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THE FOREST SITUATION IN DAUPHIN AND LEBANON COUNTIES

PENNSYLVANIA

NORTHEASTERN FOREST EXPERIMENT STATION
This is the second of a series of seven brief reports on the forest condition in the counties of the Anthracite Forest Region. This Region includes 15 counties shown on the map on the back of this publication, which contain or surround the hard-coal deposits of Pennsylvania. Because of basic similarities, Dauphin and Lebanon Counties are treated together. The purpose is to present tabular data from the Anthracite Forest Survey for local use, together with enough general information about the two counties to make the forest situation understandable. Forest areas and present condition of the forest were determined through interpretation of aerial photographs, and the distribution of the major forest types was ascertained largely by reconnaissance. Data on species, size-classes, volume, and growth applicable to the several forest types and condition classes were collected by detailed field surveys.

Acknowledgement is made to John A. Buttrick and Donald F. Robinson for aid in compiling and writing the report, and to Robert Bartlett for preparation of charts and maps.
FOREST SITUATION IN DAUPHIN AND LEBANON COUNTIES
PENNSYLVANIA

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FIGURE 1 - FOREST AREA IN DAUPHIN AND LEBANON COUNTIES OF PENNSYLVANIA
THE FOREST SITUATION IN DAUPHIN AND LEBANON COUNTIES

The forests are of less fundamental importance to the local economy in Dauphin and Lebanon Counties than elsewhere in the Anthracite Region. Except in the northern section, forested areas comprise a relatively small proportion of the whole. And the economy of the counties rests almost entirely on manufacture and agriculture.

General Description

Dauphin and Lebanon Counties, lying on the dividing line between the coal fields and the richest agricultural land in Pennsylvania, show in some degree the characteristics of both. In the north is a series of sharp ridges, covered with a virtually unbroken tract of forest land, the northern part of which contains the west end of the coal fields. The southern two-thirds of these counties is a rich and well-developed agricultural region, the Kittatinny Valley, dotted here and there with manufacturing communities, the largest of which centers about the State Capital, Harrisburg.

The ridges in the north, which rise in places to more than 1700 feet, are a continuation of the ridge formation of Schuylkill County, and run in a generally westerly direction to the Susquehanna River. Indeed the ridges continue beyond the river, the river having carved its way through them. The valleys between these ridges are drained into the Susquehanna by a series of parallel creeks, the most important of which are the Mahantango, which forms the northern boundary of Dauphin County, and the Wiconisco. The southeastern part of the ridge country and much of the farming region of Lebanon and southern Dauphin are drained by the Swatara Creek, which rises in Schuylkill County, cuts down through the ridges, meanders through the farming region, and empties into the Susquehanna at Middletown. The southeastern portion of Lebanon County is drained into the Schuylkill by the Tulpehocken Creek. The total area of the two counties is 911 square miles or 583,040 acres.

The climate is favorable to farming. The average annual rainfall is about 40 inches, well distributed through the year. Temperatures range from \(-10^\circ\) to \(100^\circ\)F. Snow covers the ground about three months in the year. Ice storms are rare.

Transportation

Transportation was provided during the middle of the last century by the old Union Canal, built between 1821 and 1828, which followed up the Tulpehocken Creek from the Schuylkill River, crossed the low divide to the east of Lebanon city, and followed down the Quittaphilla and Swatara Creeks to the Susquehanna. This canal was abandoned in 1889 and was superseded by the railroads. The most important of these are the Reading, which serves the whole region, and the Pennsylvania, which
serves Dauphin County, Harrisburg being a principal railroad center with connections in all directions. In more recent years a system of highways has been built, and the two counties now have over 800 miles of improved state highway. Bus and truck transportation on these highways supplement the service provided by the railroads. Several airports are located in the area, the principal commercial airport being at Harrisburg. Two others are at present restricted to military use. Transportation facilities through most of the two counties are thus exceptionally good. Parts of the ridge country on the other hand are almost inaccessible.

Population

The population of these two counties in 1940 was 250,051, an increase of nearly 82,000 since the beginning of the century. In the last five years war industries have brought an estimated immigration of 15,000. The principal cities of the region are Harrisburg (population 1940: 83,893) and Lebanon, the county seat of Lebanon County (population 1940: 27,206). The largest borough, Steelton, had a population in 1940 of 12,978. Other communities of importance are Middletown, Hummelstown, Hershey, and Lykens in Dauphin County, and Palmyra and Annville in Lebanon. Over half the population (141,643) is located in the metropolitan district of Harrisburg. Less than a tenth (23,674) lives on farms.

Occupations

The principal industry of the area is metal and metal products manufacture, the output of which in 1940 was valued at $67,647,500. At that time there were 63 plants in operation with a total employment of 12,978. One of the steel companies also operates an iron mine at Cornwall. The metal industry has been expanding as a result of war demands. Between 1940 and 1942 the output was more than doubled, and the employment increased by nearly 50 percent.

Second in importance is the food products industry with a total output for 1940 valued at $65,744,800. There were then 168 plants in operation with a total employment of 5973, of whom 3118 were employed by a single corporation. This industry also has expanded somewhat since 1940.

Third in importance is the textile industry. In 1940, 65 plants were scattered over the two counties from Millersburg to Rexmont, with a total employment of 8040 and a total output valued at $15,452,900. Thirty of them were employing 100 or more persons. The output of this

1/ See "The Population and employment Outlook for the Anthracite Region of Pennsylvania," Anthracite Survey Paper No. 6, May 1, 1945, for a detailed analysis of the situation in Dauphin and Lebanon Counties.

2/ Tenth Industrial Directory of the Commonwealth of Pennsylvania; Dept. of Internal Affairs; compiled by the Bureau of Statistics, Harrisburg 1941
industry increased over 70 percent between 1940 and 1942, but employment remained the same.

Altogether there were in 1940, 543 manufacturing plants employing 38,013, with a total output valued at $183,393,800. By 1942 the output had increased by well over $100,000,000 and the employment by nearly 5000. To how great an extent this increase can be maintained after the war is difficult to foretell.

The production of anthracite, either by mining or by dredging from the Susquehanna, was employing about 900 persons in 1940. The total output was 522,888 tons, valued at $1,945,800. Large deposits of recoverable coal await future exploitation.

Agriculture is an important occupation throughout the southern parts of both counties. There are 4018 farms, of which 25 percent in Lebanon and 20 percent in Dauphin County are operated by tenants. In 1940, 223,905 acres, or nearly 40 percent of the total area of the two counties were under cultivation, and farm products valued at about $8,642,000 were produced. The chief products are milk, grain, and fruit.

### OCCUPATIONS OF POPULATION: 1940

<table>
<thead>
<tr>
<th>Total population</th>
<th>250,051</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in labor force</td>
<td>143,755 (57%)</td>
</tr>
<tr>
<td>In labor force</td>
<td>106,296 (43%)</td>
</tr>
<tr>
<td>Employed</td>
<td>92,547 (87%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>13,749 (13%)</td>
</tr>
<tr>
<td><strong>Trade and service</strong></td>
<td>44,272 (42%)</td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td>11,399</td>
</tr>
<tr>
<td><strong>Metal</strong></td>
<td>7,309</td>
</tr>
<tr>
<td><strong>Textile</strong></td>
<td>29,653 (32%)</td>
</tr>
<tr>
<td><strong>Food</strong></td>
<td>5,294</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>5,651</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td>5,406 (6%)</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>4,200 (5%)</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>5,924 (6%)</td>
</tr>
<tr>
<td><strong>Forest products industries</strong></td>
<td>1,127 (1%)</td>
</tr>
<tr>
<td><strong>Forestry</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Logging</strong></td>
<td>21</td>
</tr>
<tr>
<td><strong>Milling</strong></td>
<td>238</td>
</tr>
<tr>
<td><strong>Wood manufacture</strong></td>
<td>909 (1%)</td>
</tr>
<tr>
<td><strong>Paper manufacture</strong></td>
<td>156</td>
</tr>
<tr>
<td><strong>Quarrying and other mining</strong></td>
<td>478</td>
</tr>
<tr>
<td><strong>Coal mining</strong></td>
<td>1,056 (1%)</td>
</tr>
</tbody>
</table>

2/ This table, based on the U. S. Census for 1940, indicates the primary occupations of the residents of Dauphin and Lebanon Counties. The
FIGURE 2. AREAS CHARACTERIZED BY THE MAJOR FOREST TYPES IN DAUPHIN & LEBANON COUNTIES

Legend:
- WHITE PINE - WHITE OAK - RED OAK
- WHITE PINE - HEMLOCK
- SCRUB OAK
- CHESTNUT OAK
- RED OAK - BLACK OAK - WHITE OAK
- LAKES

Type symbols indicate areas where the given types predominate, but the frequent local occurrence of other types is not precluded.
Forest Description

During the latter eighteenth and early nineteenth centuries lumbering was a large and important industry. Gradually the highly-fertile low lands were cleared and converted to agricultural use. In the later nineteenth and early twentieth centuries the forests on the mountains were logged over. At present only a few virgin stands remain, left because of their comparative inaccessibility. A certain amount of mine-prop production and some saw-timber production are still carried on, but lumbering has become of minor importance in Dauphin and Lebanon Counties. The chief use of the forests at present is for a hunting ground. Because of their proximity to the coal mines, the forests in the ridge country of Dauphin County have suffered greatly from fire.

Forest area

Only about 36 percent of the area of Dauphin and Lebanon Counties, or 210,400 acres, is in forest land (fig. 1)4/. The bulk of this is in a large and nearly unbroken tract along the ridges in the north. The remainder is in a hilly region in the southern part of Lebanon County and in scattered plots throughout the farming area. Over 90 percent is in tracts of 50 acres or larger5/.

<table>
<thead>
<tr>
<th></th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest land</td>
<td>137,100</td>
<td>73,300</td>
</tr>
<tr>
<td>Nonforest</td>
<td>213,700</td>
<td>158,600</td>
</tr>
<tr>
<td>Gross Area</td>
<td>350,800</td>
<td>231,900</td>
</tr>
</tbody>
</table>

4/ Maps showing the location of all forest tracts are available in a scale of 1" = 1 mile for each county; similar maps showing forest condition are also available. These maps may be ordered through the Northeastern Forest Experiment Station, 614 Bankers Securities Building, Philadelphia 7, Pa. A postal or express money order, draft or check made out to the Treasurer of the United States, covering the full amount, should accompany the order. Prints will be forwarded from the Forest Service, Division of Engineering in Washington, D. C. Each map will cost: Dauphin County $ .56, Lebanon County $ .44.

5/ For detail, see supplementary tables in the Appendix.
Figure 3.—THE CONDITION OF THE FOREST
Forest types

As the type map (fig. 2) shows, these forests are varied. In the north the area drained by the Wiconisco and Mahantango Creeks is predominantly in the white pine - white oak - red oak type. In the rest of the two counties the red oak - black oak - white oak type predominates. On the tops of the ridges this type gives way to chestnut oak. Along Stony Creek, between Second and Third Mountains, is a long strip of white pine and hemlock; and on Broad and Peters Mountains and in several other places in the ridge country are large tracts of scrub oak which are the result of fire.

Forest condition

Nearly 30 percent of the forest area in Dauphin and Lebanon Counties is merchantable (fig. 3). Even the unmerchantable tracts are for the most part in promising condition. One large area of scrub oak in the neighborhood of Peters Mountain is the result of repeated fires. Elsewhere the unmerchantable areas are well stocked with young oaks that are rapidly approaching the pole-timber state. Because comparatively little mining is being done, the market for small material that has so devastated the forests further north and east is not such a menace here.

Timber volume

The volume of saw timber and the total green weight are shown in the following table:

<table>
<thead>
<tr>
<th></th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saw-timber stands</td>
<td>47,100</td>
<td>496,500</td>
</tr>
<tr>
<td>Pole-timber stands</td>
<td>38,100</td>
<td>577,900</td>
</tr>
<tr>
<td>Unmerchantable stands</td>
<td>32,800</td>
<td>1,132,800</td>
</tr>
<tr>
<td>Total</td>
<td>118,000</td>
<td>2,207,200</td>
</tr>
</tbody>
</table>

6/ The condition classes recognized are: 1. Saw-timber stands: Stands of 10 acres or larger, each of which contains at least 2000 board feet of saw timber. 2. Pole-timber stands: Stands of 10 acres or larger, each acre of which contains a minimum timber volume of approximately 5 standard cords in trees 5.0 inches diameter breast high (hereafter denoted by the initials d.b.h.) and larger, and less than 2000 board feet of saw timber. 3. Unmerchantable stands: Areas of forest land which contain less than the minimum volume for pole-timber stands, plus stands of saw timber and pole timber of less than 10 acres in extent, whether isolated tracts or stands within larger forest areas.

7/ Saw-timber volume is the net board foot of sawlog-size material in conifers 9.0 inches d.b.h. and larger, plus the net volume of sawlog-
The distribution of the cubic-foot volume in the merchantable pole-timber stands by tree size may be seen in figure 4. Approximately 70 percent of the green weight of all timber is in oaks and hickory:

<table>
<thead>
<tr>
<th></th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confiers</td>
<td>72,100</td>
<td>40,200</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Oaks, hickory</td>
<td>418,600</td>
<td>182,700</td>
</tr>
<tr>
<td></td>
<td>72</td>
<td>67</td>
</tr>
<tr>
<td>Other hardwoods</td>
<td>87,200</td>
<td>48,300</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>577,900</td>
<td>271,200</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Of the merchantable saw-timber stands over 70 percent are in Dauphin County. Some of these are virgin timber. Most of them, however, are size material in hardwoods 11 inches d.b.h. and larger. Board foot volumes were based on the International 1/4" log rule, which closely approximates green lumber tally. Deductions were made for cull. Total green weight is the weight of all trees 5.0 inches and larger, including bark and the tops and limbs to a 4-inch diameter. This was computed in cubic feet and converted to tons (green weight) by the application of cubic foot-per-ton factors, varying by species groups and averaging about 35 cubic feet per ton.
young growth. Virtually all the virgin timber is in the inaccessible ravines of northern Dauphin.

<table>
<thead>
<tr>
<th>Thousand Board Feet per Acre</th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acres</td>
<td>M bd.ft.</td>
</tr>
<tr>
<td>8 and more</td>
<td>1,200</td>
<td>11,300</td>
</tr>
<tr>
<td>6 to 8</td>
<td>1,600</td>
<td>9,900</td>
</tr>
<tr>
<td>4 to 6</td>
<td>2,900</td>
<td>14,300</td>
</tr>
<tr>
<td>2 to 4</td>
<td>4,000</td>
<td>11,600</td>
</tr>
<tr>
<td>Total</td>
<td>9,700</td>
<td>47,100</td>
</tr>
</tbody>
</table>

The proportion of the volume in oaks and hickory is not quite so high in the saw-timber stands as in the pole-timber stands:

<table>
<thead>
<tr>
<th></th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>Percent</td>
</tr>
<tr>
<td>Conifers</td>
<td>9,700</td>
<td>21</td>
</tr>
<tr>
<td>Oaks, hickory</td>
<td>28,200</td>
<td>60</td>
</tr>
<tr>
<td>Other hardwoods</td>
<td>9,200</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>47,100</td>
<td>100</td>
</tr>
</tbody>
</table>

The distribution of this volume in saw-timber stands by tree size may be seen in figure 5.
Current forest growth

The following tables show the total timber growth and the saw-timber growth of the different condition classes in the two counties:

1943

Total timber growth

<table>
<thead>
<tr>
<th></th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saw-timber stands</td>
<td>496 M cu.ft.</td>
<td>169 M cu.ft.</td>
</tr>
<tr>
<td>Pole-timber stands</td>
<td>1,125</td>
<td>538</td>
</tr>
<tr>
<td>Unmerchantable stands</td>
<td>3,381</td>
<td>1,654</td>
</tr>
<tr>
<td><strong>Total timber growth</strong></td>
<td><strong>5,002</strong></td>
<td><strong>2,361</strong></td>
</tr>
</tbody>
</table>

Saw-timber growth

<table>
<thead>
<tr>
<th></th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saw-timber stands</td>
<td>1,870 M bd.ft.</td>
<td>590 M bd.ft.</td>
</tr>
<tr>
<td>Pole-timber stands</td>
<td>2,610</td>
<td>1,390</td>
</tr>
<tr>
<td>Unmerchantable stands</td>
<td>2,070</td>
<td>960</td>
</tr>
<tr>
<td><strong>Total saw-timber growth</strong></td>
<td><strong>6,550</strong></td>
<td><strong>2,940</strong></td>
</tr>
</tbody>
</table>

Forest Products Industries

The greater part of the employment provided by forest products industries in Dauphin and Lebanon Counties is in the remanufacture of lumber. In 1940 there were 10 planing mills with a total employment of 113, one of which was employing 25 persons. In addition 13 wood-using factories were in operation. The largest of these was a furniture factory employing 107 persons. Next largest were a wagon factory employing 42 and a wooden heel company employing 38. The others, none of which had as many as ten employees, were eight small furniture factories, a barrel factory, and a one-man concern making wooden models. Altogether the number employed in wood-using manufactures was 227. There were also 478 persons engaged in paper and cardboard manufacture.

In 1942 there were 14 sawmills in the two counties. The number of these mills by production classes is shown below:

<table>
<thead>
<tr>
<th>Production class</th>
<th>DAUPHIN</th>
<th>LEBANON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousand board feet</td>
<td>Number of mills</td>
<td>Number of mills</td>
</tr>
<tr>
<td>Idle</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1 to 50</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>50 to 500</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>500 to 1000</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>
Forest Land Ownership

The largest single land-owner is the State Game Commission, which has the supervision of 21 percent of the forest land in the two counties, 3000 acres in the southwestern corner of Lebanon County and over 40,000 acres in the ridge country in the north. The state also owns a piece of land in the mountains south of Elizabethville, and a large tract, the Indiantown Gap reservation, in the southern ridges. Some few thousands of acres are owned by Dauphin County, and a few more thousands are community owned. Altogether 31 percent of the forest land of the two counties is in public ownership. Of the privately-owned forest land, 3 percent of the total belongs to coal companies, 7 percent to water companies, 17 percent to farmers, and 42 percent to other private owners.

The ownership distribution of the forest land in the two counties is given below:

<table>
<thead>
<tr>
<th>Public ownership</th>
<th>DAUPHIN Acres</th>
<th>LEBANON Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>State (Department of Forests and Waters)</td>
<td>8,800</td>
<td>4,400</td>
</tr>
<tr>
<td>State Game Commission</td>
<td>26,700</td>
<td>16,500</td>
</tr>
<tr>
<td>County</td>
<td>3,900</td>
<td>—</td>
</tr>
<tr>
<td>Community</td>
<td>4,300</td>
<td>—</td>
</tr>
<tr>
<td>Total public ownership</td>
<td>43,700</td>
<td>20,900</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Private ownership</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal companies</td>
<td>5,900</td>
</tr>
<tr>
<td>Water companies</td>
<td>11,600</td>
</tr>
<tr>
<td>Farmers</td>
<td>26,800</td>
</tr>
<tr>
<td>Others</td>
<td>49,100</td>
</tr>
<tr>
<td>Total private ownership</td>
<td>93,400</td>
</tr>
</tbody>
</table>

Future Outlook in Brief

The relative unimportance of the forests of these two counties is at present standing them in good stead. Unlike the forests in other parts of the Anthracite Forest Region these woodlands are for the most part being left alone and are gradually growing back to merchantability. The needs of the anthracite industry in this area are comparatively modest; so there is little demand for small material. And the forest areas are sufficiently inaccessible to discourage the cutting of anything but extensive tracts of mature timber.
The only real menace to these forests is fire. Considerable damage has been done in the past by fire in the neighborhood of the mines and at high elevations. And since the forests are largely oak, and so are particularly susceptible to fire, they are in constant danger of destruction from that source. The principal need of the area therefore is an intensification of the fire prevention and control program of the State Department of Forests and Waters. More access roads and trails are essential in the ridge country. These would open large sections to recreationists, who must be educated in fire prevention. With effective fire prevention these forests need only time and care to become again good stands of merchantable timber.

Improvement cuttings and thinnings which remove low quality material will aid the development of productive forests. Much of the material removed can be used for mine timbers and other products. The Northeastern Forest Experiment Station is conducting research into management practices for the forest types of the Anthracite Forest Region. These studies should provide information on proper practices for these counties.
### Tables 1 to 9 - Dauphin County

### Tables 1 to 9 - Lebanon County

#### DAUPHIN COUNTY

Table 1.--Land use

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area (acres)</th>
<th>Proportion of class (percent)</th>
<th>Proportion of gross area (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forest 1/</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracts less than 10 acres</td>
<td>3,900</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Tracts 10 up to 50 acres</td>
<td>4,900</td>
<td>3.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Tracts 50 acres and over</td>
<td>128,300</td>
<td>93.6</td>
<td>36.6</td>
</tr>
<tr>
<td>All forest land</td>
<td>137,100</td>
<td>100.0</td>
<td>39.1</td>
</tr>
<tr>
<td><strong>Nonforest</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cropland 2/</td>
<td>114,200</td>
<td>53.5</td>
<td>32.6</td>
</tr>
<tr>
<td>Mine waste 1/</td>
<td>500</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Water 2/</td>
<td>18,100</td>
<td>8.5</td>
<td>5.2</td>
</tr>
<tr>
<td>Other</td>
<td>80,900</td>
<td>37.8</td>
<td>23.0</td>
</tr>
<tr>
<td>All nonforest land</td>
<td>213,700</td>
<td>100.0</td>
<td>60.9</td>
</tr>
<tr>
<td><strong>Gross area</strong></td>
<td>350,800</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ Based on aerial photographs taken in 1937 - 1938.

2/ Bureau of the Census, 1940.
Table 2.—Forest area of each minor civil division

<table>
<thead>
<tr>
<th>Civil division 1/</th>
<th>Gross area</th>
<th>Nonforest area</th>
<th>Forest area</th>
<th>Proportion gross area of county in forest</th>
<th>Proportion forest land</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>acres</td>
<td>acres</td>
<td>acres</td>
<td>percent</td>
<td>percent</td>
</tr>
<tr>
<td>Conewago t.</td>
<td>10,400</td>
<td>9,000</td>
<td>1,400</td>
<td>13.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Derry t., Hummelstown b.</td>
<td>18,200</td>
<td>16,000</td>
<td>2,200</td>
<td>12.3</td>
<td>1.7</td>
</tr>
<tr>
<td>East Hanover t.</td>
<td>24,700</td>
<td>13,100</td>
<td>11,600</td>
<td>46.9</td>
<td>8.5</td>
</tr>
<tr>
<td>Halifax t., Halifax b.</td>
<td>20,500</td>
<td>14,500</td>
<td>6,000</td>
<td>29.3</td>
<td>4.4</td>
</tr>
<tr>
<td>Harrisburg c.</td>
<td>6,300</td>
<td>6,200</td>
<td>100</td>
<td>1.4</td>
<td>*</td>
</tr>
<tr>
<td>Jackson t.</td>
<td>25,300</td>
<td>7,700</td>
<td>17,600</td>
<td>69.8</td>
<td>13.0</td>
</tr>
<tr>
<td>Jefferson t.</td>
<td>14,300</td>
<td>1,900</td>
<td>12,400</td>
<td>86.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Londonderry t., Royalton b.</td>
<td>17,100</td>
<td>14,900</td>
<td>2,200</td>
<td>12.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Lower Paxton t.</td>
<td>18,600</td>
<td>15,300</td>
<td>3,300</td>
<td>17.6</td>
<td>2.4</td>
</tr>
<tr>
<td>Lower Swatara t.,</td>
<td>10,700</td>
<td>10,600</td>
<td>100</td>
<td>0.7</td>
<td>*</td>
</tr>
<tr>
<td>Highspire b.,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middletown b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lykens t., Gratz b.</td>
<td>17,900</td>
<td>11,600</td>
<td>6,300</td>
<td>35.4</td>
<td>4.7</td>
</tr>
<tr>
<td>Middle Paxton t.,</td>
<td>36,700</td>
<td>16,100</td>
<td>20,600</td>
<td>56.2</td>
<td>15.2</td>
</tr>
<tr>
<td>Dauphin b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mifflin t., Berriesburg b., and Uniontown b.</td>
<td>10,400</td>
<td>7,900</td>
<td>2,500</td>
<td>23.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Reed t.</td>
<td>5,600</td>
<td>3,500</td>
<td>2,100</td>
<td>37.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Rush t.</td>
<td>15,600</td>
<td>400</td>
<td>15,200</td>
<td>97.3</td>
<td>11.2</td>
</tr>
<tr>
<td>South Hanover t.</td>
<td>7,500</td>
<td>7,100</td>
<td>400</td>
<td>6.0</td>
<td>*</td>
</tr>
<tr>
<td>Susquehanna t., Penbrook b.</td>
<td>11,300</td>
<td>8,100</td>
<td>3,200</td>
<td>28.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Swatara t., Paxtang b., Steelton b.</td>
<td>11,200</td>
<td>10,600</td>
<td>600</td>
<td>5.1</td>
<td>*</td>
</tr>
<tr>
<td>Upper Paxton t.,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millersburg b.</td>
<td>19,200</td>
<td>13,900</td>
<td>5,300</td>
<td>27.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Washington t.,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elizabethville b.</td>
<td>11,800</td>
<td>8,300</td>
<td>3,500</td>
<td>29.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Wayne t.</td>
<td>9,300</td>
<td>4,900</td>
<td>4,400</td>
<td>46.6</td>
<td>3.2</td>
</tr>
<tr>
<td>West Hanover t.</td>
<td>14,700</td>
<td>9,600</td>
<td>5,100</td>
<td>34.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Wiconisco t., Lykens b.</td>
<td>7,900</td>
<td>1,300</td>
<td>6,600</td>
<td>83.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Williams t.,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Williamstown b.</td>
<td>5,600</td>
<td>1,200</td>
<td>4,400</td>
<td>78.7</td>
<td>3.3</td>
</tr>
<tr>
<td>All civil divisions</td>
<td>350,800</td>
<td>213,700</td>
<td>137,100</td>
<td>39.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ Abbreviations:  t = township; b = borough; c = city.

* Negligible
### Table 3. -- Forest area by forest types and conditions

<table>
<thead>
<tr>
<th>Forest type</th>
<th>Saw-timber stands</th>
<th>Pole-timber stands</th>
<th>Unmerchantable stands</th>
<th>All stands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>acres</td>
<td>percent</td>
<td>acres</td>
<td>percent</td>
</tr>
<tr>
<td>White pine - hemlock</td>
<td>1,000</td>
<td>10.3</td>
<td>300</td>
<td>0.9</td>
</tr>
<tr>
<td>White pine - white oak - red oak</td>
<td>1,300</td>
<td>13.4</td>
<td>4,600</td>
<td>14.3</td>
</tr>
<tr>
<td>White oak - red oak - black oak</td>
<td>6,400</td>
<td>66.0</td>
<td>20,600</td>
<td>64.3</td>
</tr>
<tr>
<td>Chestnut oak</td>
<td>900</td>
<td>9.3</td>
<td>6,400</td>
<td>19.9</td>
</tr>
<tr>
<td>Scrub oak</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>100</td>
<td>1.0</td>
<td>200</td>
<td>0.6</td>
</tr>
<tr>
<td>All types</td>
<td>9,700</td>
<td>100.0</td>
<td>32,100</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 4.—Volume by forest types

<table>
<thead>
<tr>
<th>Forest type</th>
<th>Saw-timber volume</th>
<th>Total volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>M cu.ft.</td>
</tr>
<tr>
<td>Sugar maple - beech - yellow birch</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Aspen - gray birch - pin cherry</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>White pine - hemlock</td>
<td>7,500</td>
<td>3,620</td>
</tr>
<tr>
<td>White pine - white oak - red oak</td>
<td>17,500</td>
<td>11,780</td>
</tr>
<tr>
<td>Red oak - black oak - white oak</td>
<td>76,300</td>
<td>50,410</td>
</tr>
<tr>
<td>Chestnut oak</td>
<td>14,700</td>
<td>9,690</td>
</tr>
<tr>
<td>Scrub oak</td>
<td>300</td>
<td>490</td>
</tr>
<tr>
<td>Other</td>
<td>1,700</td>
<td>950</td>
</tr>
<tr>
<td>All forest types</td>
<td>118,000</td>
<td>76,940</td>
</tr>
</tbody>
</table>
Table 5.--Forest area by forest conditions and volume-per-acre classes

<table>
<thead>
<tr>
<th>Forest condition and volume-per-acre classes</th>
<th>Area (acres)</th>
<th>Proportion of each condition (percent)</th>
<th>Proportion of total forest land (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Merchantable:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw-timber stands 1/ (bd. ft. per acre)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,000 and over</td>
<td>1,200</td>
<td>12.4</td>
<td>0.9</td>
</tr>
<tr>
<td>6,000 to 7,999</td>
<td>1,600</td>
<td>16.5</td>
<td>1.2</td>
</tr>
<tr>
<td>4,000 to 5,999</td>
<td>2,900</td>
<td>29.9</td>
<td>2.1</td>
</tr>
<tr>
<td>2,000 to 3,999</td>
<td>4,000</td>
<td>41.2</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>All saw-timber stands</strong></td>
<td>9,700</td>
<td>100.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Pole-timber stands 2/ (cords per acre)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0 and over</td>
<td>9,500</td>
<td>29.6</td>
<td>6.9</td>
</tr>
<tr>
<td>5.0 to 9.9</td>
<td>22,600</td>
<td>70.4</td>
<td>16.5</td>
</tr>
<tr>
<td><strong>All pole-timber stands</strong></td>
<td>32,100</td>
<td>100.0</td>
<td>23.4</td>
</tr>
<tr>
<td>All merchantable stands</td>
<td>41,800</td>
<td></td>
<td>30.5</td>
</tr>
<tr>
<td><strong>Unmerchantable:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw-timber stands less than 10 acres</td>
<td>4,900</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>Pole-timber stands less than 10 acres</td>
<td>16,200</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>Young growth stands</td>
<td>60,100</td>
<td>43.8</td>
<td></td>
</tr>
<tr>
<td>Scrub oak stands</td>
<td>14,100</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>All unmerchantable stands</td>
<td>95,300</td>
<td>69.5</td>
<td></td>
</tr>
<tr>
<td>All forest land</td>
<td>137,100</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

1/ In stands 10 acres or larger each acre of which has at least 2,000 board feet (lumber tally).

2/ In stands 10 acres or larger each acre of which has at least 5 cords (400 cubic feet) but less than 2,000 board feet.
Table 6.—Volume by forest conditions and volume-per-acre classes

<table>
<thead>
<tr>
<th>Forest condition and volume-per-acre classes</th>
<th>Saw-timber volume (lumber tally) 1/</th>
<th>Total volume (including bark)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>percent</td>
</tr>
<tr>
<td>Merchable:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw-timber stands (bd. ft. per acre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,000 and over</td>
<td>11,300</td>
<td>9.6</td>
</tr>
<tr>
<td>6,000 to 7,999</td>
<td>9,900</td>
<td>8.4</td>
</tr>
<tr>
<td>4,000 to 5,999</td>
<td>14,300</td>
<td>12.1</td>
</tr>
<tr>
<td>2,000 to 3,999</td>
<td>11,600</td>
<td>9.8</td>
</tr>
<tr>
<td>All saw-timber stands</td>
<td>47,100</td>
<td>39.9</td>
</tr>
<tr>
<td>Pole-timber stands (cords per acre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0 and over</td>
<td>18,100</td>
<td>15.3</td>
</tr>
<tr>
<td>5.0 to 9.9</td>
<td>20,000</td>
<td>17.0</td>
</tr>
<tr>
<td>All pole-timber stands</td>
<td>38,100</td>
<td>32.3</td>
</tr>
<tr>
<td>All merchantable stands</td>
<td>85,200</td>
<td>72.2</td>
</tr>
<tr>
<td>All unmerchantable stands</td>
<td>32,800</td>
<td>27.8</td>
</tr>
<tr>
<td>All forest land</td>
<td>118,000</td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ Based on the International 1/4-inch rule which closely approximates green lumber tally.
Table 7.—Volume in merchantable stands by species groups

<table>
<thead>
<tr>
<th>Merchantable class and species group</th>
<th>Saw-timber volume (lumber tally)</th>
<th>Total volume (including bark)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>percent</td>
</tr>
<tr>
<td>Saw-timber stands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conifers</td>
<td>9,700</td>
<td>20.6</td>
</tr>
<tr>
<td>Oaks and hickory</td>
<td>28,200</td>
<td>59.9</td>
</tr>
<tr>
<td>Other hardwoods</td>
<td>9,200</td>
<td>19.5</td>
</tr>
<tr>
<td>All species</td>
<td>47,100</td>
<td>100.0</td>
</tr>
<tr>
<td>Pole-timber stands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conifers</td>
<td>9,500</td>
<td>25.0</td>
</tr>
<tr>
<td>Oaks and hickory</td>
<td>22,700</td>
<td>59.4</td>
</tr>
<tr>
<td>Other hardwoods</td>
<td>5,900</td>
<td>15.6</td>
</tr>
<tr>
<td>All species</td>
<td>38,100</td>
<td>100.0</td>
</tr>
<tr>
<td>All merchantable stands</td>
<td>85,200</td>
<td>37,470</td>
</tr>
</tbody>
</table>

1/ Based on 85 cubic feet per cord for conifers and 75 cubic feet per cord for hardwoods.
2/ Based on cubic feet-per-ton converting factors for the principal species.
Table 8.--Board foot volume in merchantable saw-timber stands by diameter classes and species groups

<table>
<thead>
<tr>
<th>Diameter class (d.b.h.)</th>
<th>Conifers 1/</th>
<th></th>
<th></th>
<th>Oaks, hickory 2/</th>
<th></th>
<th></th>
<th></th>
<th>Other hardwoods 3/</th>
<th></th>
<th></th>
<th></th>
<th>All species</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Inches)</td>
<td>M bd.ft.</td>
<td>percent</td>
<td>M bd.ft.</td>
<td>percent</td>
<td>M bd.ft.</td>
<td>percent</td>
<td>M bd.ft.</td>
<td>percent</td>
<td>M bd.ft.</td>
<td>percent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>900</td>
<td>9.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>900</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1,500</td>
<td>15.6</td>
<td>3,100</td>
<td>11.0</td>
<td>1,900</td>
<td>21.0</td>
<td>6,500</td>
<td>13.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1,800</td>
<td>18.2</td>
<td>4,300</td>
<td>15.2</td>
<td>1,800</td>
<td>19.3</td>
<td>7,900</td>
<td>16.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>1,400</td>
<td>14.1</td>
<td>4,700</td>
<td>16.8</td>
<td>1,600</td>
<td>17.8</td>
<td>7,700</td>
<td>16.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>1,700</td>
<td>17.2</td>
<td>4,500</td>
<td>16.0</td>
<td>1,100</td>
<td>12.4</td>
<td>7,300</td>
<td>15.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1,000</td>
<td>10.5</td>
<td>3,900</td>
<td>13.9</td>
<td>1,000</td>
<td>10.3</td>
<td>5,900</td>
<td>12.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 &amp; up</td>
<td>1,400</td>
<td>15.0</td>
<td>7,700</td>
<td>27.1</td>
<td>1,800</td>
<td>19.2</td>
<td>10,900</td>
<td>23.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All classes</td>
<td>9,700</td>
<td>100.0</td>
<td>28,200</td>
<td>100.0</td>
<td>9,200</td>
<td>100.0</td>
<td>47,100</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1/ Principally white pine, hemlock and pitch pine.

2/ Principally white, red, and black oaks, with some hickory and chestnut, scarlet and pin oaks.

3/ Principally red maple, black birch, yellow poplar and white ash with some walnut, aspen, black locust, sycamore, willow, basswood, elm and black gum.
Table 9.—Cubic foot volume in merchantable pole-timber stands by diameter classes and species groups

<table>
<thead>
<tr>
<th>Diameter class (d.b.h.)</th>
<th>Conifers 1/</th>
<th>Oaks and hickory 2/</th>
<th>Other hardwoods 2/</th>
<th>All species</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>M cu.ft.</td>
<td>percent</td>
<td>tons</td>
<td>M cu.ft.</td>
</tr>
<tr>
<td>6</td>
<td>380</td>
<td>11.0</td>
<td>7,900</td>
<td>2,340</td>
</tr>
<tr>
<td>8</td>
<td>530</td>
<td>15.3</td>
<td>11,000</td>
<td>2,410</td>
</tr>
<tr>
<td>10</td>
<td>670</td>
<td>19.4</td>
<td>14,000</td>
<td>2,540</td>
</tr>
<tr>
<td>12</td>
<td>780</td>
<td>22.5</td>
<td>16,200</td>
<td>2,120</td>
</tr>
<tr>
<td>14 &amp; up</td>
<td>1,100</td>
<td>31.8</td>
<td>23,000</td>
<td>4,110</td>
</tr>
<tr>
<td>All classes</td>
<td>3,460</td>
<td>100.0</td>
<td>72,100</td>
<td>13,520</td>
</tr>
</tbody>
</table>

1/ Principally white pine, hemlock, and pitch pine.

2/ Principally white, red, chestnut, and black oak, with some hickory, scarlet oak, and pin oak.

3/ Principally red maple, black birch, and white ash, with some yellow poplar, walnut, aspen, sycamore, willow, black locust, elm, yellow birch, red birch, basswood, black gum, and dogwood.
Table 1.—Land use

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area</th>
<th>Proportion of class</th>
<th>Proportion of gross area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>acres</td>
<td>percent</td>
<td>percent</td>
</tr>
<tr>
<td>Forest 1/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracts less than 10 acres</td>
<td>2,500</td>
<td>3.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Tracts 10 up to 50 acres</td>
<td>3,200</td>
<td>4.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Tracts 50 acres and over</td>
<td>67,600</td>
<td>92.1</td>
<td>29.1</td>
</tr>
<tr>
<td>All forest land</td>
<td>73,300</td>
<td>100.0</td>
<td>31.6</td>
</tr>
<tr>
<td>Nonforest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cropland 2/</td>
<td>109,700</td>
<td>69.2</td>
<td>47.3</td>
</tr>
<tr>
<td>Mine waste 1/</td>
<td>500</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>Water 2/</td>
<td>100</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Other</td>
<td>48,300</td>
<td>30.4</td>
<td>20.8</td>
</tr>
<tr>
<td>All nonforest land</td>
<td>158,600</td>
<td>100.0</td>
<td>68.4</td>
</tr>
<tr>
<td>Gross area</td>
<td>231,900</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ Based on aerial photographs taken in 1937, 1938 - 1940.

2/ Bureau of the Census, 1940
### Table 2.--Forest area by minor civil divisions

<table>
<thead>
<tr>
<th>Civil division 1/</th>
<th>Gross area acres</th>
<th>Nonforest area acres</th>
<th>Forest area acres</th>
<th>Proportion gross area of county in forest</th>
<th>Proportion forest land in forest acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annville t.</td>
<td>1,100</td>
<td>1,100</td>
<td>*</td>
<td>0.3</td>
<td>*</td>
</tr>
<tr>
<td>Bethel t.</td>
<td>22,400</td>
<td>14,200</td>
<td>8,200</td>
<td>36.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Cold Spring t.</td>
<td>13,100</td>
<td>*</td>
<td>13,100</td>
<td>99.9</td>
<td>18.0</td>
</tr>
<tr>
<td>Cornwall b.</td>
<td>6,200</td>
<td>2,700</td>
<td>3,500</td>
<td>56.7</td>
<td>4.8</td>
</tr>
<tr>
<td>East Hanover t.</td>
<td>21,700</td>
<td>14,800</td>
<td>6,900</td>
<td>31.9</td>
<td>9.5</td>
</tr>
<tr>
<td>Heidelberg t.</td>
<td>15,600</td>
<td>12,200</td>
<td>3,400</td>
<td>22.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Jackson t., Myerstown b.</td>
<td>15,800</td>
<td>13,200</td>
<td>2,600</td>
<td>16.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Millcreek t., and Richland b.</td>
<td>13,600</td>
<td>9,000</td>
<td>4,600</td>
<td>33.8</td>
<td>6.3</td>
</tr>
<tr>
<td>North Annville t.</td>
<td>11,600</td>
<td>9,900</td>
<td>1,700</td>
<td>14.4</td>
<td>2.3</td>
</tr>
<tr>
<td>North Cornwall t., Cleona b., Lebanon Independent b., and Lebanon c.</td>
<td>9,500</td>
<td>9,400</td>
<td>100</td>
<td>0.9</td>
<td>*</td>
</tr>
<tr>
<td>North Lebanon t.</td>
<td>10,400</td>
<td>10,000</td>
<td>400</td>
<td>3.4</td>
<td>0.5</td>
</tr>
<tr>
<td>North Londonderry t., Palmyra b.</td>
<td>8,000</td>
<td>7,500</td>
<td>500</td>
<td>5.7</td>
<td>0.7</td>
</tr>
<tr>
<td>South Annville t.</td>
<td>12,400</td>
<td>10,100</td>
<td>2,300</td>
<td>18.3</td>
<td>3.1</td>
</tr>
<tr>
<td>South Lebanon t.</td>
<td>13,600</td>
<td>11,000</td>
<td>2,600</td>
<td>19.3</td>
<td>3.6</td>
</tr>
<tr>
<td>South Londonderry t., Mount Gretna b.</td>
<td>16,100</td>
<td>9,500</td>
<td>6,600</td>
<td>41.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Swatara t., Jonestown b.</td>
<td>13,500</td>
<td>10,000</td>
<td>3,500</td>
<td>26.1</td>
<td>4.9</td>
</tr>
<tr>
<td>Union t.</td>
<td>21,500</td>
<td>11,400</td>
<td>10,100</td>
<td>47.1</td>
<td>13.9</td>
</tr>
<tr>
<td>West Cornwall t.</td>
<td>5,500</td>
<td>2,300</td>
<td>3,200</td>
<td>57.7</td>
<td>4.4</td>
</tr>
<tr>
<td>West Lebanon t.</td>
<td>300</td>
<td>300</td>
<td>*</td>
<td>3.1</td>
<td>*</td>
</tr>
</tbody>
</table>

All civil divisions: 231,900 acres; 158,600 acres; 73,300 acres; 31.6 percent; 100.0 percent

1/ Abbreviations: t = township; b = borough; c = city.

* Negligible
Table 3.--Forest area by forest types and conditions

<table>
<thead>
<tr>
<th>Forest type</th>
<th>Saw-timber stands</th>
<th>Pole-timber stands</th>
<th>Unmerchantable stands</th>
<th>All stands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>acres</td>
<td>percent</td>
<td>acres</td>
<td>percent</td>
</tr>
<tr>
<td>White pine - hemlock</td>
<td>100</td>
<td>2.6</td>
<td>200</td>
<td>1.3</td>
</tr>
<tr>
<td>White pine - white oak - red oak</td>
<td>700</td>
<td>17.9</td>
<td>1,000</td>
<td>6.6</td>
</tr>
<tr>
<td>White oak - red oak - black oak</td>
<td>3,000</td>
<td>76.9</td>
<td>10,300</td>
<td>68.3</td>
</tr>
<tr>
<td>Chestnut oak</td>
<td>100</td>
<td>2.6</td>
<td>3,600</td>
<td>23.8</td>
</tr>
<tr>
<td>Scrub oak</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>All types</td>
<td>3,900</td>
<td>100.0</td>
<td>15,100</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 4.—Volume by forest types

<table>
<thead>
<tr>
<th>Forest type</th>
<th>Saw-timber volume</th>
<th>Total volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>M cu.ft.</td>
</tr>
<tr>
<td>Sugar maple - beech - yellow birch</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Aspen - gray birch - pin cherry</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>White pine - hemlock</td>
<td>1,000</td>
<td>550</td>
</tr>
<tr>
<td>White pine - white oak - red oak</td>
<td>7,500</td>
<td>5,420</td>
</tr>
<tr>
<td>Red oak - black oak - white oak</td>
<td>35,900</td>
<td>24,340</td>
</tr>
<tr>
<td>Chestnut oak</td>
<td>5,900</td>
<td>4,320</td>
</tr>
<tr>
<td>Scrub oak</td>
<td>—</td>
<td>40</td>
</tr>
<tr>
<td>Other</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>All forest types</td>
<td>50,300</td>
<td>34,670</td>
</tr>
</tbody>
</table>
Table 5.--Forest area by forest conditions and volume-per-acre classes

<table>
<thead>
<tr>
<th>Forest condition and volume-per-acre classes</th>
<th>Area</th>
<th>Proportion of each condition</th>
<th>Proportion of total forest land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merchantable:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw-timber stands 1/ (bd. ft. per acre)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,000 and over</td>
<td>350</td>
<td>9.0</td>
<td>0.5</td>
</tr>
<tr>
<td>6,000 to 7,999</td>
<td>500</td>
<td>12.8</td>
<td>9.7</td>
</tr>
<tr>
<td>4,000 to 5,999</td>
<td>450</td>
<td>11.5</td>
<td>0.6</td>
</tr>
<tr>
<td>2,000 to 3,999</td>
<td>2,600</td>
<td>66.7</td>
<td>3.5</td>
</tr>
<tr>
<td>All saw-timber stands</td>
<td>3,900</td>
<td>100.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Pole-timber stands 2/ (cords per acre)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0 and over</td>
<td>5,400</td>
<td>35.8</td>
<td>7.4</td>
</tr>
<tr>
<td>5.0 to 9.9</td>
<td>9,700</td>
<td>64.2</td>
<td>13.2</td>
</tr>
<tr>
<td>All pole-timber stands</td>
<td>15,100</td>
<td>100.0</td>
<td>20.6</td>
</tr>
<tr>
<td>All merchantable stands</td>
<td>19,000</td>
<td></td>
<td>25.9</td>
</tr>
<tr>
<td>Unmerchantable:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw-timber stands less than 10 acres</td>
<td>2,700</td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td>Pole-timber stands less than 10 acres</td>
<td>10,600</td>
<td></td>
<td>14.5</td>
</tr>
<tr>
<td>Young growth stands</td>
<td>39,800</td>
<td></td>
<td>54.3</td>
</tr>
<tr>
<td>Scrub oak stands</td>
<td>1,200</td>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td>All unmerchantable stands</td>
<td>54,300</td>
<td></td>
<td>74.1</td>
</tr>
<tr>
<td>All forest land</td>
<td>73,300</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ In stands 10 acres or larger each acre of which has at least 2,000 board feet (lumber tally).

2/ In stands 10 acres or larger each acre of which has at least 5 cords (400 cubic feet) but less than 2,000 board feet.
Table 6.--Volume by forest conditions and volume-per-acre classes

<table>
<thead>
<tr>
<th>Forest condition and volume-per-acre classes</th>
<th>Saw-timber volume (lumber tally) 1/</th>
<th>Total volume (including bark)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>percent</td>
</tr>
<tr>
<td>Merchantable:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw-timber stands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(bd. ft. per acre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,000 and over</td>
<td>3,200</td>
<td>6.4</td>
</tr>
<tr>
<td>6,000 to 7,999</td>
<td>3,500</td>
<td>7.0</td>
</tr>
<tr>
<td>4,000 to 5,999</td>
<td>1,900</td>
<td>3.7</td>
</tr>
<tr>
<td>2,000 to 3,999</td>
<td>5,800</td>
<td>11.5</td>
</tr>
<tr>
<td>All saw-timber stands</td>
<td>14,400</td>
<td>28.6</td>
</tr>
<tr>
<td>Pole-timber stands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(cords per acre)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0 and over</td>
<td>12,700</td>
<td>25.3</td>
</tr>
<tr>
<td>5.0 to 9.9</td>
<td>7,800</td>
<td>15.5</td>
</tr>
<tr>
<td>All pole-timber stands</td>
<td>20,500</td>
<td>40.8</td>
</tr>
<tr>
<td>All merchantable stands</td>
<td>34,900</td>
<td>69.4</td>
</tr>
<tr>
<td>All unmerchantable stands</td>
<td>15,400</td>
<td>30.6</td>
</tr>
<tr>
<td>All forest land</td>
<td>50,300</td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ Based on the International 1/4-inch rule which closely approximates green lumber tally.
Table 7.—Volume in merchantable stands by species groups

<table>
<thead>
<tr>
<th>Merchantable class and species group</th>
<th>Saw-timber volume (lumber tally)</th>
<th>Total volume (including bark)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M bd.ft.</td>
<td>percent</td>
</tr>
<tr>
<td>Saw-timber stands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conifers</td>
<td>2,200</td>
<td>15.3</td>
</tr>
<tr>
<td>Oaks and hickory</td>
<td>9,300</td>
<td>64.6</td>
</tr>
<tr>
<td>Other hardwoods</td>
<td>2,900</td>
<td>20.1</td>
</tr>
<tr>
<td>All species</td>
<td>14,400</td>
<td>100.0</td>
</tr>
<tr>
<td>Pole-timber stands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conifers</td>
<td>6,600</td>
<td>32.1</td>
</tr>
<tr>
<td>Oaks and hickory</td>
<td>10,200</td>
<td>50.0</td>
</tr>
<tr>
<td>Other hardwoods</td>
<td>3,700</td>
<td>17.9</td>
</tr>
<tr>
<td>All species</td>
<td>20,500</td>
<td>100.0</td>
</tr>
<tr>
<td>All merchantable stands</td>
<td>34,900</td>
<td></td>
</tr>
</tbody>
</table>

1/ Based on 85 cubic feet per cord for conifers and 75 cubic feet per cord for hardwoods.

2/ Based on cubic feet-per-ton converting factors for the principal species.
### Table 8.—Board foot volume in merchantable saw-timber stands by diameter classes and species groups

<table>
<thead>
<tr>
<th>Diameter class (d.b.h.)</th>
<th>Conifers 1/ M bd.ft.</th>
<th>percent M</th>
<th>Oaks, hickory, hard maple 2/ M bd.ft.</th>
<th>percent M</th>
<th>Other hardwoods 3/ M bd.ft.</th>
<th>percent M</th>
<th>All species M bd.ft.</th>
<th>percent M</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>200</td>
<td>10.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td>1.4</td>
</tr>
<tr>
<td>12</td>
<td>300</td>
<td>14.1</td>
<td>1,200</td>
<td>12.5</td>
<td>600</td>
<td>22.4</td>
<td>2,100</td>
<td>14.6</td>
</tr>
<tr>
<td>14</td>
<td>400</td>
<td>17.4</td>
<td>1,600</td>
<td>17.2</td>
<td>600</td>
<td>20.3</td>
<td>2,600</td>
<td>18.0</td>
</tr>
<tr>
<td>16</td>
<td>300</td>
<td>13.6</td>
<td>1,700</td>
<td>18.2</td>
<td>500</td>
<td>18.3</td>
<td>2,500</td>
<td>17.4</td>
</tr>
<tr>
<td>18</td>
<td>400</td>
<td>19.5</td>
<td>1,400</td>
<td>15.1</td>
<td>300</td>
<td>11.0</td>
<td>2,100</td>
<td>14.6</td>
</tr>
<tr>
<td>20</td>
<td>300</td>
<td>10.9</td>
<td>1,200</td>
<td>12.9</td>
<td>300</td>
<td>9.0</td>
<td>1,800</td>
<td>12.5</td>
</tr>
<tr>
<td>22 &amp; up</td>
<td>300</td>
<td>14.5</td>
<td>2,200</td>
<td>24.1</td>
<td>600</td>
<td>19.0</td>
<td>3,100</td>
<td>21.5</td>
</tr>
<tr>
<td>All classes</td>
<td>2,200</td>
<td>100.0</td>
<td>9,300</td>
<td>100.0</td>
<td>2,900</td>
<td>100.0</td>
<td>14,400</td>
<td>100.0</td>
</tr>
</tbody>
</table>

1/ Principally white pine, hemlock, and pitch pine.

2/ Principally white, red, and black oaks, with some hickory and chestnut, scarlet, and pin oaks.

3/ Principally red maple, black birch, yellow poplar, and white ash, with some walnut, aspen, black locust, sycamore, willow, basswood, elm, and black gum.
Table 9.—Cubic foot volume in merchantable pole-timber stands by diameter classes and species groups

<table>
<thead>
<tr>
<th>Diameter class (d.b.h.)</th>
<th>Conifers 1/</th>
<th>Oaks and hickory 2/</th>
<th>Other hardwoods 3/</th>
<th>All species</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M cu.ft.</td>
<td>percent</td>
<td>tons</td>
<td>M cu.ft.</td>
</tr>
<tr>
<td>inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>200</td>
<td>9.8</td>
<td>3,900</td>
<td>830</td>
</tr>
<tr>
<td>8</td>
<td>310</td>
<td>15.1</td>
<td>6,100</td>
<td>930</td>
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<td>390</td>
<td>19.0</td>
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<td>450</td>
<td>22.0</td>
<td>8,900</td>
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<tr>
<td>14 &amp; up</td>
<td>700</td>
<td>34.1</td>
<td>13,700</td>
<td>2,090</td>
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<td>All classes</td>
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<td>40,200</td>
<td>5,900</td>
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</tbody>
</table>

1/ Principally white pine, hemlock, and pitch pine.

2/ Principally white, red, chestnut, and black oak, with some scarlet oak, pin oak, and hickory.

3/ Principally red maple, black birch, and white ash, with some yellow poplar, walnut, aspen, sycamore, willow, black locust, yellow birch, red birch, basswood, black gum, and dogwood.
<table>
<thead>
<tr>
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<th>Title</th>
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<tr>
<td>1</td>
<td>Survey of forest employment possibilities in the Anthracite region of Pennsylvania</td>
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<tr>
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<td>Tax delinquency of forest lands in the Anthracite region of Pennsylvania</td>
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<td>Volume tables for commercial timber in the Anthracite region of Pennsylvania</td>
</tr>
<tr>
<td>5</td>
<td>The forests of Luzerne county, Pennsylvania, in relation to employment and welfare</td>
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<td>The population and employment outlook for the Anthracite region of Pennsylvania</td>
</tr>
<tr>
<td>7</td>
<td>The forest situation in Pike and Monroe counties</td>
</tr>
<tr>
<td>8</td>
<td>The forest situation in Dauphin and Lebanon counties</td>
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<td>9</td>
<td>The forest situation in Schuylkill and Carbon counties</td>
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<td>The forest situation in Wyoming and Sullivan counties</td>
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<td>The forest situation in Wayne and Susquehanna counties</td>
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* Supply limited  
** Out of print  
*** To be published
COUNTIES OF THE ANTHRACITE FOREST REGION OF PENNSYLVANIA