,237 | 1,270 | 1,391 |
|                  |       |       |       | 1,816 |

| WISCONSIN    |       |       |       |       |
|--------------|-------|-------|-------|-------|
| Northeastern | 786   | 947   | 880   | 875   |
| Northwestern | 701   | 752   | 870   | 925   |
| Central      | 327   | 335   | 315   | 303   |
| Southwestern | 25    | 27    | 24    | 23    |
| Southeastern | 10    | 12    | 9     | 10    |
|              |       |       |       | 14    |
| Total        | 1,849 | 2,073 | 2,098 | 2,043 |
|              |       |       |       | 2,216 |

|             |       |       |       |       |       |
|-------------|-------|-------|-------|-------|-------|
| Lake States | 4,993 | 5,125 | 5,040 | 5,064 | 6,016 |
|-------------|-------|-------|-------|-------|-------|

Table 9.--Lake States pulpwood production from roundwood by county and species group, 1983

(In standard cords, unpeeled)

| MICHIGAN                         |                |               |               |         |              |             |               |        |          |        |         |                  |
|----------------------------------|----------------|---------------|---------------|---------|--------------|-------------|---------------|--------|----------|--------|---------|------------------|
| Unit and<br>County <sup>1/</sup> | All<br>species | Species group |               |         |              |             |               |        |          |        |         |                  |
|                                  |                | Cedar         | Balsam<br>fir | Hemlock | Jack<br>pine | Red<br>pine | White<br>pine | Spruce | Tamarack | Ash    | Aspen   | Balsam<br>poplar |
| E. Upper Peninsula               |                |               |               |         |              |             |               |        |          |        |         |                  |
| Alger                            | 49,477         | 1,098         | 3,968         | 4,744   | 3,685        | 2,599       | 943           | 3,403  | 187      | 254    | 9,338   | 2,498            |
| Chippewa                         | 51,295         | 1,420         | 3,936         | 1,762   | 13,325       | 4,462       | 993           | 4,300  | 188      | 144    | 11,982  | 901              |
| Delta                            | 138,357        | 4,791         | 18,560        | 4,995   | 11,954       | 12,800      | 2,908         | 13,046 | 1,926    | 578    | 25,726  | 6,115            |
| Luce                             | 25,039         | 465           | 3,815         | 2,754   | 4,109        | 537         | 265           | 4,957  | 385      | 65     | 2,620   | 633              |
| Mackinac                         | 39,310         | 772           | 5,202         | 1,191   | 1,268        | 1,569       | 451           | 3,994  | 120      | 197    | 12,258  | 1,196            |
| Menominee                        | 116,384        | 2,683         | 16,930        | 7,854   | 2,839        | 2,027       | 1,703         | 9,355  | 660      | 685    | 36,862  | 6,284            |
| Schoolcraft                      | 80,061         | 2,593         | 6,665         | 4,163   | 17,045       | 7,596       | 1,773         | 6,183  | 281      | 295    | 10,430  | 2,848            |
| Total                            | 499,923        | 13,822        | 59,076        | 27,463  | 54,225       | 31,590      | 9,036         | 45,238 | 3,747    | 2,218  | 109,216 | 20,475           |
| W. Upper Peninsula               |                |               |               |         |              |             |               |        |          |        |         |                  |
| Baraga                           | 100,118        | 1,972         | 1,968         | 6,445   | 4,387        | 291         | 479           | 1,708  | 173      | 195    | 46,658  | --               |
| Dickinson                        | 90,206         | 1,096         | 7,527         | 1,677   | 1,845        | 2,221       | 591           | 5,163  | 851      | 286    | 46,815  | 4,454            |
| Gogebic                          | 57,943         | 7             | 190           | 1,259   | 96           | 3,013       | 5             | 429    | 1        | 704    | 26,833  | --               |
| Houghton                         | 12,492         | 36            | 367           | 323     | 1,992        | 446         | 18            | 277    | 7        | 412    | 1,460   | --               |
| Iron                             | 146,953        | 1,116         | 9,124         | 2,543   | 2,034        | 1,607       | 933           | 8,470  | 980      | 555    | 65,975  | --               |
| Keweenaw                         | 152            | --            | 23            | 66      | --           | --          | --            | 27     | --       | --     | --      | --               |
| Marquette                        | 175,938        | 5,530         | 17,170        | 7,677   | 19,499       | 8,399       | 3,884         | 14,737 | 978      | 675    | 38,110  | 8,814            |
| Ontonagon                        | 35,769         | --            | 103           | 986     | --           | 22          | --            | 596    | 110      | 156    | 15,972  | --               |
| Total                            | 619,571        | 9,757         | 36,472        | 20,976  | 29,853       | 15,999      | 5,910         | 31,407 | 3,100    | 2,983  | 241,823 | 13,268           |
| N. Lower Peninsula               |                |               |               |         |              |             |               |        |          |        |         |                  |
| Alcona                           | 54,307         | --            | 20            | --      | 643          | 435         | 18            | --     | --       | 572    | 38,859  | 1,496            |
| Alpena                           | 28,308         | --            | 83            | --      | 380          | 12          | --            | 10     | --       | 415    | 20,702  | 1,001            |
| Antrim                           | 4,866          | --            | --            | --      | 252          | 252         | 10            | --     | --       | 5      | 3,435   | --               |
| Arenac                           | 2,699          | --            | --            | --      | --           | --          | --            | --     | --       | 67     | 1,954   | 4                |
| Bay                              | 21             | --            | --            | --      | --           | --          | --            | --     | --       | --     | 21      | --               |
| Benzie                           | 8,572          | --            | --            | --      | --           | --          | --            | --     | --       | 104    | 4,005   | --               |
| Charlevoix                       | 4,652          | --            | --            | --      | 12           | 12          | --            | --     | --       | 78     | 3,415   | 19               |
| Cheboygan                        | 72,304         | --            | 1,188         | --      | 2,263        | 270         | --            | 291    | --       | 401    | 51,275  | 499              |
| Clare                            | 22,861         | --            | --            | --      | 732          | --          | --            | --     | --       | 3      | 21,389  | --               |
| Crawford                         | 32,571         | --            | 20            | --      | 5,712        | 2,539       | 103           | 1      | --       | 36     | 19,002  | 81               |
| Emmet                            | 21,437         | --            | --            | --      | 73           | 1,584       | --            | --     | --       | 14     | 16,721  | 14               |
| Gladwin                          | 10,058         | --            | --            | --      | 22           | --          | --            | --     | --       | 55     | 9,093   | --               |
| Grand Traverse                   | 12,984         | --            | --            | --      | 589          | 589         | 25            | --     | --       | 104    | 9,510   | --               |
| Iosco                            | 20,109         | --            | 33            | --      | 5,142        | 3,042       | 100           | --     | --       | 60     | 8,271   | 304              |
| Isabella                         | 10,188         | --            | --            | --      | --           | --          | --            | --     | --       | 52     | 9,399   | --               |
| Kalkaska                         | 24,728         | --            | --            | --      | 4,244        | 3,698       | 151           | --     | --       | 140    | 13,171  | --               |
| Lake                             | 41,920         | --            | --            | --      | 3,945        | 3,945       | 162           | --     | --       | 478    | 21,597  | --               |
| Leelanau                         | 1,499          | --            | --            | --      | 5            | 5           | --            | --     | --       | --     | 1,281   | --               |
| Manistee                         | 19,573         | --            | --            | --      | --           | 1,103       | --            | --     | --       | 218    | 8,319   | --               |
| Mason                            | 38,195         | --            | --            | --      | --           | 1,278       | --            | --     | --       | 195    | 25,973  | --               |
| Mecosta                          | 18,926         | --            | --            | --      | --           | 349         | --            | --     | --       | 19     | 16,459  | --               |
| Midland                          | 4,112          | --            | --            | --      | --           | --          | --            | --     | --       | 42     | 3,810   | --               |
| Missaukee                        | 27,071         | --            | --            | --      | 204          | 204         | 8             | --     | --       | 136    | 22,599  | 4                |
| Montmorency                      | 56,787         | --            | 1,637         | --      | 2,687        | 245         | 11            | --     | --       | 962    | 38,963  | 883              |
| Newaygo                          | 42,145         | --            | --            | --      | 5,963        | 5,963       | 243           | --     | --       | 41     | 23,621  | --               |
| Oceana                           | 15,065         | --            | --            | --      | 658          | 1,534       | --            | --     | --       | 21     | 9,767   | --               |
| Ogemaw                           | 35,734         | --            | --            | --      | 6,375        | 3,928       | 160           | --     | --       | 175    | 18,473  | 185              |
| Osceola                          | 17,332         | --            | --            | --      | --           | 94          | --            | --     | --       | 9      | 14,553  | --               |
| Oscoda                           | 39,785         | --            | --            | --      | 5,926        | 3,800       | 145           | --     | --       | 151    | 24,016  | 406              |
| Otsego                           | 25,838         | --            | --            | --      | 9,541        | 1,410       | 54            | --     | --       | 107    | 9,650   | 87               |
| Presque Isle                     | 44,882         | --            | 2,773         | --      | 3,637        | --          | --            | 685    | --       | 393    | 28,036  | 827              |
| Roscommon                        | 13,119         | --            | --            | --      | 821          | 522         | 21            | --     | --       | 14     | 10,222  | 52               |
| Wexford                          | 29,102         | --            | --            | --      | 2,180        | 2,180       | 89            | --     | --       | 127    | 15,827  | 1                |
| Total                            | 801,750        | --            | 5,754         | --      | 62,006       | 38,993      | 1,300         | 987    | --       | 5,194  | 523,388 | 5,863            |
| S. Lower Peninsula               |                |               |               |         |              |             |               |        |          |        |         |                  |
| Allegan                          | 21,207         | --            | --            | --      | 367          | 367         | 16            | --     | --       | 407    | 4,343   | --               |
| Barry                            | 1,859          | --            | --            | --      | --           | 138         | --            | --     | --       | 8      | 1,143   | --               |
| Berrien                          | 3,742          | --            | --            | --      | --           | --          | --            | --     | --       | 31     | 493     | --               |
| Calhoun                          | 214            | --            | --            | --      | --           | 192         | --            | --     | --       | --     | 7       | --               |
| Eaton                            | 73             | --            | --            | --      | --           | 73          | --            | --     | --       | --     | --      | --               |
| Ingham                           | 176            | --            | --            | --      | --           | 31          | --            | --     | --       | --     | 145     | --               |
| Kalamazoo                        | 3,198          | --            | --            | --      | --           | 15          | --            | --     | --       | 35     | 543     | --               |
| Kent                             | 1,748          | --            | --            | --      | --           | 306         | --            | --     | --       | 13     | 449     | --               |
| Montcalm                         | 6,150          | --            | --            | --      | --           | 120         | --            | --     | --       | 31     | 3,059   | --               |
| Muskegon                         | 8,939          | --            | --            | --      | 358          | 1431        | --            | --     | --       | 38     | 2,241   | --               |
| Ottawa                           | 8,081          | --            | --            | --      | --           | 4206        | --            | --     | --       | 21     | 957     | --               |
| Van Buren                        | 7,533          | --            | --            | --      | --           | --          | --            | --     | --       | 74     | 1,172   | --               |
| Washtenaw                        | 247            | --            | --            | --      | --           | --          | --            | --     | --       | --     | --      | --               |
| Total                            | 63,167         | --            | --            | --      | 725          | 6,879       | 16            | --     | --       | 658    | 14,552  | --               |
| State total                      | 1,984,411      | 23,579        | 101,302       | 48,439  | 146,809      | 93,461      | 16,262        | 77,632 | 6,847    | 11,053 | 888,979 | 39,606           |

(Table 9 continued on next page)

(Table 9 continued)

| MICHIGAN                         |               |        |                |                 |                 |        |         |               |               |            |              |                    |
|----------------------------------|---------------|--------|----------------|-----------------|-----------------|--------|---------|---------------|---------------|------------|--------------|--------------------|
| Unit and<br>County <sup>1/</sup> | Species group |        |                |                 |                 |        |         |               |               |            |              |                    |
|                                  | Basswood      | Beech  | White<br>birch | Yellow<br>birch | Cotton-<br>wood | Elm    | Hickory | Hard<br>maple | Soft<br>maple | Red<br>oak | White<br>oak | Other<br>hardwoods |
| E. Upper Peninsula               |               |        |                |                 |                 |        |         |               |               |            |              |                    |
| Alger                            | 1,031         | 1,707  | 3,157          | 1,730           | --              | 1,468  | --      | 3,675         | 3,309         | 298        | 18           | 367                |
| Chippewa                         | 466           | 824    | 1,665          | 751             | --              | 417    | --      | 1,866         | 1,734         | 75         | --           | 84                 |
| Delta                            | 2,513         | 3,361  | 7,260          | 4,293           | --              | 2,434  | --      | 6,782         | 7,721         | 97         | 32           | 465                |
| Luce                             | 312           | 432    | 854            | 533             | --              | 479    | --      | 823           | 889           | 53         | --           | 59                 |
| Mackinac                         | 617           | 1,110  | 1,929          | 994             | --              | 883    | --      | 2,539         | 2,811         | 99         | --           | 110                |
| Menominee                        | 1,849         | 2,167  | 8,122          | 2,749           | --              | 843    | --      | 7,186         | 4,465         | 574        | 90           | 457                |
| Schoolcraft                      | 1,424         | 1,941  | 3,871          | 2,384           | --              | 2,185  | --      | 3,726         | 4,335         | 44         | 15           | 264                |
| Total                            | 8,212         | 11,542 | 26,858         | 13,434          | --              | 8,709  | --      | 26,597        | 25,264        | 1,240      | 155          | 1,806              |
| W. Upper Peninsula               |               |        |                |                 |                 |        |         |               |               |            |              |                    |
| Baraga                           | 770           | --     | 15,805         | 2,833           | --              | 4,083  | --      | 7,878         | 3,946         | 162        | 8            | 357                |
| Dickinson                        | 1,249         | --     | 7,797          | 727             | --              | 1,011  | --      | 2,719         | 3,701         | 177        | 8            | 291                |
| Gogebic                          | 2,249         | --     | 925            | 3,166           | --              | 4,401  | --      | 13,394        | 673           | 351        | 9            | 238                |
| Houghton                         | 60            | --     | 787            | 719             | --              | 1,952  | --      | 2,885         | 674           | 58         | --           | 19                 |
| Iron                             | 583           | --     | 6,222          | 5,291           | --              | 11,714 | --      | 20,050        | 8,350         | 364        | 78           | 964                |
| Keweenaw                         | --            | --     | --             | --              | --              | --     | --      | 10            | 16            | 10         | --           | --                 |
| Marquette                        | 3,350         | 4,300  | 11,266         | 5,297           | --              | 4,972  | --      | 9,837         | 9,861         | 730        | 34           | 818                |
| Ontonagon                        | 1,861         | --     | 623            | 1,860           | --              | 2,397  | --      | 5,945         | 4,894         | 140        | -            | 104                |
| Total                            | 10,122        | 4,300  | 43,425         | 19,893          | --              | 30,530 | --      | 62,718        | 32,115        | 1,992      | 137          | 2,791              |
| N. Lower Peninsula               |               |        |                |                 |                 |        |         |               |               |            |              |                    |
| Alcona                           | 56            | 86     | 2,525          | --              | --              | --     | --      | 144           | 2,796         | 6,042      | 615          | --                 |
| Alpena                           | 39            | 52     | 1,659          | --              | --              | --     | --      | 151           | 1,677         | 1,906      | 219          | 2                  |
| Antrim                           | 104           | --     | 5              | --              | --              | --     | --      | 7             | 326           | 416        | 54           | --                 |
| Arenac                           | --            | --     | 121            | --              | --              | --     | --      | 32            | 380           | 140        | 1            | --                 |
| Bay                              | --            | --     | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Benzie                           | 52            | 52     | 168            | --              | --              | --     | --      | 520           | 2,080         | 1,040      | 520          | 31                 |
| Charlevoix                       | 8             | 11     | 433            | --              | --              | --     | --      | 47            | 573           | 44         | --           | --                 |
| Cheboygan                        | 101           | 99     | 4,275          | 10              | --              | --     | --      | 87            | 7,627         | 3,910      | 7            | 1                  |
| Clare                            | --            | --     | 272            | --              | --              | --     | --      | 4             | 127           | 282        | 52           | --                 |
| Crawford                         | 53            | 114    | 860            | --              | --              | --     | --      | 4             | 1,832         | 1,676      | 501          | 37                 |
| Emmet                            | --            | 3      | 181            | --              | --              | --     | --      | 717           | 1,929         | 201        | --           | --                 |
| Gladwin                          | --            | --     | 312            | --              | 52              | --     | --      | 3             | 252           | 199        | 70           | --                 |
| Grand Traverse                   | 104           | 104    | 104            | --              | --              | --     | --      | 104           | 832           | 728        | 104          | 87                 |
| Iosco                            | 6             | 8      | 580            | --              | --              | --     | --      | 16            | 654           | 1,708      | 185          | --                 |
| Isabella                         | --            | --     | 165            | --              | --              | --     | --      | 6             | 293           | 225        | 48           | --                 |
| Kalkaska                         | 208           | 124    | 632            | 65              | --              | --     | --      | 78            | 1,405         | 620        | 83           | 109                |
| Lake                             | 208           | 208    | 483            | --              | --              | --     | --      | 577           | 3,698         | 4,429      | 1,878        | 312                |
| Leelanau                         | --            | 41     | 63             | --              | --              | --     | --      | 52            | 52            | --         | --           | --                 |
| Manistee                         | 208           | 224    | 375            | --              | --              | --     | --      | 266           | 2,179         | 4,307      | 2,174        | 200                |
| Mason                            | 436           | 168    | 1,109          | --              | --              | --     | --      | 373           | 3,870         | 3,534      | 1,117        | 142                |
| Mecosta                          | --            | --     | 165            | --              | --              | --     | --      | 27            | 756           | 955        | 196          | --                 |
| Midland                          | --            | --     | 104            | --              | 126             | --     | --      | --            | 14            | 13         | 3            | --                 |
| Missaukee                        | 108           | 111    | 629            | --              | --              | --     | --      | 363           | 2,164         | 451        | 41           | 49                 |
| Montmorency                      | 488           | 313    | 1,883          | --              | --              | --     | --      | 90            | 4,211         | 3,887      | 427          | 100                |
| Newaygo                          | 33            | --     | 133            | --              | --              | --     | --      | 96            | 974           | 3,296      | 1,782        | --                 |
| Oceana                           | --            | --     | 280            | --              | --              | --     | --      | 48            | 994           | 1,304      | 459          | --                 |
| Ogemaw                           | 38            | 45     | 1,215          | --              | 52              | --     | --      | 68            | 2,040         | 2,675      | 305          | --                 |
| Osceola                          | --            | --     | 253            | --              | --              | --     | --      | 222           | 680           | 1,020      | 501          | --                 |
| Oscoda                           | 29            | 27     | 1,025          | 2               | --              | --     | --      | 24            | 1,333         | 2,514      | 363          | 24                 |
| Otsego                           | 251           | 157    | 979            | 38              | --              | --     | --      | 2             | 1,991         | 1,496      | 26           | 49                 |
| Presque Isle                     | 40            | 59     | 3,262          | --              | --              | --     | --      | 98            | 3,244         | 1,646      | 182          | --                 |
| Roscommon                        | 1             | 1      | 408            | 1               | --              | --     | --      | 52            | 446           | 297        | 234          | 27                 |
| Wexford                          | 109           | 118    | 846            | 4               | --              | --     | --      | 712           | 4,649         | 1,546      | 592          | 122                |
| Total                            | 2,680         | 2,125  | 25,504         | 120             | 230             | --     | --      | 4,990         | 56,078        | 52,507     | 12,739       | 1,292              |
| S. Lower Peninsula               |               |        |                |                 |                 |        |         |               |               |            |              |                    |
| Allegan                          | 213           | 178    | 195            | --              | 985             | 197    | 355     | 359           | 4,185         | 4,579      | 4,461        | --                 |
| Barry                            | 4             | 3      | 7              | --              | --              | 4      | 6       | 12            | 100           | 296        | 138          | --                 |
| Berrien                          | 33            | 27     | 30             | --              | 366             | 31     | 54      | 54            | 1,053         | 785        | 785          | --                 |
| Calhoun                          | --            | --     | --             | --              | --              | --     | --      | 1             | 2             | 10         | 2            | --                 |
| Eaton                            | --            | --     | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Ingham                           | --            | --     | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Kalamazoo                        | 36            | 30     | 33             | --              | 168             | 34     | 61      | 61            | 671           | 755        | 756          | --                 |
| Kent                             | 14            | 12     | 13             | --              | --              | --     | --      | --            | 316           | 341        | 284          | --                 |
| Montcalm                         | --            | --     | 31             | --              | --              | --     | --      | 41            | 450           | 1,779      | 639          | --                 |
| Muskegon                         | --            | --     | 38             | --              | --              | --     | --      | 50            | 533           | 2,914      | 1,336        | --                 |
| Ottawa                           | 8             | 7      | 20             | --              | --              | 8      | 14      | 31            | 406           | 895        | 457          | 1,051              |
| Van Buren                        | 78            | 65     | 70             | --              | 362             | 72     | 130     | 130           | 2,614         | 1302       | 1,302        | 162                |
| Washtenaw                        | --            | --     | --             | --              | --              | --     | --      | --            | --            | --         | --           | 247                |
| Total                            | 386           | 322    | 437            | --              | 1,881           | 346    | 620     | 739           | 10,330        | 13,656     | 10,160       | 1,460              |
| State total                      | 21,400        | 18,289 | 96,224         | 33,447          | 2,111           | 39,535 | 620     | 95,044        | 123,787       | 69,335     | 23,191       | 7,349              |

(Table 9 continued on next page)

(Table 9 continued)

## MINNESOTA

| Unit and<br>County | All<br>species | Species group |               |         |              |             |               |        |          |     |           | Balsam<br>poplar |
|--------------------|----------------|---------------|---------------|---------|--------------|-------------|---------------|--------|----------|-----|-----------|------------------|
|                    |                | Cedar         | Balsam<br>fir | Hemlock | Jack<br>pine | Red<br>pine | White<br>pine | Spruce | Tamarack | Ash | Aspen     |                  |
| Aspen-Birch        |                |               |               |         |              |             |               |        |          |     |           |                  |
| Carlton            | 26,321         | --            | 194           | --      | 1,029        | 655         | 187           | 564    | --       | --  | 21,700    | 1,808            |
| Cook               | 38,882         | --            | 2,597         | --      | 1,575        | 108         | 194           | 7,751  | --       | --  | 26,657    | --               |
| Koochiching        | 260,741        | --            | 17,758        | --      | 11,689       | 4,171       | 2,399         | 24,018 | 9,328    | --  | 175,929   | 14,853           |
| Lake               | 74,523         | --            | 5,297         | --      | 1,553        | 1,237       | 1,969         | 13,521 | 1,614    | --  | 47,514    | 767              |
| St. Louis          | 402,058        | --            | 24,827        | --      | 26,383       | 8,124       | 7,190         | 20,071 | 842      | 55  | 291,071   | 21,878           |
| Total              | 802,525        | --            | 50,673        | --      | 42,229       | 14,295      | 11,939        | 65,925 | 11,784   | 55  | 562,871   | 39,306           |
| Northern Pine      |                |               |               |         |              |             |               |        |          |     |           |                  |
| Aitkin             | 60,278         | --            | 751           | --      | 129          | 82          | 23            | 508    | 1,418    | --  | 52,345    | 5,022            |
| Becker             | 22,756         | --            | --            | --      | 1,610        | 182         | 54            | --     | --       | --  | 19,575    | 1,335            |
| Beltrami           | 147,880        | --            | 6,386         | --      | 5,396        | 1,144       | 229           | 6,348  | 5,111    | 176 | 118,619   | 3,756            |
| Cass               | 140,988        | --            | 2,397         | --      | 12,206       | 1,922       | 240           | 844    | 1,239    | 64  | 118,862   | 2,821            |
| Clearwater         | 60,696         | --            | 806           | --      | 1,294        | 364         | 69            | 1,375  | 1,005    | --  | 54,016    | 1,669            |
| Crow Wing          | 23,484         | --            | --            | --      | 5,180        | 560         | --            | --     | --       | --  | 17,744    | --               |
| Hubbard            | 95,304         | --            | 347           | --      | 4,035        | 694         | 229           | 296    | 165      | --  | 86,033    | 3,505            |
| Itasca             | 338,405        | --            | 28,300        | --      | 8,100        | 2,875       | 985           | 10,797 | 2,447    | 21  | 278,657   | 6,150            |
| Lake of the Woods  | 24,388         | --            | 415           | --      | 10,500       | --          | --            | 6,797  | 1,517    | --  | 4,952     | 207              |
| Mahnomen           | 11,060         | --            | --            | --      | --           | --          | --            | --     | 240      | --  | 10,654    | 166              |
| Roseau             | 5,098          | --            | 90            | --      | 1,475        | --          | --            | 1,988  | 548      | --  | 891       | 106              |
| Wadena             | 11,710         | --            | --            | --      | 6,600        | 925         | 160           | --     | --       | --  | 3,942     | 83               |
| Total              | 942,047        | --            | 39,492        | --      | 56,525       | 8,748       | 1,989         | 28,953 | 13,690   | 261 | 766,290   | 24,820           |
| Central Hardwood   |                |               |               |         |              |             |               |        |          |     |           |                  |
| Isanti             | 255            | --            | --            | --      | --           | 255         | --            | --     | --       | --  | --        | --               |
| Kanabec            | 3,997          | --            | --            | --      | --           | --          | --            | --     | --       | --  | 3,997     | --               |
| Mille Lacs         | 24,052         | --            | --            | --      | 167          | 19          | --            | --     | 30       | --  | 23,836    | --               |
| Morrison           | 12,020         | --            | --            | --      | 167          | 19          | --            | 26     | --       | --  | 11,808    | --               |
| Otter Tail         | 204            | --            | --            | --      | --           | --          | --            | --     | 204      | --  | --        | --               |
| Pine               | 27,832         | --            | --            | --      | 1,569        | 1,081       | 296           | --     | 85       | --  | 21,293    | 3,414            |
| Sherburne          | 985            | --            | --            | --      | 179          | 755         | 1             | 50     | --       | --  | --        | --               |
| Todd               | 825            | --            | --            | --      | 167          | 19          | --            | --     | --       | --  | 639       | --               |
| Winona             | 12             | --            | --            | --      | --           | 12          | --            | --     | --       | --  | --        | --               |
| Total              | 70,182         | --            | --            | --      | 2,249        | 2,160       | 297           | 76     | 319      | --  | 61,573    | 3,414            |
| Prairie            |                |               |               |         |              |             |               |        |          |     |           |                  |
| Pennington         | 312            | --            | --            | --      | --           | --          | --            | --     | --       | --  | 312       | --               |
| Polk               | 787            | --            | --            | --      | --           | --          | --            | --     | 267      | --  | 520       | --               |
| Total              | 1,099          | --            | --            | --      | --           | --          | --            | --     | 267      | --  | 832       | --               |
| State total        | 1,815,853      | --            | 90,165        | --      | 101,003      | 25,203      | 14,225        | 94,954 | 26,060   | 316 | 1,391,566 | 67,540           |

(Table 9 continued on next page)

(Table 9 continued)

Table 5 continued

| MINNESOTA                        |               |       |                |                 |                 |     |         |               |               |            |              |                    |
|----------------------------------|---------------|-------|----------------|-----------------|-----------------|-----|---------|---------------|---------------|------------|--------------|--------------------|
| Unit and<br>County <sup>1/</sup> | Species group |       |                |                 |                 |     |         |               |               |            |              |                    |
|                                  | Basswood      | Beech | White<br>birch | Yellow<br>birch | Cotton-<br>wood | Elm | Hickory | Hard<br>maple | Soft<br>maple | Red<br>oak | White<br>oak | Other<br>hardwoods |
| Aspen-Birch                      |               |       |                |                 |                 |     |         |               |               |            |              |                    |
| Carlton                          | --            | --    | 184            | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Cook                             | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Koochiching                      | --            | --    | 416            | --              | --              | --  | --      | 104           | 76            | --         | --           | --                 |
| Lake                             | --            | --    | 1,051          | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| St. Louis                        | --            | --    | 1,513          | --              | --              | --  | --      | 104           | --            | --         | --           | --                 |
| Total                            | --            | --    | 3,164          | --              | --              | --  | --      | 208           | 76            | --         | --           | --                 |
| Northern Pine                    |               |       |                |                 |                 |     |         |               |               |            |              |                    |
| Aitkin                           | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Becker                           | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Beltrami                         | --            | --    | 442            | 42              | --              | 89  | --      | 131           | 11            | --         | --           | --                 |
| Cass                             | --            | --    | 305            | --              | --              | 48  | --      | 19            | 21            | --         | --           | --                 |
| Clearwater                       | --            | --    | 56             | --              | --              | --  | --      | 21            | 21            | --         | --           | --                 |
| Crow Wing                        | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Hubbard                          | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Itasca                           | --            | --    | 52             | --              | --              | --  | --      | 21            | --            | --         | --           | --                 |
| Lake of the Woods                | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Mahnomen                         | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Roseau                           | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Wadena                           | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Total                            | --            | --    | 855            | 42              | --              | 137 | --      | 192           | 53            | --         | --           | --                 |
| Central Hardwood                 |               |       |                |                 |                 |     |         |               |               |            |              |                    |
| Isanti                           | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Kanabec                          | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Mille Lacs                       | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Morrison                         | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Otter Tail                       | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Pine                             | --            | --    | 94             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Sherburne                        | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Todd                             | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Winona                           | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Total                            | --            | --    | 94             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Prairie                          |               |       |                |                 |                 |     |         |               |               |            |              |                    |
| Pennington                       | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Polk                             | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| Total                            | --            | --    | --             | --              | --              | --  | --      | --            | --            | --         | --           | --                 |
| State total                      | --            | --    | 4,113          | 42              | --              | 137 | --      | 400           | 129           | --         | --           | --                 |

(Table 9 continued on next page)

(Table 9 continued)

| Unit and County <sup>1/</sup> | All species      | WISCONSIN     |               |               |                |                |               |               |              |               |                  |               |
|-------------------------------|------------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|--------------|---------------|------------------|---------------|
|                               |                  | Species group |               |               |                |                |               |               |              |               |                  |               |
|                               |                  | Cedar         | Balsam fir    | Hemlock       | Jack pine      | Red pine       | White pine    | Spruce        | Tamarack     | Ash           | Aspen            | Balsam poplar |
| <b>Northeastern</b>           |                  |               |               |               |                |                |               |               |              |               |                  |               |
| Florence                      | 68,513           | 259           | 6,531         | 1,580         | 1,642          | 1,925          | 373           | 1,910         | 66           | 747           | 40,168           | 26            |
| Forest                        | 131,524          | 26            | 11,974        | 3,108         | 268            | 4,370          | 58            | 6,800         | 238          | 4,913         | 45,863           | 26            |
| Langlade                      | 106,927          | --            | 4,363         | 700           | 329            | 1,367          | 14            | 760           | 166          | 3,667         | 50,037           | --            |
| Lincoln                       | 62,650           | --            | 3,421         | 557           | 1,609          | 2,599          | 134           | 947           | 394          | 2,013         | 33,959           | --            |
| Marinette                     | 173,629          | 18            | 13,720        | 1,027         | 11,862         | 11,079         | 451           | 3,874         | 486          | 1,569         | 106,154          | 208           |
| Menominee                     | 56,000           | --            | --            | 17,757        | 4,968          | 441            | 2,397         | 35            | --           | 480           | 17,195           | --            |
| Oconto                        | 67,583           | --            | 1,440         | 784           | 4,461          | 5,747          | 246           | 116           | 161          | 882           | 46,506           | --            |
| Oneida                        | 132,952          | --            | 8,718         | 907           | 5,305          | 7,781          | 1,480         | 3,772         | 501          | 3,280         | 58,005           | --            |
| Shawano                       | 27,561           | --            | 43            | 1,050         | 719            | 5,600          | 200           | 50            | 167          | 883           | 9,771            | --            |
| Vilas                         | 123,788          | --            | 10,677        | 1,800         | 15,688         | 12,427         | 8,101         | 2,780         | 12           | 1,002         | 43,178           | --            |
| <b>Total</b>                  | <b>951,127</b>   | <b>303</b>    | <b>60,887</b> | <b>29,270</b> | <b>46,851</b>  | <b>53,336</b>  | <b>13,454</b> | <b>21,044</b> | <b>2,191</b> | <b>19,436</b> | <b>450,836</b>   | <b>260</b>    |
| <b>Northwestern</b>           |                  |               |               |               |                |                |               |               |              |               |                  |               |
| Ashland                       | 88,532           | --            | 7,973         | 191           | 2,001          | 3,836          | 342           | 2,368         | 782          | 2,598         | 41,887           | --            |
| Barron                        | 7,446            | --            | --            | 11            | 1,208          | 725            | 45            | --            | --           | 19            | 4,594            | --            |
| Bayfield                      | 162,801          | --            | 2,012         | 31            | 19,792         | 4,713          | 1,030         | 66            | 19           | 707           | 108,571          | 602           |
| Burnett                       | 36,188           | --            | 49            | --            | 10,424         | 3,083          | 73            | 17            | --           | 27            | 21,644           | --            |
| Douglas                       | 124,893          | --            | 2,169         | 51            | 42,995         | 4,365          | 546           | 102           | 11           | 601           | 62,827           | 602           |
| Iron                          | 71,938           | --            | 1,056         | 7,730         | 217            | 811            | 424           | 798           | 212          | 2,247         | 31,338           | --            |
| Polk                          | 18,909           | --            | --            | --            | 2,614          | 193            | --            | --            | --           | 85            | 6,482            | --            |
| Price                         | 118,630          | --            | 2,971         | 431           | 856            | 2,703          | 9             | 1,050         | 942          | 7,499         | 45,010           | --            |
| Rusk                          | 62,437           | --            | 565           | 432           | 14             | 801            | 33            | --            | 7            | 3,661         | 31,719           | --            |
| Sawyer                        | 118,917          | --            | 3,158         | 243           | 1,551          | 3,031          | 6             | 1,621         | 637          | 3,695         | 68,628           | --            |
| Taylor                        | 54,715           | --            | 1,269         | 319           | 27             | 826            | 10            | 228           | 378          | 2,081         | 21,766           | --            |
| Washburn                      | 59,785           | --            | 984           | 12            | 11,379         | 4,147          | 180           | 106           | --           | 513           | 37,135           | --            |
| <b>Total</b>                  | <b>925,191</b>   | <b>--</b>     | <b>22,206</b> | <b>9,451</b>  | <b>93,078</b>  | <b>29,234</b>  | <b>2,698</b>  | <b>6,356</b>  | <b>2,988</b> | <b>23,733</b> | <b>481,601</b>   | <b>1,204</b>  |
| <b>Central</b>                |                  |               |               |               |                |                |               |               |              |               |                  |               |
| Adams                         | 30,041           | --            | --            | --            | 13,658         | 10,971         | 1,855         | --            | 52           | 85            | 669              | --            |
| Chippewa                      | 16,925           | --            | 29            | 36            | 334            | 298            | --            | --            | --           | 734           | 9,206            | --            |
| Clark                         | 43,397           | --            | 50            | 96            | 530            | 2,833          | 20            | --            | --           | 851           | 23,475           | --            |
| Eau Claire                    | 12,580           | --            | 14            | 44            | 4,261          | 4,180          | 87            | --            | --           | 23            | 1,931            | --            |
| Jackson                       | 30,955           | --            | --            | --            | 1,478          | 19,942         | --            | --            | --           | --            | 4,513            | --            |
| Juneau                        | 25,666           | --            | --            | --            | 15,421         | 1,283          | 419           | --            | --           | 60            | 2,963            | --            |
| Marathon                      | 42,862           | --            | 1,396         | 1,011         | 1,525          | 2,099          | 204           | 169           | 29           | 421           | 29,557           | --            |
| Marquette                     | 5,956            | --            | 29            | --            | 73             | 2,802          | 131           | --            | 31           | 2             | 401              | --            |
| Monroe                        | 16,391           | --            | --            | 53            | 9,483          | 3,783          | 131           | 4             | --           | 51            | 509              | --            |
| Portage                       | 20,748           | --            | 147           | 345           | 1,599          | 5,107          | 1,842         | 59            | 640          | 383           | 6,015            | --            |
| Waupaca                       | 15,502           | --            | 57            | 122           | 68             | 6,723          | 465           | 15            | --           | 567           | 3,543            | --            |
| Waushara                      | 17,621           | --            | --            | --            | 4,083          | 12,321         | 1,111         | --            | 10           | --            | 26               | --            |
| Wood                          | 20,792           | --            | --            | 10            | 1,493          | 2,797          | 1,337         | 27            | --           | 485           | 7,929            | --            |
| <b>Total</b>                  | <b>299,436</b>   | <b>--</b>     | <b>1,722</b>  | <b>1,717</b>  | <b>54,006</b>  | <b>75,139</b>  | <b>7,602</b>  | <b>274</b>    | <b>762</b>   | <b>3,662</b>  | <b>90,737</b>    | <b>--</b>     |
| <b>Southwestern</b>           |                  |               |               |               |                |                |               |               |              |               |                  |               |
| Buffalo                       | 378              | --            | --            | --            | 20             | 306            | 14            | --            | --           | --            | 38               | --            |
| Dunn                          | 10,574           | --            | --            | --            | 3,230          | 6,560          | 500           | --            | --           | --            | 118              | --            |
| Grant                         | 338              | --            | --            | --            | 15             | 323            | --            | --            | --           | --            | --               | --            |
| Iowa                          | 10               | --            | --            | --            | --             | --             | --            | --            | --           | --            | --               | --            |
| La Crosse                     | 2,404            | --            | --            | --            | 1,685          | 538            | 66            | --            | --           | --            | --               | --            |
| Pepin                         | 233              | --            | --            | --            | 23             | 114            | --            | --            | --           | --            | --               | --            |
| Pierce                        | 16               | --            | --            | --            | 16             | --             | --            | --            | --           | --            | --               | --            |
| Richland                      | 257              | --            | --            | --            | 22             | 215            | 20            | --            | --           | --            | --               | --            |
| St. Croix                     | 435              | --            | --            | --            | 68             | 367            | --            | --            | --           | --            | --               | --            |
| Sauk                          | 7,243            | --            | --            | --            | 1,820          | 4,897          | 494           | --            | --           | 2             | --               | --            |
| Trempealeau                   | 4,294            | --            | --            | --            | 206            | 3,605          | 394           | 64            | --           | --            | 2                | --            |
| <b>Total</b>                  | <b>26,182</b>    | <b>--</b>     | <b>--</b>     | <b>--</b>     | <b>7,105</b>   | <b>16,925</b>  | <b>1,488</b>  | <b>64</b>     | <b>--</b>    | <b>3</b>      | <b>158</b>       | <b>--</b>     |
| <b>Southeastern</b>           |                  |               |               |               |                |                |               |               |              |               |                  |               |
| Brown                         | 696              | --            | --            | --            | --             | 72             | --            | --            | --           | --            | 624              | --            |
| Calumet                       | 21               | --            | --            | --            | --             | 21             | --            | --            | --           | --            | --               | --            |
| Columbia                      | 8,654            | --            | --            | --            | 917            | 5,878          | 769           | --            | --           | 2             | 14               | --            |
| Door                          | 416              | --            | --            | --            | --             | --             | --            | --            | --           | --            | 416              | --            |
| Green Lake                    | 2,004            | --            | --            | --            | 199            | 1,635          | 170           | --            | --           | --            | --               | --            |
| Kewaunee                      | 312              | --            | --            | --            | --             | --             | --            | --            | --           | --            | 312              | --            |
| Manitowoc                     | 12               | --            | --            | --            | --             | --             | --            | --            | --           | --            | 12               | --            |
| Outagamie                     | 599              | --            | --            | --            | --             | 121            | 29            | --            | --           | --            | 420              | --            |
| Walworth                      | 443              | --            | --            | --            | 10             | 21             | 391           | 21            | --           | --            | --               | --            |
| Waukesha                      | 1,039            | --            | --            | --            | --             | 782            | 257           | --            | --           | --            | --               | --            |
| <b>Total</b>                  | <b>14,196</b>    | <b>--</b>     | <b>--</b>     | <b>--</b>     | <b>1,126</b>   | <b>8,530</b>   | <b>1,616</b>  | <b>21</b>     | <b>--</b>    | <b>2</b>      | <b>1,798</b>     | <b>--</b>     |
| <b>State total</b>            | <b>2,216,132</b> | <b>303</b>    | <b>84,815</b> | <b>40,438</b> | <b>202,166</b> | <b>183,164</b> | <b>26,858</b> | <b>27,759</b> | <b>5941</b>  | <b>46,836</b> | <b>1,025,130</b> | <b>1,464</b>  |

(Table 9 continued on next page)

(Table 9 continued)

| WISCONSIN                        |               |       |                |                 |                 |        |         |               |               |            |              |                    |
|----------------------------------|---------------|-------|----------------|-----------------|-----------------|--------|---------|---------------|---------------|------------|--------------|--------------------|
| Unit and<br>County <sup>1/</sup> | Species group |       |                |                 |                 |        |         |               |               |            |              |                    |
|                                  | Basswood      | Beech | White<br>birch | Yellow<br>birch | Cotton-<br>wood | Elm    | Hickory | Hard<br>maple | Soft<br>maple | Red<br>oak | White<br>oak | Other<br>hardwoods |
| Northeastern                     |               |       |                |                 |                 |        |         |               |               |            |              |                    |
| Florence                         | 42            | --    | 3,157          | 790             | --              | 1,566  | --      | 4,407         | 1,965         | 865        | 220          | 274                |
| Forest                           | 1,600         | 39    | 11,528         | 3,533           | --              | 4,891  | --      | 22,312        | 6,779         | 1,191      | 276          | 1,731              |
| Langlade                         | 1,613         | --    | 9,159          | 2,593           | --              | 4,726  | --      | 18,563        | 6,474         | 1,081      | 35           | 1,280              |
| Lincoln                          | 1,177         | --    | 4,748          | 673             | --              | 1,466  | --      | 4,454         | 3,229         | 895        | --           | 375                |
| Marinette                        | 197           | 290   | 6,291          | 347             | --              | 1,971  | --      | 5,342         | 4,963         | 3,032      | 557          | 191                |
| Menominee                        | --            | 432   | 569            | 768             | --              | 2,829  | --      | 4,767         | 2,610         | 572        | 180          | --                 |
| Oconto                           | 35            | --    | 1,718          | 96              | --              | 855    | --      | 1,545         | 1,788         | 1,020      | 161          | 22                 |
| Oneida                           | 1,412         | 16    | 19,690         | 1,631           | --              | 1,424  | --      | 8,290         | 7,605         | 2,802      | 104          | 229                |
| Shawano                          | 2             | 286   | 508            | 524             | --              | 2,429  | 166     | 2,311         | 1,451         | 789        | 153          | 459                |
| Vilas                            | 453           | --    | 13,164         | 1,755           | --              | 837    | --      | 7,108         | 2,901         | 1,697      | 144          | 64                 |
| Total                            | 6,531         | 1,063 | 70,532         | 12,710          | --              | 22,994 | 166     | 79,099        | 39,765        | 13,944     | 1,830        | 4,625              |
| Northwestern                     |               |       |                |                 |                 |        |         |               |               |            |              |                    |
| Ashland                          | 442           | --    | 8,482          | 1,227           | --              | 2,264  | --      | 8,788         | 4,432         | 712        | 1            | 206                |
| Barron                           | 22            | --    | 697            | --              | --              | 11     | --      | 9             | 16            | 55         | 32           | 2                  |
| Bayfield                         | 114           | --    | 19,825         | 385             | --              | 387    | --      | 1,311         | 953           | 2,258      | 2            | 23                 |
| Burnett                          | --            | --    | 402            | --              | --              | 14     | --      | 64            | 25            | 312        | 52           | 2                  |
| Douglas                          | --            | --    | 9,308          | 108             | --              | 125    | --      | 561           | 522           | --         | --           | --                 |
| Iron                             | 531           | --    | 7,670          | 912             | --              | 4,904  | --      | 9,025         | 3,140         | 310        | --           | 613                |
| Polk                             | --            | --    | --             | --              | --              | 6,683  | --      | 925           | 1,884         | 43         | --           | --                 |
| Price                            | 1,287         | --    | 15,221         | 1,574           | --              | 6,531  | --      | 15,687        | 14,058        | 1,716      | 31           | 1,054              |
| Rusk                             | 1,081         | --    | 7,072          | 393             | --              | 2,547  | 156     | 4,846         | 3,652         | 4,552      | 591          | 315                |
| Sawyer                           | 1,244         | --    | 17,906         | 1,966           | --              | 1,779  | --      | 6,809         | 4,947         | 1,446      | 168          | 82                 |
| Taylor                           | 754           | 10    | 5,017          | 700             | --              | 2,744  | 16      | 6,829         | 10,201        | 1,114      | 312          | 114                |
| Washburn                         | --            | --    | 3,581          | 27              | --              | 116    | --      | 753           | 813           | 9          | 3            | 27                 |
| Total                            | 5,475         | 10    | 95,181         | 7,292           | --              | 28,105 | 172     | 55,607        | 44,643        | 12,527     | 1,192        | 2,438              |
| Central                          |               |       |                |                 |                 |        |         |               |               |            |              |                    |
| Adams                            | --            | --    | 53             | --              | --              | 11     | --      | 68            | 64            | 1,790      | 764          | 1                  |
| Chippewa                         | 235           | --    | 2,850          | 284             | --              | 667    | --      | 1,112         | 786           | 261        | 85           | 8                  |
| Clark                            | 73            | --    | 3,913          | 247             | --              | 1,553  | 5       | 1,680         | 2,937         | 3,699      | 1,412        | 23                 |
| Eau Claire                       | 6             | --    | 347            | --              | --              | 46     | --      | 67            | 278           | 915        | 359          | 22                 |
| Jackson                          | --            | --    | 644            | 21              | --              | 45     | --      | 104           | 1,311         | 1,958      | 849          | 90                 |
| Juneau                           | --            | --    | 234            | --              | --              | 182    | --      | 345           | 447           | 2,984      | 1,318        | 10                 |
| Marathon                         | 163           | 21    | 914            | 412             | --              | 1,284  | 21      | 1,369         | 1,419         | 641        | 187          | 20                 |
| Marquette                        | --            | --    | 208            | --              | --              | 74     | --      | 214           | 110           | 1,257      | 624          | --                 |
| Monroe                           | --            | --    | 113            | --              | --              | 143    | --      | 234           | 304           | 1,220      | 361          | 2                  |
| Portage                          | 6             | --    | 444            | --              | --              | 161    | --      | 443           | 695           | 1,953      | 843          | 66                 |
| Waupaca                          | 16            | 34    | 309            | 70              | --              | 422    | 10      | 568           | 1,111         | 945        | 413          | 44                 |
| Waushara                         | --            | --    | --             | --              | --              | --     | --      | --            | --            | 42         | 28           | --                 |
| Wood                             | 7             | --    | 783            | 208             | --              | 94     | --      | 627           | 1,547         | 2,207      | 1,222        | 19                 |
| Total                            | 506           | 55    | 10,812         | 1,242           | --              | 4,682  | 36      | 6,831         | 11,009        | 19,872     | 8,465        | 305                |
| Southwestern                     |               |       |                |                 |                 |        |         |               |               |            |              |                    |
| Buffalo                          | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Dunn                             | --            | --    | 52             | --              | --              | --     | --      | 5             | 5             | 104        | --           | --                 |
| Grant                            | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Iowa                             | --            | --    | 2              | --              | --              | 1      | --      | 2             | 3             | --         | --           | 1                  |
| La Crosse                        | --            | --    | --             | --              | --              | --     | --      | --            | --            | 84         | 31           | --                 |
| Pepin                            | --            | --    | --             | --              | --              | --     | --      | --            | --            | 54         | 42           | --                 |
| Pierce                           | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Richland                         | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| St. Croix                        | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Sauk                             | --            | --    | 3              | --              | --              | 5      | --      | 8             | 8             | 5          | 1            | --                 |
| Trempealeau                      | --            | --    | --             | --              | --              | --     | --      | --            | --            | 23         | --           | --                 |
| Total                            | --            | --    | 57             | --              | --              | 6      | --      | 15            | 16            | 270        | 74           | 1                  |
| Southeastern                     |               |       |                |                 |                 |        |         |               |               |            |              |                    |
| Brown                            | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Calumet                          | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Columbia                         | --            | --    | 109            | --              | --              | 5      | --      | 9             | 9             | 525        | 417          | --                 |
| Door                             | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Green Lake                       | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Kewaunee                         | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Manitowoc                        | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Outagamie                        | --            | --    | --             | --              | --              | 10     | --      | 10            | 9             | --         | --           | --                 |
| Walworth                         | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Waukesha                         | --            | --    | --             | --              | --              | --     | --      | --            | --            | --         | --           | --                 |
| Total                            | --            | --    | 109            | --              | --              | 15     | --      | 19            | 18            | 525        | 417          | --                 |
| State total                      | 12,512        | 1,128 | 176,691        | 21,244          | --              | 55,802 | 374     | 141,571       | 95,451        | 47,138     | 11,978       | 7,369              |

<sup>1/</sup>Includes only those counties that supplied pulpwood in 1983.

Table 10.--Central States pulpwood production by State and destination, 1979-1983.

(In thousand standard cords, unpeeled)

| Year | Illinois |                |              | Indiana |                |              | Iowa  |                |              | Missouri |                |              |
|------|----------|----------------|--------------|---------|----------------|--------------|-------|----------------|--------------|----------|----------------|--------------|
|      | Total    | Destination    |              | Total   | Destination    |              | Total | Destination    |              | Total    | Destination    |              |
|      |          | Central States | Other States |         | Central States | Other States |       | Central States | Other States |          | Central States | Other States |
| 1979 | 102      | 52             | 50           | 204     | 89             | 115          | 69    | 56             | 13           | 101      | 42             | 59           |
| 1980 | 102      | 45             | 57           | 178     | 69             | 109          | 44    | 39             | 5            | 105      | 38             | 67           |
| 1981 | 100      | 43             | 57           | 185     | 68             | 117          | 32    | 26             | 6            | 111      | 44             | 67           |
| 1982 | 76       | 19             | 57           | 185     | 51             | 134          | 14    | 10             | 4            | 81       | 23             | 58           |
| 1983 | 91       | 31             | 60           | 226     | 62             | 164          | 16    | 11             | 5            | 114      | 39             | 75           |

Table 11.--Trends in receipts of roundwood and residue as pulpwood, Central States, 1979-1983

(In thousand standard cords, unpeeled)

| Type of material and area | 1979 | 1980 | 1981 | 1982 | 1983 |
|---------------------------|------|------|------|------|------|
| Roundwood                 |      |      |      |      |      |
| Illinois                  | 33   | 19   | 19   | --   | --   |
| Indiana, Iowa, Missouri   | 96   | 75   | 60   | 40   | 69   |
| Total                     | 129  | 94   | 79   | 40   | 69   |
| Residue                   |      |      |      |      |      |
| Illinois                  | 59   | 28   | 3    | --   | --   |
| Indiana, Iowa, Missouri   | 107  | 99   | 112  | 63   | 79   |
| Total                     | 166  | 127  | 115  | 63   | 79   |
| All material              | 295  | 221  | 194  | 104  | 148  |

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Blyth, James E.; Smith, W. Brad

Pulpwood production in the North Central Region by County, 1983. Resour. Bull. NC-85. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1985. 25 p.

Discusses 1983 production and receipts and production for recent years in the Lake and Central States. Shows Michigan, Minnesota, and Wisconsin production by species for each county and compares production by Forest Survey Unit with that of previous years. Presents 1983 production and receipt data for Illinois, Indiana, Iowa, and Missouri, and shows four production classes by county.

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**KEY WORDS:** Roundwood, residue, receipts, Lake States, Central States.