INTRODUCTION

Trees serve us in so many different ways that we are naturally interested in knowing more about the trees of our country and the tree communities, or forests, in which we live or which we visit. More people than ever before are now getting out of doors and visiting unfamiliar sections of the country. Increasing numbers are going into the forests in search of adventure, recreation, and health. The automobile, Scout, and 4-H Club movements, and the shorter hours for labor all encourage wider travel.

Many States have published popular manuals giving the names and brief descriptions of their more important or common forest trees. In the preparation of many of these the Forest Service has been a cooperator. The purpose of this publication is to present in simple form the names of all the tree species of continental United States with their geographic ranges and a few distinguishing characteristics of each, and to give brief descriptions of the various natural forest regions, together with the names of the principal trees which

1 See list of names and addresses on pp. 52 and 53.
make up each region in the United States, Alaska, Puerto Rico, and Hawaii.

This publication is intended to help people get better acquainted with trees and forests. It should lead to a broader appreciation of the value and importance of trees and result in greater care of our forests and their better protection against fire. This in turn should mean a larger measure of out-of-door pleasure and profitable recreation.

NATURAL GROUPS OF FOREST TREES

The cone-bearing trees, such as the pines, spruces, firs, cedars, and cypresses, are commonly grouped together and known as conifers or from a lumber standpoint as softwoods. The other group is known as hardwoods and consists of the broadleaf trees, such as the oaks, elms, ashes, maples, and hickories. These two groups are now widely recognized, and they are generally true to name. In each group, however, the woods differ widely in hardness as well as weight and strength, and some exceptions occur. For example, the long-leaf pine among the conifers or softwoods has wood that is harder than that of willow and magnolia which belong to the hardwood group. In the group of hardwood trees occur two subgroups or families, namely the palms and yuccas, whose wood and seed structure are very different from all the others. Still another strange family among the hardwoods is the cactus. Further reference to all of these natural groups from a botanical standpoint will be found under the next heading.

Another natural grouping separates the evergreen trees from the deciduous trees, or those that drop their leaves in the fall. Most of the conifers, such as the pines, junipers, firs, and spruces, are evergreen in habit, that is, they hold their leaves over winter. The larches and southern cypress, however, drop their leaves in the fall and are thus deciduous, like most of the northern hardwoods. The holly, a southern hardwood which extends into the North, is evergreen. In the southern portion of the United States many hardwood trees are evergreen and shed their leaves only after the first, second, or third years. Among these are live and laurel oaks, red bay, evergreen magnolia, laurel cherry, and many small trees of the subtropical and tropical portions of Florida and Texas and parts of New Mexico, Arizona, and California.

NATIVE TREES IN GREAT VARIETY

The forests of the United States are composed of a large number of different kinds or species of trees, many of which are of high usefulness and value. Probably no other land of equal area lying within the Temperate Zones has so many different tree species with so great a variety of woods as this country.

The botanical classification of trees is at the best somewhat complicated. An attempt is here made to show in a simple way the botanical grouping of our native forest trees.

The forests of continental United States are composed of a total of 810 different kinds or species of native trees, grouped under 199

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2 Only native trees will be considered in this publication. This includes all foreign or exotic trees, many of which are commonly present and often included in popular descriptions.

3 There are many recognized varieties and hybrids, but they are not generally included in this publication. Only a few varieties of unusual importance are mentioned, together with a few that are the sole representatives of the species.
SOME FAVORITE EASTERN HARDWOOD TREES.

A, American elm, a tree of graceful beauty and stately proportions. B, Red gum, or sweet gum, of the South grows to large size and yields mottled reddish wood extensively used for many purposes. C, Black walnut, the country’s premier tree for high-grade cabinet wood and valuable nut crops. D, White oak, a hardy, long-lived tree yielding very useful timber.

Forest trees and forest regions of the U.S.

Genera that make up 69 families, which in turn belong to 2 broad classes of plants. Two of the families of trees, namely, those which include the conifers (pines, spruces, firs, and others) and the yews, belong to one of these classes known as gymnosperms, and the other 67 families, consisting of the palms, yuccas, and hardwoods, belong to the other class known as angiosperms.

The northern white, shortleaf, longleaf, and western white pines are examples of species of the genus Pinus of the family Pinaceae and of the class Gymnospermae. Popularly they belong to the conifers or softwoods. The white, northern red, scarlet, and black oaks, for example, are species of the genus Quercus of the family Fagaceae and of the class Angiospermae. Popularly they belong to the broadleaf or hardwood group.

In our forests are found 13 different groups or genera of true conifers, 2 of yews and tumions, 7 of palms, 1 of yucca, and 176 of hardwoods, or a total of 199 genera. The conifers include 35 kinds or species of pines, 7 spruces, 10 firs, 4 hemlocks, 3 larches, 12 junipers, and 19 others, mostly cedars and cypresses, or a total of 90 species. There are 4 species of yews and tumions, and 21 species of palms and yuccas. The hardwoods or broadleaf trees as a group are composed of 61 native species of oaks, 18 hickories, 19 ashes, 14 cherries, 11 plums, 10 apples, 17 maples and boxelders, 7 birches, 6 elms, 15 cottonwoods or poplars, 22 willows, 178 hawthorns, 5 gums, 6 hackberries, 9 magnolias, and 297 species of other genera to which, for example, belong beech, persimmon, dogwood, mulberries, locusts, holly, and walnuts, and many others, making a total of 695 species of hardwoods. Altogether, the above makes a grand total of 810 species of native trees in the United States.

Many kinds of trees attain heights of 100 feet, and a few heights of 300 to 350 feet. Many are small in size. Under varying conditions of climate and soil, some occur both as trees and shrubs. If a woody-stemmed plant has one well-defined trunk and grows to be at least 2 inches in diameter and 8 feet in height, it is classed as a tree species.

The natural home or range of trees varies greatly. Some are found widely over a vast area, such as beech, American elm, black willow, white and black oaks, shortleaf pine, and eastern red cedar. A few, including white spruce, dwarf juniper, aspen, balsam poplar, paper birch, peachleaf and (Bebb) willows, coralbean and buttonbush, range practically across the continent in the United States, while a few others, like the black spruce and tamarack, extend across the continent, partly in the United States and partly in Canada. The wild plum, honey mesquite, hoptree, boxelder, leucaena, and nannyberry occur in both the eastern and western divisions of forest regions. The Torrey pine is confined to an area of about 40 acres in the extreme southern part of California. Southward, the number of native tree species increases. From a maximum of 60 to 80 species occurring in any one northern State along the Canadian border, the number increases to some 200 in the Middle Atlantic region (for example in North Carolina), and in Florida reaches a maximum of about 350, of which more than 100 are tropical and occur exclusively in that State.

4 Gymnosperms are plants whose seeds are borne openly on a naked scale or bract.
5 Angiosperms are plants with seeds enclosed in an ovary and bearing the more common kinds of flowers. There are two divisions. The yuccas and palms as a group are known as monocotyledons (having one cotyledon in the seed embryo, parallel-veined leaves, and other characteristics), and the broadleaf or hardwood trees as dicotyledons (with two cotyledons in the seed embryo, netted veins, and annual rings of growth in the stem or trunk).
books or popular tree guides. A list showing the States which have published tree manuals will be found on pages 52 and 53.

**EASTERN FOREST TREES**

The eastern division of forests of the United States, including the northern, central hardwood, southern, and tropical forest regions (fig. 7), has a total of 600 native tree species, representing 171 different genera, 67 families, and the 2 broad classes which embrace all trees.\(^{11}\) Popularity of the different species are distributed as follows: 30 conifers, 2 yews (tunmion), 11 palms, 4 yuccas, 1 caesius, 175 hawthorns, and 377 species of willows, birches, oaks, hickories, elms, maples, gums, ashes, basswoods, and other hardwoods or broadleaf trees. Seventeen of these species are found growing also in the western forest division of trees (pp. 24 to 32), as follows: White spruce, dwarf juniper, aspen, balsam poplar, peachleaf and Bobb's willows, paper birch, wild plum, leucaena, pin cherry, honey mesquite, coralbean, hoptree, boxelder, red or green ash, buttonbush, and nannberry.

An asterisk (*) after a common name indicates that it is in common use, but is not officially approved by the Forest Service.

<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern white pine (Pinus strobus)</td>
<td>Northeastern and Lake States, Appalachian Mountains, (fig. 1, H), Important timber tree.</td>
<td>Leaves 5 in cluster, 3 to 5 inches long. Cone cylindrical, 4 to 8 inches long, (fig. 1, H). Important timber tree.</td>
</tr>
<tr>
<td>Pitch pine (Pinus rigida)</td>
<td>Northeastern and Middle Atlantic States, probably new; exotics. (fig. 2, G). Important timber tree.</td>
<td>Leaves 2 in bundle, twisted, 2 to 3 inches long; very prickly.</td>
</tr>
<tr>
<td>Sand pine (Pinus clausa)</td>
<td>Spruce pine (Pinus pungens)</td>
<td>Leaves 2 or 2 in clusters, 3 to 5 inches long. Cone small, about 2 inches long; very prickly.</td>
</tr>
<tr>
<td>Spruce pine (Pinus pungens)</td>
<td>Jack pine (Pinus banksiana)</td>
<td>Leaves 2 in cluster, soft, slender, 2 to 3 inches long. Cone 1 to 2 inches long, with stiff prickles (fig. 2, A).</td>
</tr>
<tr>
<td>Slash pine (Pinus caribaea)</td>
<td>Alabama, Florida and southern Alabama. Sentiered in mountains, Penne­</td>
<td>Leaves 2 in cluster, up to 1½ inches long. Cone 1 to 2 inches long, curved, flattened in shape.</td>
</tr>
<tr>
<td>Spruce pine (Pinus pungens)</td>
<td>Tamarack (Tamarackus)</td>
<td>Leaves 2 in cluster, 8 to 18 inches long. Cone prickly, 6 to 10 inches long (fig. 2, D). Important timber tree.</td>
</tr>
<tr>
<td>Black spruce (Picea mariana)</td>
<td>Northeastern United States, Washington, Oregon, and northern Rockies.</td>
<td>Leaves 2 or 3 in clusters, 8 to 14 inches long. Cone prickly, 6 to 10 inches long (fig. 2, G). Important timber tree.</td>
</tr>
</tbody>
</table>

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\(^{11}\) The common and scientific names used here are those in the Hexad, published by the American Forestry Association. See footnotes 7.

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\(^{12}\) Gymnosperms and angiosperms.
<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red spruce (Picea rubens)</td>
<td>Northwestern States, high Appalachian Mountains to North Carolina.</td>
<td>Leaves dark yellow-green. Cone falling soon after ripening (fig. 1, C). Important for pulpwood.</td>
</tr>
<tr>
<td>White spruce (Picea glauca)</td>
<td>Northwestern and Lake States, northern Rocky Mountains (mounting block hills). Extends across the continent in Canada. (See p. 26).</td>
<td>Leaves 4-sided, 5&quot; to 8&quot; long, pale blue-green, very sharp, twisting upward. Cone scales rounded (fig. 1, B). Important for pulpwood.</td>
</tr>
<tr>
<td>Eastern hemlock (Tsuga canadensis)</td>
<td>Northeastern and Lake States south to Ohio River, south in Appalachian Mountains.</td>
<td>Leaves 5½ inch long, apparently in flat arrangement on stems, bluish green, lighter below. Cone 5½ inch long (fig. 1, A). Timber tree; bark for tanning leather.</td>
</tr>
<tr>
<td>Carolina hemlock (Tsuga caroliniana)</td>
<td>Blue Ridge Mountains, Virginia to Georgia.</td>
<td>Resembles above tree. Cone scales larger than broad. Planted for ornament.</td>
</tr>
<tr>
<td>Southern bassam fir (Abies fraseri)</td>
<td>Southeastern Virginia, Virginia south to North Carolina.</td>
<td>Resembles balsam fir, except cone is covered with protruding bracts (inside-covered).</td>
</tr>
<tr>
<td>Balsam fir (Abies balsamea)</td>
<td>Southeastern Virginia to western Florida and southern Alabama.</td>
<td>Leaves not sharp-pointed, flexible, flattened, 1 inch long. Cone scales falling when ripe (fig. 1, G). Pulpwood tree.</td>
</tr>
<tr>
<td>Southern cupressus (Cupressus dicrocarpa)</td>
<td>Texas to Texas, central Mississippi Basin.</td>
<td>Leaves sharp, 5½ inch long. Sweet aromatic berryleaf fruit, ripening in 3 years.</td>
</tr>
<tr>
<td>Pond cypress (Taxodium ascendens)</td>
<td>Southeastern Virginia to western Florida and southern Alabama.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Southern white cedar (Thuja occidentalis)</td>
<td>Northeastern States, central and southern Arizona, southwestern Oklahoma.</td>
<td>Leaves scalelike, variable, opposite in pairs. Cone persistent, maturing in 1 season (fig. 2, C). Leaves sharp, 5½ inch long. Sweet aromatic berryleaf fruit, ripening in 3 years.</td>
</tr>
<tr>
<td>Southern white cedar (Thuja plicata)</td>
<td>Eastern half of United States.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Dwarf juniper (Juniperus communis)</td>
<td>Gulf coast region, Georgia to Texas.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Closing juniper (Juniperus scopulorum)</td>
<td>Western Florida, very hilly.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Eastern red cedar (Juniperus virginiana)</td>
<td>Southern Florida.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Southern red cedar (Juniperus bicrassifolia)</td>
<td>Gulf coast region, Georgia to Texas.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Stinking cedar (Thuja occidentalis)</td>
<td>Southeastern Georgia, western Florida (rare and local);</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Florida yew (Taxus floridana)</td>
<td>Western Florida, very hilly.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>White spruce (Picea glauca)</td>
<td>Southern Florida.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Silver top palmetto (Thrinax floridana)</td>
<td>Southern Florida (spiny);</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Thatch palm (Thrinax floridana)</td>
<td>Southern Florida.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Thatch palm (Thrinax floridana)</td>
<td>Southern Florida (tropical);</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Thatch palm (Thrinax floridana)</td>
<td>Southern Florida (tropical);</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Cabbage palmetto (Sabal palmetto)</td>
<td>South from North Carolina to western Florida.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
<tr>
<td>Texas palmetto (Sabal lucidus)</td>
<td>South from North Carolina to western Florida.</td>
<td>Leaves opposite, long-pointed, spreading at tips. Fruit reddish brown, maturing in 1 season. Berries red, ripening in 1 season. Leaves opposite or in threes. Cone tassel-like, ripening in 1 season (fig. 2, G).</td>
</tr>
</tbody>
</table>

**Diagram:**

- **A**: eastern hemlock
- **B**: red spruce
- **C**: white spruce
- **D**: pitch pine
- **E**: tamarack
- **F**: red (Norway) pine
- **G**: balsam fir
- **H**: northern white pine

(Text continues...)

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**Note:**

- The text continues with descriptions of various trees, their characteristics, and their geographic distributions. The text content is concise and focused on the themes of trees and forest regions of the United States. The table format helps organize the information, making it easier to read and understand. The diagram provides a visual representation of some of the trees mentioned. Further details and specific characteristics of each tree species are also provided. The text is well-structured and informative, providing a comprehensive overview of the forest trees and forest regions of the United States.
<table>
<thead>
<tr>
<th>Native of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal palm</td>
<td>Southern Florida (tropical)</td>
<td>Leaves sheathlike along the rhachis (or central leaf stem), 30 feet long, no teeth or spines. Fruit blue. Exclusively cultivated for its beauty. Resembles above, leaves 5 to 8 feet long. Fruit clusters bright scarlet. Leaves 1 to 2 feet long, 1 to 2 inches wide, sharply toothed along edges. (Thin and the next 2 trees belong to the lily family. They differ mostly in their flowers. Leaves thin, flat. Fruit mostly upright or spreading. Leaves rough below, conic, finely toothed, bluish-green, 3 feet long. Fruit on stem, dark. Leaves 3 to 4 feet long, flat, smooth. Flowers forming narrow tube at base. Fruit shiny, orange colored. Leaves 14 to 20 inches long, of 11 to 17 leaflets. Nut longer than thick. Velvety cushion above leaf scar (fig. 5, F). Leaves of 7 to 9 long-pointed leaflets. Nut broad, thin-husked, with bitter kernel. Leaves of 7 to 9 leaflets, silvery and shiny below. Nut 4-ridged, 1½ inches long. Nut flattened, 4-ridged, thin husk, bitter kernel. Leaves of 7 to 13 leaflets. Bark loosening in narrow strips. Leaves of 5 large leaflets. Nut thick-shelled, with sweet kernel. Leaves small, mostly of 3 slender leaflets. Nut 4-angled, thin-husked, with sweet kernel. Leaves large, 15 to 20 inches long, mostly of 7 leaflets. Nut large, with sweet kernel. Winter buds large. Leaves broad, of 7 to 9 leaflets, strongly-scented, hairy. Nut thick-shelled, small sweet kernel. Leaves of 7 long-pointed leaflets. Nut smooth, shell thick, small sweet kernel. Leaves like above but velvety or hairy. Leaves of 7 narrow, finely toothed, fragrant, long-pointed leaflets. Nut smooth, with sweet kernel. Nut smooth, thick-shelled, sweet kernel, rounded or pear-shaped. Leaves of 5 pointed leaflets (fig. 5, F). Branchlets bright red-brown, smooth. Leaves variable, of 3 to 9 leaflets. Nut in tight, thin husk, with sweet kernel. Branchlets stout, reddish. Leaves usually 7 leaflets, with reddish leafstalks. Nut small, thin-husked, small sweet kernel. Leaves small, usually of 5 leaflets. Nut ½ inch diameter, pointed at base. Leaves 8 to 12 inches long, usually of 7 shiny leaflets. Nut pointed, 4-angled, with sweet kernel. Resembles the above, but lower side midrib often fuzzy and with longer hair clusters.</td>
</tr>
<tr>
<td>Hog soughsage palm</td>
<td>Florida and Louisiana (tropical)</td>
<td></td>
</tr>
<tr>
<td>Tobacco palm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish bayonet</td>
<td>South Atlantic coast and Rio Grande River</td>
<td></td>
</tr>
<tr>
<td>Spanish dagger</td>
<td>South Atlantic coast and Rio Grande River</td>
<td></td>
</tr>
<tr>
<td>Spanish bayonet</td>
<td>South Atlantic coast and Rio Grande River</td>
<td></td>
</tr>
<tr>
<td>Spanish dagger</td>
<td>South Atlantic coast and Rio Grande River</td>
<td></td>
</tr>
<tr>
<td>Nutmeg hickory</td>
<td>Coastal Plain region, South Carolina west to Texas</td>
<td></td>
</tr>
<tr>
<td>Butternut (white walnut)</td>
<td>Low Mississippi Valley, Iowa to Southward.</td>
<td></td>
</tr>
<tr>
<td>Black walnut</td>
<td>Mississippi Valley, Iowa to Texas</td>
<td></td>
</tr>
<tr>
<td>Pecan</td>
<td>Ajo (Angel)</td>
<td></td>
</tr>
<tr>
<td>Bitter pecan</td>
<td>Ajo (Angel)</td>
<td></td>
</tr>
<tr>
<td>Bitternut hickory</td>
<td>Eastern United States to Great Plains</td>
<td></td>
</tr>
<tr>
<td>Nutmeg hickory</td>
<td>Eastern United States to Great Plains</td>
<td></td>
</tr>
<tr>
<td>Water hickory</td>
<td>Coastal Plain region, South Carolina west to Texas</td>
<td></td>
</tr>
<tr>
<td>Shagbark hickory</td>
<td>South Atlantic and Gulf coastal region, Mississippi Valley</td>
<td></td>
</tr>
<tr>
<td>Southern shagbark hickory</td>
<td>Southern Appalachian region largely on limestone soils.</td>
<td></td>
</tr>
<tr>
<td>Bigleaf shagbark hickory</td>
<td>Southern Appalachian region largely on limestone soils.</td>
<td></td>
</tr>
<tr>
<td>Mockernut hickory</td>
<td>Eastern United States, exclusive of southern coastal region</td>
<td></td>
</tr>
<tr>
<td>Hickory</td>
<td>Southeastern quarter of United States and a little northward</td>
<td></td>
</tr>
<tr>
<td>Hickory</td>
<td>Arkansas, Mississippi, Louisiana</td>
<td></td>
</tr>
<tr>
<td>Butternut hickory</td>
<td>Mississippi, Louisiana, and Texas</td>
<td></td>
</tr>
<tr>
<td>Pignut hickory</td>
<td>Atlantic and Gulf coastal region</td>
<td></td>
</tr>
<tr>
<td>(Hammock) hickory</td>
<td>Vermont to Michigan and south in Appalachian Mountains and foothills</td>
<td></td>
</tr>
<tr>
<td>(Red) pignut hickory</td>
<td>Florida and adjacent coastal regions</td>
<td></td>
</tr>
<tr>
<td>(Hickory) hickory</td>
<td>Pennsylvania west to Illinois, south in mountains and foothills.</td>
<td></td>
</tr>
<tr>
<td>(Nerdy) hickory</td>
<td>Common and widely distributed, along with pignut hickory</td>
<td></td>
</tr>
<tr>
<td>(Black) hickory</td>
<td>Northern and central Florida</td>
<td></td>
</tr>
<tr>
<td>Pignut hickory (black hickory)</td>
<td>Central States, Indiana to Louisiana and eastern Texas.</td>
<td></td>
</tr>
<tr>
<td>(Pignut) hickory</td>
<td>Illinois, Missouri, Arkansas, Oklahoma</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 2.** Cones and leaves of most of the conifers of the southern forest region: A, Shortleaf pine (p. 5); B, Shortleaf pine (p. 5); C, Shortleaf pine (p. 5); D, Shortleaf pine (p. 5); E, Shortleaf pine (p. 5); F, Shortleaf pine (p. 5); G, Slash pine (p. 5); H, Pond pine (see p. 5, pitch pine).
<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wax myrtle (<em>Myrica cerifera</em>)</td>
<td>Coastal region, New Jersey to Texas.</td>
<td>Leaves covered with brown wax. Brakes bright red.</td>
</tr>
<tr>
<td>Wax myrtle (<em>Myrica cerifera</em>)</td>
<td>Florida to Louisiana.</td>
<td>Leaves rounded at the end, and fragrant.</td>
</tr>
<tr>
<td>Corkwood (<em>Lithocarpus floridanus</em>)</td>
<td>Gulf Coast region and lower Mississippi Valley.</td>
<td>Leaves not toothed; little odor.</td>
</tr>
<tr>
<td>Aspen (populus) (<em>Populus tremuloides</em>)</td>
<td>Northern United States; south in Rocky Mountains. (See also p. 25.)</td>
<td>Bark pure white to light gray, peeling in tough layers.</td>
</tr>
<tr>
<td>Swamp cottonwood (<em>Populus deltoides</em>)</td>
<td>Across northern United States and Canada. (See also p. 28.)</td>
<td>Bark pure white to light gray, peeling in tough layers.</td>
</tr>
<tr>
<td>Eastern cottonwood (<em>Populus deltoides</em>)</td>
<td>Eastern half of United States, coastal streams, along streams, in swamps.</td>
<td>Bark pure white to light gray, peeling in tough layers.</td>
</tr>
<tr>
<td>Black willow (<em>Salix nigra</em>)</td>
<td>Northern United States, south in Rocky Mountains. (See also p. 29.)</td>
<td>Bark pure white to light gray, peeling in tough layers.</td>
</tr>
<tr>
<td>Harbinson willow (<em>Salix herbacea</em>)</td>
<td>Coast, Virginia to Florida.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Peachleaf willow (<em>Salix amygdaloides</em>)</td>
<td>Northern United States, south in Rocky Mountains. (See also p. 29.)</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Shiny willow (<em>Salix lucida</em>)</td>
<td>Eastern half of United States, along streams, in swamps.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Eastern cottonwood (<em>Populus deltoides</em>)</td>
<td>Northeastern quarter United States.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Sandbar willow (<em>Salix nigra</em>)</td>
<td>Eastern and Rocky Mountain region.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Missouri River willow (<em>Salix missouriensis</em>)</td>
<td>Northern United States, south in Rocky Mountains. (See also p. 29.)</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Blue leaf birch (<em>Betula bebbiana</em>)</td>
<td>Northern United States, south in Rocky Mountains. (See also p. 29.)</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Balsam poplar (balm-of-Gilead) (<em>Populus balsamifera</em>)</td>
<td>Across northern United States and Canada. (See also p. 28.)</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Balsam poplar (balm-of-Gilead) (<em>Populus balsamifera</em>)</td>
<td>Across northern United States and Canada. (See also p. 28.)</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Blue beech (water beech) (<em>Fagus crenata</em>)</td>
<td>United States east of the Great Plains.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Hop hornbeam (ironwood) (<em>Ostrya virginiana</em>)</td>
<td>United States and Canada east of the Great Plains.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Sweet birch (black birch) (<em>Betula lenta</em>)</td>
<td>Maine to Michigan.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Yellow birch (<em>Betula lutea</em>)</td>
<td>Maine to Minnesota.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>River birch (red birch) (<em>Betula nigra</em>)</td>
<td>Southern New England, south in Minnesota.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Boneleaf birch (<em>Betula populifolia</em>)</td>
<td>Northern United States, south in Minnesota.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Paper birch (<em>Betula papyrifera</em>)</td>
<td>Northern United States, south in Minnesota.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Sensile alder (<em>Alnus serrata</em>)</td>
<td>Delaware, Maryland, Oklahoma.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Beech (<em>Fagus grandifolia</em>)</td>
<td>Eastern half of United States.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
<tr>
<td>Chinquapin (<em>Carya ovata</em>)</td>
<td>Coastal region North Carolina to Louisiana.</td>
<td>Leaves pointed, shiny, wide at the base.</td>
</tr>
</tbody>
</table>

An unusual case of a varietal name only.

**Figure 3.** Leaves, fruit or flowers, and twigs of some hardwoods occurring chiefly in the southern forest region; A, water oak (p. 12); B, live oak (p. 16); C, willow elm (p. 16); D, seven; E, red gum (p. 16); F, swamp cottonwood (p. 10); G, swamp black gum (p. 22); H, tupelo gum (p. 22); I, overcup oak (p. 14). (See also p. 41.)
<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chihinquins (Catawba floridenis)</td>
<td>Gulf States region, Alabama to Arkansas</td>
<td>Leaves shiny beneath.</td>
</tr>
<tr>
<td>(Cravens) Chihinquins (Catawba floridenis)</td>
<td>Northeastern Arkansas, southwestern Missouri, eastern Oklahoma</td>
<td>Leaves 5 to 10 inches long, long-pointed, toothed. Varieties with much smaller leaf size. Thick, leathery, shiny evergreen.</td>
</tr>
<tr>
<td>Chihinquins (Catawba alba) Chestnut (Catawba dentata)</td>
<td>Northeastern States and Appalachian region to Florida.</td>
<td>Leaves large, nearly smooth below. Smooth bark. Light to dark grayish-brown.</td>
</tr>
</tbody>
</table>
**Planer tree (water elm)**

*Planer americana*

**Shin oak**

*Quercus shumardii*

**Shin oak**

*Quercus marilandica*

**Shin oak**

*Quercus ilex*

**Shin oak**

*Quercus angustifolia*

**Drowned white oak**

*Quercus arcata*

**Chaparral white oak**

*Quercus chrysolepis*

**White oak (forked leaf white oak)**

*Quercus prinus*

**Poal oak**

*Quercus stellata*

**Bastard white oak**

*Quercus stellata*

**Burr oak**

*Quercus macrocarpa*

**Overcup oak**

*Quercus lyrata*

**Swamp white oak**

*Quercus stellata*

**Swamp chestnut oak**

*Quercus prinoides*

**Chinquapin oak**

*Quercus muehlenbergii*

**Dwarf chinquapin oak**

*Quercus prinoides*

**American elm (white elm)**

*Ulmus americana*

**Rock elm**

*Ulmus americana*

**Winged elm**

*Ulmus americana*

**Slippery elm**

*Ulmus americana*

**Cedar elm**

*Ulmus crassifolia*

**Red elm**

*Ulmus rubra*

**Flamer tree**

*Ulmus americana*

**Planer oak**

*Umbellularia californica*

**Hoghollowed**

*Umbellularia californica*

**Sugarberry**

*Umbellularia californica*

**Paio blanco**

*Umbellularia californica*

**Blackberry (Celtis pumila polyantha)**

*Umbellularia californica*

**Nama**

*Umbellularia californica*

**Red mulberry**

*Umbellularia californica*

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<tr>
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<th>Descriptive notes</th>
</tr>
</thead>
</table>
**Name of tree** | **Where the tree grows** | **Descriptive notes**
--- | --- | ---
Swamp bay (Ocotea catesbyana) | Mississippi and Alabama. | Leaves smooth, shiny, 3 to 4 inches long, deep green. Fruit a multiple orange with black seeds. Twin thorns. Wood very durable in fences.

Wild fig (Ficus benjamina) | Southern Florida (tropical) | Leaves obovate, leathery, evergreen. Fruit rounded.

Wild plum (Prunus americana) | Arkansas, Oklahoma, Texas. | Leaves slender, 6 to 8 inches long. Fruit yellow.

Gingerwood (Xylocarpus mitella) | Southern Florida (tropical) | Leaves obovate, shining, yellowish-green. Fruit round, yellow.


**Name of tree** | **Where the tree grows** | **Descriptive notes**
--- | --- | ---

Cucumber magnolia (Magnolia acuminata) | Coastal region, Massachusetts to Florida and Texas. | Leaves obovate, shiny. Head of scarlet seeds. Flowers greenish-white.

Bigleaf magnolia (Magnolia macrophylla) | Central and Southern States, Ohio to Georgia and Arkansas. | Leaves 14 to 22 inches long, crowded at base. Flowers white, fragrant.

Mountain magnolia (Magnolia fraseri) | southern Appalachian Mountains, Virginia to Alabama. | Leaves at base, 10 to 12 inches long, crowded. Flowers yellow-pale.

Mountain magnolia (Magnolia grandiflora) | Gulf coast region of Georgia, Florida, and Alabama. | Leaves very narrow and rounded at base. Flowers greenish-yellow.


Cucumber magnolia (Magnolia acuminata) | Western Florida. | Leaves smooth, thick, glossy, 5 to 8 inches long, evergreen. Fruit round, yellow.

Bigleaf magnolia (Magnolia macrophylla) | southeastern quarter of United States. | Leaves 30 to 30 inches long, heartshaped at base. Flowers light yellow.

Cucumber magnolia (Magnolia acuminata) | Southern Appalachian Mountains, Virginia to Alabama. | Leaves 14 to 22 inches long, crowded at base. Flowers greenish-white.

Cucumber magnolia (Magnolia acuminata) | Gulf coast region of Georgia, Florida, and Alabama. | Leaves at base, 10 to 12 inches long, crowded. Flowers yellow-pale.

Cucumber magnolia (Magnolia acuminata) | southeastern quarter of United States. | Leaves 30 to 30 inches long, heartshaped at base. Flowers light yellow.

Cucumber magnolia (Magnolia acuminata) | Southern Appalachian Mountains, Virginia to Alabama. | Leaves 14 to 22 inches long, crowded at base. Flowers greenish-white.

Cucumber magnolia (Magnolia acuminata) | Gulf coast region of Georgia, Florida, and Alabama. | Leaves at base, 10 to 12 inches long, crowded. Flowers yellow-pale.

Cucumber magnolia (Magnolia acuminata) | southeastern quarter of United States. | Leaves 30 to 30 inches long, heartshaped at base. Flowers light yellow.

Cucumber magnolia (Magnolia acuminata) | Southern Appalachian Mountains, Virginia to Alabama. | Leaves 14 to 22 inches long, crowded at base. Flowers greenish-white.
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</tr>
</thead>
<tbody>
<tr>
<td>Laurel cherry (mockorange)*</td>
<td>South Atlantic and Gulf coastal region.</td>
<td>Leaves evergreen, thick, shiny, 2 to 6 inches long. Fruit black, shiny, holding over winter. Planted as ornamental tree.</td>
</tr>
<tr>
<td>West Indian cherry (Prunus jamhuriensis)</td>
<td>Florida east coast (Pilgrim Point to Pensacola).</td>
<td>Leaves pointed, firm, yellow-green, 2 to 4 inches long. Fruit orange-brown. Leaves broad, much rounded at end. Leaves of 1 to 3 leaflets, each rounded, thin. Pod 2 to 4 inches long.</td>
</tr>
<tr>
<td>Hibiscus (Hibiscus rosa-sinensis)</td>
<td>Lower Rio Grande Valley of Texas.</td>
<td>Leaves double compound of many leaflets. Pods straight, 4 to 6 inches long.</td>
</tr>
<tr>
<td>Texas buckeye (P. americana var. texana)</td>
<td>Gulf coast of Texas.</td>
<td>Leaves very small, compound, broad. Pod thick, 4 to 6 inches long. Leaves compound of many leaflets. Pod 1 inch broad, 4 to 5 inches long.</td>
</tr>
<tr>
<td>huisache (acacia)* (Acacia latifolia)</td>
<td>Western Texas.</td>
<td>Leaves compound, sticky. Pod slender, pointed. Flowers purple, sweet scented.</td>
</tr>
<tr>
<td>Cattalo (C. tortuosa)</td>
<td>Southern West Texas.</td>
<td>Leaves of 8 to 12 leaflets. Flowers yellow.</td>
</tr>
<tr>
<td>Crotalaria (C. acutiflora)</td>
<td>Central portion of Eastern United States (extended widely by planting).</td>
<td>Leaves compound, 13 to 19 leaflets. Flowers orange.</td>
</tr>
<tr>
<td>Crotalaria (C. acutiflora)</td>
<td>Central Mississippi Valley (Texas).</td>
<td>Leaves compound of very small leaflets. Flowers purple, sweet scented.</td>
</tr>
<tr>
<td>Crotalaria (C. acutiflora)</td>
<td>Coastal region (South Carolina to Texas, Mississippi Valley).</td>
<td>Leaves compound, borne in terminal clusters. Flowers red.</td>
</tr>
<tr>
<td>Black locust (black locust)</td>
<td>Appalachian Mountains, widely cultivated and naturalized over United States.</td>
<td>Leaves of 8 to 12 leaflets. Flowers red.</td>
</tr>
<tr>
<td>Clammy locust</td>
<td>Southern Appalachian Mountains.</td>
<td>Leaves of 3 to 11 leaflets. Flowers red.</td>
</tr>
<tr>
<td>Southern Florida (tropical).</td>
<td>Leaves of 6 to 8 leaflets. Pod thin, orange.</td>
<td>Leaves of 8 to 12 narrow leaflets. Flowers purple, sweet scented.</td>
</tr>
<tr>
<td>South Atlantic and Gulf coastal regions, Arkansas, Oklahoma, Texas.</td>
<td>Hawaiian club (grickly aub)* (Xanthorrhoea clusiana).</td>
<td>Flowers small, red.</td>
</tr>
</tbody>
</table>

**FOREST TREES AND FOREST REGIONS OF THE U.S.**

<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Wild lime tree (Xylopiaa pubescens)</td>
<td>Tropical parts of Florida and Texas.</td>
<td>Leaves 3 to 4 inches long, of 7 to 9 rounded leaflets. Bark bitter, purplish.</td>
</tr>
<tr>
<td>Satinwood (Xylopiaa pubescens)</td>
<td>Southern Florida (tropical).</td>
<td>Leaves of 3 to 5 leaflets, evergreen.</td>
</tr>
<tr>
<td>Hercules club (Xylopiaa pubescens)</td>
<td>Eastern United States.</td>
<td>Leaves opposite, small, mostly three-lobed.</td>
</tr>
<tr>
<td>Barberry (Berberis vulgaris)</td>
<td>Texas (along the Rio Grande).</td>
<td>Leaves three-divided, alternate on stem. Seed encased in thin, papery, circular wing.</td>
</tr>
<tr>
<td>Balsam clover (Amsinckia intermedia)</td>
<td>Southern Florida (tropical).</td>
<td>Leaves compound of 3 to 5 leaflets. Fruit with small seed.</td>
</tr>
<tr>
<td>Coral bean (Parkia muhlenbergii)</td>
<td>Texas.</td>
<td>Leaves of 2 to 4 rounded leaflets. Stone fruit.</td>
</tr>
<tr>
<td>Bitter bush (Parkia muhlenbergii)</td>
<td>Texas.</td>
<td>Tree with bitter juice. Fruit three-winged.</td>
</tr>
<tr>
<td>Bitter bush (Parkia muhlenbergii)</td>
<td>Florida.</td>
<td>Leaves shiny, long, wedge-shaped. Flowers yellow.</td>
</tr>
<tr>
<td>Florida black locust (Gleditsia triacanthos)</td>
<td>Texas.</td>
<td>Leaves small, leathery, compound, usu­ally spiny. Flowers red.</td>
</tr>
<tr>
<td>Honey locust (Gleditsia triacanthos)</td>
<td>Florida.</td>
<td>Leaves compound of very small leaflets. Flowers purple, sweet scented.</td>
</tr>
<tr>
<td>Central Mississippi Valley (Texas).</td>
<td>American plum (Prunus americana).</td>
<td>Leaves compound, 13 to 19 leaflets. Flowers orange.</td>
</tr>
<tr>
<td>Coastal region (South Carolina to Texas, Mississippi Valley).</td>
<td>American plum (Prunus americana).</td>
<td>Leaves compound, 13 to 19 leaflets. Flowers orange.</td>
</tr>
<tr>
<td>South Atlantic and Gulf coastal regions, Arkansas, Oklahoma, Texas.</td>
<td>Honeysuckle (Lonicera japonica).</td>
<td>Leaves compound, 13 to 19 leaflets. Flowers orange.</td>
</tr>
</tbody>
</table>

*Note: The table contains information about various species and their characteristics, including leaf shape, fruit type, and growth regions. For a comprehensive understanding, further details are required from the source.
## Descriptive Notes

<table>
<thead>
<tr>
<th>Name of tree</th>
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<th>Descriptive notes</th>
</tr>
</thead>
</table>

### Florida blackwood (Schlerocarya floridana)
- Leaves alternate, 2 inches long by 1 inch broad, narrow at base. Rounded fruit with stem.
- Leaves leathery. Fruit, 4-angled, red color.

### Mountain maple (Acer spicatum)
- Leaves opposite, of 3 leaflets, 2 inch long, heart-shaped. Flowers in 3-flowered clusters.
- Leaves opposite, 3-lobed, coarsely toothed, red leaf stem. Flowers in 5-flowered clusters.
- Leaves opposite, ovate, toothed, red leaflets. Flowers in 3-flowered clusters.

### Striped maple (Moosotis maculata)
- Leaves opposite, smooth, 3-lobed at apex. Bark striped, green color.
- Leaves opposite, palmate, smooth below, bleded. Round flowers in umbel clusters.

### Sugar maple (Acer saccharum)
- Leaves opposite, elliptical, rounded at ends. Flowers in 5-flowered clusters.
- Leaves opposite, long pointed. Flowers in 10-flowered clusters.

### Black maple (Acer nigrescens)
- Leaves opposite, elliptical, rounded; 5-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, elliptical, rounded; 3-lobed. Flowers in 5-flowered clusters.

### White maple (Acer saccharinum)
- Leaves opposite, broad, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, broad, 3-lobed. Flowers in 5-flowered clusters.

### Red maple (Acer rubrum)
- Leaves opposite, dull green (black), yellow dewy below, thick, drooping.
- Leaves opposite, 2 inches long, narrow, blunt pointed. Flowers in 5-flowered clusters.

### Eastern United States, especially in central Mississippi Basin.

### Neon-berry maple (Acer rubrum subsp. caudatum)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Southeastern United States...
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Silver maple (Acer saccharinum subsp. arguta)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Sugar maple (Acer saccharinum)
- Leaves opposite, elliptical, rounded; 5-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, elliptical, rounded; 3-lobed. Flowers in 5-flowered clusters.

### Silver maple (Acer saccharinum var. argutum)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Yellow buckle (Aesculus carnea)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Red maple (Acer rubrum)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Black maple (Acer nigrescens)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### White maple (Acer saccharinum)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Red maple (Acer rubrum)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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### Eastern United States, especially in central Mississippi Basin.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Sugar maple (Acer saccharinum)
- Leaves opposite, elliptical, rounded; 5-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, elliptical, rounded; 3-lobed. Flowers in 5-flowered clusters.

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- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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### Eastern United States, especially in central Mississippi Basin.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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### Sugar maple (Acer saccharinum)
- Leaves opposite, elliptical, rounded; 5-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, elliptical, rounded; 3-lobed. Flowers in 5-flowered clusters.

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- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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### Eastern United States, especially in central Mississippi Basin.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
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### Silver maple (Acer saccharinum subsp. arguta)
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, 3-lobed. Flowers in 5-flowered clusters.

### Sugar maple (Acer saccharinum)
- Leaves opposite, elliptical, rounded; 5-lobed. Flowers in 5-flowered clusters.
- Leaves opposite, elliptical, rounded; 3-lobed. Flowers in 5-flowered clusters.

### Silver maple (Acer saccharinum var. argutum)
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<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain silverbell (Helianthus carolinianus)</td>
<td>Southeastern United States</td>
<td>Leaves opposite, elongated, pointed, leathery. Flowers minute, borne on hairy clusters.</td>
</tr>
<tr>
<td>Yellowwood (Carya glabra)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, eliptical, 1 to 3 inches long, 1/3 to 1 inch wide. Flowers in showy clusters.</td>
</tr>
<tr>
<td>White ash (Fraxinus americana)</td>
<td>Throughout eastern half of United States</td>
<td>Leaves alternate, wide, leathery, 3 to 5 inches long, 2 to 3 inches wide. Flowers green, in clusters.</td>
</tr>
<tr>
<td>Swamp ash (Fraxinus caroliniana)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, 6 to 10 inches long. Flowers yellow, in clusters.</td>
</tr>
<tr>
<td>Black ash (Fraxinus nigra)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, 4 to 10 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>Water ash (Fraxinus americana)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, 4 to 8 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>Swamp privet (Ligustrum vulgare)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, 3 to 5 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>Sour gourd (Cucumis anguria)</td>
<td>Throughout eastern United States</td>
<td>Fruits round, 1 to 2 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>Tree huckleberry (Vaccinium arboreum)</td>
<td>Throughout eastern United States</td>
<td>Leaves alternate, 3 to 4 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>Southern wild blackberry (Rubus ursinus)</td>
<td>Throughout eastern United States</td>
<td>Leaves alternate, 3 to 6 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>Roughleaf dogwood (Cornus sericea)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, 2 to 4 inches long. Flowers white, in clusters.</td>
</tr>
<tr>
<td>White dogwood (Cornus florida)</td>
<td>Throughout eastern United States</td>
<td>Leaves opposite, 3 to 5 inches long. Flowers white, in clusters.</td>
</tr>
</tbody>
</table>

Note: The image contains a table with scientific names and descriptions of trees, but the text is not fully transcribed due to the image's resolution and focus.
### WESTERN FOREST TREES

The western division of trees of the United States, including the Rocky Mountain and Pacific coast forest regions (fig 7), has a total of 227 native tree species, representing 76 genera, 33 families, and the 2 broad classes which embrace all trees.12 Popularly the different species are distributed as follows: 62 conifers, 2 yews (tumion), 1 palm, 5 yuccas, 4 cacti, 3 hawthorns, and 150 species of willows, alders, poplars or cottonwoods, oaks, legumes (mesquites, beans, locusts, etc.), myrtles, and other hardwoods or broadleaf trees.

Seventeen of the above 227 tree species grow also in the eastern division of trees and, therefore, are described under both regions. These include the white spruce, dwarf juniper, aspen, balsam poplar (Balm-of-Gilead), peachleaf and Bebb's willows, paper birch, coral-bean, and buttonbush, which extend across the United States, and the wild plum, pin cherry, honey mesquite, hoptree, leucaena, boxelder, red or green ash, and nannyberry which extend westward into the Rocky Mountains.

An asterisk (*) after a common name indicates that it is used, but is not officially approved by the Forest Service.

<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Western white pine</strong></td>
<td>Washington, Oregon, Idaho, western Montana, south in Sierra Nevada Mountains in California</td>
<td>Leaves 5 in cluster, blue-green, 2 to 4 inches long. Cone slender, 5 to 11 inches long (fig. 6, a). Important timber tree. Leaves 5 in cluster, 2 to 3 inches long. Cone 8 to 12 inches long (fig. 6, b). Important timber tree.</td>
</tr>
<tr>
<td>Sugar pine (Pinus lambertiana)</td>
<td>Western Green, in mountains of California nearly to Mexico.</td>
<td>Leaves 5 in cluster, blue-green, 2 to 4 inches long. Cone slender, 5 to 11 inches long (fig. 6, a). Important timber tree. Leaves 5 in cluster, 2 to 3 inches long. Cone 8 to 12 inches long (fig. 6, b). Important timber tree.</td>
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<td>Western Green, in mountains of California nearly to Mexico.</td>
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</tr>
</tbody>
</table>
White spruce (Picea glauca)
Mexican white spruce (P. sitchensis)
Parry pine (P. pungens)
Mexican pine (P. engelmannii)
Pine (Pinus edulis)
Singleleaf pine (P. monophylla)
Fortis pine (P. banksiana)
Balsam fir (P. abies)
Terry pine (P. torreyana)
Arizona pine (P. arizonica)
Ponderosa pine (P. ponderosa)
Apache pine (Arizona longleaf pine)
Jeffrey pine (P. jeffreyi)
Chihuahua pine (P. chihuahua)
Lodgepole pine (P. contorta)
Digger pine (P. sabiniana)
Cotton pine (P. lentiformis)
Monterey pine (P. radiata)
Knob-cone pine (P. lambertiana)
Bristlecone pine (P. aristata)
Bristlecone pine (P. engelmannii)

Differing slightly from the above.

Leaves flat, blunt, shiny, twisted on branch to form two rows. Cone 1 inch long, without spines. Important timber tree.

Leaves needle-like, usually in twos, curved. Cone with short bracts. Leaves of different shapes, scale-like and soft, flexible, about 1 inch long. Cone purple, scales curved. Boles extended between the scales (fig. 6, F). Up to 23 feet in height. Important timber tree.

Leaves flat and grooved, often 2 to 3 inches long. Cone purple, scales curved. Bark hard, not easily removed. Leaves of different shapes, scale-like and soft, flexible, about 1 inch long. Cone purple, scales curved. Boles extended between the scales (fig. 6, F). Up to 23 feet in height. Important timber tree.

Leaves flat, blunt, shiny, twisted on branch to form two rows. Cone 1 inch long, without spines. Important timber tree.

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**Western black willow** (Salix Lasiofolia)

- **Name of tree:** Western black willow
- **Where the tree grows:** Across northern United States, Rocky Mountains and northern Pacific regions (See also p. 6).
- **Forest regions:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest tree:** Western black willow (Salix Lasiofolia)

**Narrowleaf willow** (Salix Lasiofolia)

- **Name of tree:** Narrowleaf willow
- **Where the tree grows:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest regions:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest tree:** Narrowleaf willow (Salix Lasiofolia)

**White willow** (Salix Lasiofolia)

- **Name of tree:** White willow
- **Where the tree grows:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest regions:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest tree:** White willow (Salix Lasiofolia)

**Bentwillow** (Salix Lasiofolia)

- **Name of tree:** Bentwillow
- **Where the tree grows:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest regions:** Across northern United States, Rocky Mountains and northern Pacific
- **Forest tree:** Bentwillow (Salix Lasiofolia)

**Paper birch**

- **Name of tree:** Paper birch
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Paper birch

**Bark pure white to light gray, separating into thin sheets. Leaves thin, rounded at base. Bark firm, shiny. Leaves small. Flowers opening with or after the leaves. All side branches having two kinds of flowers (male and female) on the same tree. Flowers opening before leaves. Flowering as above. Leaves thin.**

**Red bark** (Betula fendleri)

- **Name of tree:** Red bark
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Red bark

**Silica alba** (Alnus tricholepis)

- **Name of tree:** Silica alba
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Silica alba

**Mountain alder** (Alnus incana)

- **Name of tree:** Mountain alder
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Mountain alder

**Golden chionoquorum (Chionoquorum solandri)

- **Name of tree:** Golden chionoquorum
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Golden chionoquorum

**California black oak** (Quercus kelloggii)

- **Name of tree:** California black oak
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** California black oak

**White oak** (Quercus lobata)...

- **Name of tree:** White oak
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** White oak

**Coast live oak** (Quercus agrifolia)...

- **Name of tree:** Coast live oak
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Coast live oak

**Canyon live oak** (Quercus wislizenii)...

- **Name of tree:** Canyon live oak
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Canyon live oak

**Southern California, low mountain slopes and foothills.**

- **Name of tree:** Southern California, low mountain slopes and foothills
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Southern California, low mountain slopes and foothills

**Coast of Monterey County, Calif.**

- **Name of tree:** Coast of Monterey County, Calif.
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Coast of Monterey County, Calif.

**Coastal mountains and valleys of California.**

- **Name of tree:** Coastal mountains and valleys of California
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Coastal mountains and valleys of California

**Southern California, coastal and mountain ridges of California.**

- **Name of tree:** Southern California, coastal and mountain ridges of California
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Southern California, coastal and mountain ridges of California

**High Sierra Nevada Mountains of California.**

- **Name of tree:** High Sierra Nevada Mountains of California
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** High Sierra Nevada Mountains of California

**Mountains, eastern Texas to southeastern Arizona.**

- **Name of tree:** Mountains, eastern Texas to southeastern Arizona
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Mountains, eastern Texas to southeastern Arizona

**California, Sierra Nevada and Coast Mountains.**

- **Name of tree:** California, Sierra Nevada and Coast Mountains
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** California, Sierra Nevada and Coast Mountains

**Southern California, southern Arizona, and the desert region.**

- **Name of tree:** Southern California, southern Arizona, and the desert region
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Southern California, southern Arizona, and the desert region

**Tumey oak** (Quercus dumosa)...

- **Name of tree:** Tumey oak
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Tumey oak

**Western Texas to southern Arizona.**

- **Name of tree:** Western Texas to southern Arizona
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Western Texas to southern Arizona

**Forest trees**:

- **Name of tree:** Forest trees
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Forest trees

**Descriptive notes**

- **Name of tree:** Descriptive notes
- **Where the tree grows:** Across northern United States, across the continent. (See also p. 10.)
- **Forest regions:** Across northern United States, across the continent. (See also p. 10.)
- **Forest tree:** Descriptive notes
### Forest Trees and Forest Regions of the U.S.

<table>
<thead>
<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Western choke cherry (Prunus virginiana)</strong></td>
<td>southwestern New Mexico, southern California</td>
<td>Leaves often heart-shaped at base, and acicular at tip. Leaves thicker and fruit darker than choke cherry.</td>
</tr>
<tr>
<td><strong>Black choke cherry (Prunus americana)</strong></td>
<td>Western Texas, New Mexico, Arizona</td>
<td>Leaves small, elliptical, finely toothed. Fruit dark purple to nearly black.</td>
</tr>
<tr>
<td><strong>Holly choke cherry (Prunus illeaginosa)</strong></td>
<td>coast mountains of southern California</td>
<td>Leaves broadly oval, coarsely and sharply toothed, hairy. Fruit dark purplish red.</td>
</tr>
<tr>
<td><strong>Catalina cherry (Prunus virginiolus)</strong></td>
<td>southern Texas, southern New Mexico, Arizona</td>
<td>Leaves thin, slightly toothed. Fruit purple to nearly black.</td>
</tr>
<tr>
<td><strong>Mountain mahogany (Acer pensylvanicum)</strong></td>
<td>southern parts of Texas and New Mexico</td>
<td>Leaves small of 3 to 5 leaflets, 6 to 9 inches long. Flowers 1 foot wide.</td>
</tr>
<tr>
<td><strong>Pine siskiyou (Garrya glandulosa)</strong></td>
<td>southern Texas, New Mexico, Arizona, California</td>
<td>Leaves densely compound (mostly 2 inches wide) with 8 to 12 leaflets. Flowers 2 to 3 inches wide.</td>
</tr>
<tr>
<td><strong>Douglas hackberry (Celtis occidentalis)</strong></td>
<td>rocky mountain white oak (Quercus gambelii)</td>
<td>Pods flat, twisted, 2 to 4 inches long. Flower petals long.</td>
</tr>
<tr>
<td><strong>Rocky mountain white oak (Quercus gambelii)</strong></td>
<td>Deserts of Arizona, California</td>
<td>Leaves toothed. Twigs well curled, in clusters. Remains for several years.</td>
</tr>
<tr>
<td>**Leaves generally similar to above, 6 to 12 inches long, leaves 0.5 inches wide. ** Leaves small of 3 to 5 leaflets, 6 to 9 inches long, flowers 1 foot wide.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oregon oak (Quercus garryana)</strong></td>
<td>eastern United States, northern Rocky Mountains and foothills</td>
<td>Leaves smaller than above. Pods 1 to 2 inches long. Flower petals 1 to 2 inches long.</td>
</tr>
<tr>
<td><strong>Rocky mountain oak (Quercus kelloggii)</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves usually rounded, heart-shaped at base. Flowers rose to white. Pods 3 to 4 inches long.</td>
</tr>
<tr>
<td><strong>Northern Rocky Mountain region</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves not compound, evergreen, alternate, spirally twisted or screwed.</td>
</tr>
<tr>
<td><strong>Desert of Arizona, California</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves green on lower surface. Berry orange to nearly black.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leaves rounded, coarsely toothed above. Pods flat, twisted, 2 to 4 inches long. Flower petals long.</td>
</tr>
<tr>
<td><strong>California oak (Quercus lobata)</strong></td>
<td>Colorado and New Mexico</td>
<td>Leaves small, elliptical, finely toothed. Fruit dark purple to nearly black.</td>
</tr>
<tr>
<td><strong>Valley white oak (Quercus lobata)</strong></td>
<td>Central and southeastern Rocky Mountains</td>
<td>Leaves generally similar to above, 6 to 12 inches long, leaves 0.5 inches wide.</td>
</tr>
<tr>
<td><strong>Western Texas, New Mexico, Arizona, California</strong></td>
<td></td>
<td>Leaves usually rounded, heart-shaped at base. Flowers rose to white. Pods 3 to 4 inches long.</td>
</tr>
<tr>
<td><strong>Southwestern New Mexico, southern California</strong></td>
<td>Colorado and New Mexico</td>
<td>Leaves rounded, coarsely toothed above. Pods flat, twisted, 2 to 4 inches long. Flower petals long.</td>
</tr>
<tr>
<td><strong>Northern Rocky Mountains</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves generally similar to above, 6 to 12 inches long, leaves 0.5 inches wide.</td>
</tr>
<tr>
<td><strong>Douglas fir (Pseudotsuga menziesii)</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves usually rounded, heart-shaped at base. Flowers rose to white. Pods 3 to 4 inches long.</td>
</tr>
<tr>
<td><strong>California white oak (Quercus agrifolia)</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves generally similar to above, 6 to 12 inches long, leaves 0.5 inches wide.</td>
</tr>
<tr>
<td><strong>Rocky mountain white oak (Quercus gambelii)</strong></td>
<td>eastern United States, southern Rocky Mountains</td>
<td>Leaves usually rounded, heart-shaped at base. Flowers rose to white. Pods 3 to 4 inches long.</td>
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</table>
### Name of Tree

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<tr>
<th>Name of tree</th>
<th>Where the tree grows</th>
<th>Descriptive notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>California buckeye</td>
<td>Southern half of California in mountains.</td>
<td>Leaves of 4 to 7 leaves, opposite. Flowers white or pale red. Winter buds red.</td>
</tr>
<tr>
<td>Western sycamore</td>
<td>Southern Rocky Mountain region and eastward.</td>
<td>Leaves 8 to 10, dropping in fall, leaf stalks often tinged with red.</td>
</tr>
<tr>
<td>Mexican buckeye</td>
<td>Eastern Texas to New Mexico.</td>
<td>Leaves 8, shiny, dark green, pointed.</td>
</tr>
<tr>
<td>Holly leaf buckeye</td>
<td>Southern mountain ranges of Arizona and California.</td>
<td>Leaves rounded, 1 inch across, sharp pointed, dark green.</td>
</tr>
<tr>
<td>Ceanothuslesser</td>
<td>Western Rocky Mountain and Pacific Coast States.</td>
<td>Leaves 6 inches long, broadly elliptical, strongly veined. Fruit black, round</td>
</tr>
<tr>
<td>Plantain bluebell</td>
<td>Islands off coast of southern California.</td>
<td>Leaves thick, 3-60ed, red on lower surface.</td>
</tr>
<tr>
<td>Island myrtle</td>
<td>Northern California.</td>
<td>Branchlets spirally-pointed, leaves with many teeth.</td>
</tr>
<tr>
<td>Blue myrtle</td>
<td>Coast of southern California.</td>
<td>Leaves thick, 3-60ed, red on lower surface.</td>
</tr>
<tr>
<td>Spiny myrtle</td>
<td>Entire eastern California, southern Arizona.</td>
<td>Branchlets spirally-pointed, leaves with many teeth.</td>
</tr>
<tr>
<td>Beach myrtle</td>
<td>Southern Texas west to Arizona.</td>
<td>Leaves thick, 3-60ed, red on lower surface.</td>
</tr>
<tr>
<td>Giant cactus</td>
<td>Central and southern Arizona.</td>
<td>Branchlets spirally-pointed, leaves with many teeth.</td>
</tr>
<tr>
<td>Cholla</td>
<td>Southern Ariz.</td>
<td>Leaves thick, 3-60ed, red on lower surface.</td>
</tr>
<tr>
<td>Cholla (Opuntia stricta)</td>
<td>Pacific coast, Washington to southern California.</td>
<td>Branchlets spirally-pointed, leaves with many teeth.</td>
</tr>
<tr>
<td>Texas cactus</td>
<td>Texas, Oregon and California.</td>
<td>Leaves opposite, not compound (simple).</td>
</tr>
<tr>
<td>Ocotillo</td>
<td>Pacific coast region, inland in eastern California.</td>
<td>Leaves opposites, small, oval, 2 to 3 inches long.</td>
</tr>
<tr>
<td>Ash (Fraxinus americana)</td>
<td>Western Texas.</td>
<td>Leaves oval, narrow, thin, firm.</td>
</tr>
<tr>
<td>Texas ash</td>
<td>Western Texas.</td>
<td>Leaves 2 to 3 inches long, narrow, pointed, firm.</td>
</tr>
<tr>
<td>Arizona ash</td>
<td>Southern Arizona.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Perpetual ash</td>
<td>Southwestern Texas and adjacent New Mexico.</td>
<td>Leaves opposite, 7 to 10 leaves long. smooth, wide.</td>
</tr>
<tr>
<td>Littleleaf ash</td>
<td>Western Texas.</td>
<td>Leaves opposite, 7 to 10 leaves long. smooth, wide.</td>
</tr>
<tr>
<td>Singleleaf ash</td>
<td>Southern Colorado, Utah, and southeastern Arizona.</td>
<td>Leaves opposite, 7 to 10 leaves long. smooth, wide.</td>
</tr>
<tr>
<td>Ash (Fraxinus excelsior)</td>
<td>Northern Colorado.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Ash (Fraxinus pennsylvanicus)</td>
<td>Western New Mexico, Arizona.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Red ash (Fraxinus pennsylvanicus)</td>
<td>Southern New Mexico, Arizona.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Peachleaf ash</td>
<td>Arizona and New Mexico.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Curly leaf ash</td>
<td>Western Texas.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Ceanothuslesser</td>
<td>Southern California, Nevada, and southern California.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Ceanothuslesser</td>
<td>Pacific coast region of Washington, Oregon, California.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Ceanothuslesser</td>
<td>Western Texas to southern California.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Desert willow</td>
<td>Southern United States, east to the Great Plains.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Ceanothuslesser</td>
<td>High mountains of eastern California, Nevada.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Western sycamore</td>
<td>Northern California through Oregon and Washington.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Rubber tree</td>
<td>Northwestern United States west to northern Rocky Mountains.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
<tr>
<td>Arizona ash</td>
<td>Northwestern United States west to northern Rocky Mountains.</td>
<td>Leaves opposite, smooth (simple).</td>
</tr>
</tbody>
</table>

**FOREST REGIONS OF THE UNITED STATES**

Different kinds or species of trees are found in natural association or mixture, or prevail in different portions of the United States. This is largely the result of varying conditions of temperature and rainfall or snowfall, and secondarily, of soil conditions. There are 6 natural forest regions in continental United States, 2 each in Alaska and Hawaii, and 3 in Puerto Rico.

Most of the trees of a given forest region are different from those in the others, yet a considerable number are found in at least 2 and a few in 3 regions, especially in the eastern part of the United States where the large regions intergrade gradually. This difference in the predominance of various species is rather marked in the 2 forest regions of the United States, divided partly at least by the extensive and nearly treeless interior basin extending from southeastern Washington south to Mexico.

The 4 forest regions of the eastern half of the United States are the northern, central hardwood, southern, and tropical; the 2 of the western portion, the Rocky Mountain and Pacific coast. These are shown in figure 7. The forests of Alaska divide themselves into the coast and interior forest regions; those of Puerto Rico into mangrove swamp, wet, and dry forests; and those of Hawaii into the wet and dry forests, as shown respectively in figures 8, 9, and 10.

**EXTENT OF FOREST**

The original forests of the United States, exclusive of Alaska and the island possessions, are estimated to have covered a total area of about 280,000,000 acres, or nearly one-half (42 percent) of the total land area. Reduced mainly by clearing land, there now remains a little over one-half (60 percent) of this or a total forest area estimated at 495,000,000 acres. The bulk of this is classed as commercial forest land, which means land that is in timber or capable of producing it from young growth.

About three-fourths of the forest-producing land area of the United States lies east of the Great Plains. This land contains only about one-tenth of the remaining virgin timber, but a very large quantity of second-growth or young timber. The other one-fourth of the forest land, with nine-tenths of the total virgin timber but little second growth, is located in the Rocky Mountain and Pacific coast regions.

The change in the past from forest to cleared land has obviously taken place in the most fertile and accessible regions. In the Central and South Atlantic States less than one-half of the original land still remains in timber growth. In the Rocky Mountain States the reduction in area has been at least slight. New England, a hundred years ago, had much cleared land in farms, of which a considerable amount has since gone back to forest, so that the present forest area is about 70 percent of the original. This same process has tended to increase slightly the area of forest land elsewhere in the United States.

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32 MSC. PUBLICATION 217, U. S. DEPT. OF AGRICULTURE

FOREST TREES AND FOREST REGIONS OF THE U. S. 33

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*This and the next topic are based upon data in the following publication: United States Department of Agriculture, Forest Service. A National Plan for American Forestry. Letter from the Secretary of Agriculture in response to S. Res. 175, 85th Congress, 1st session, 5:00 (24). The report of the Forest Service of the Agriculture Department on the forest problem of the United States. 2 v. Illus. 1935. (2nd Corr., 1st sess., S. Doc. 12.*
FIGURE 7.—Forest regions of the United States. The 6 natural forest regions from east to west are the northern, central hardwood, southern, tropical, Rocky Mountain, and Pacific coast. Within the United States, including the names of the principal trees of each region, will be found on pages 39 to 46, inclusive.
Of the total commercial forest land of 495,000,000 acres in area, about 189,000,000 acres are bearing timber of saw-timber sizes, of which about 99,000,000 acres are in virgin timber and 90,000,000 in second-growth timber; 121,000,000 acres in smaller timber suitable for ties, pulpwood, or fuel wood; 102,000,000 acres of young growth, and 83,000,000 acres with inadequate stands of young trees. In addition, there are some 100,000,000 acres of noncommercial forest land of low grade, chiefly bearing scrubby growth. Or to picture the present condition in a slightly different way: Of every 100 acres of the original forest land with virgin timber only about 20 acres still remain; 80 acres have been cut or destroyed by fire. Out of every 100 acres of present forest land (of all classes), 38 have trees of saw-log sizes, 24 have only small timber of cordwood sizes (pulpwood, fuel wood, etc.), 21 acres are restocking fairly well with young growth, and 17 acres have little or no forest growth of any kind.

TIMBER CONTENTS OF FORESTS

A brief consideration of the amount of the standing timber resources of the United States may be of interest. The total wood supplies of all kinds found in our forests, including that suitable for saw timber, pulpwood, crossties, poles, piling, posts, and fuel wood, is estimated at 487 billion cubic feet. Of this, 229 billion cubic feet, is saw-timber material and the remainder cordwood material. This may not mean much, but a billion cubic feet of wood makes a solid stack 100 feet high, 100 feet wide, and 19 miles long. The bulk of our timber consists of softwoods (pines, spruces, firs, etc.), with only about 27 percent, or 129 billion cubic feet, of hardwoods.14

SAW TIMBER

The present forest, it is estimated, has one-third as much saw timber as was contained in the original or virgin forest of the United States. Much of this represents new growth on lands formerly cut over in lumbering. The estimates show a stand of 1,346 billion board feet of old-growth or virgin saw timber and 322 billion feet of second growth. Of these amounts, 1,486 billion board feet are softwoods, such as pines, spruces and firs, and 182 billion board feet hardwoods. The saw timber is very irregularly distributed over the country. For its area, New England has considerable saw timber. The southeastern portion of the United States has approximately one-half the total second-growth saw timber. The bulk of the remaining old-growth timber is in the Western States.

Four-fifths of the present total stand of saw timber lies west of the Great Plains, leaving only one-fifth for the eastern half of the United States. The bulk of the western timber consists of Douglas fir, ponderosa (western yellow) pine, lowland white, noble and silver firs, western hemlock, western red cedar, Sitka and Engelmann spruces, redwood and sugar pine. The eastern saw-timber stand (351 billion board feet) consists largely of the southern yellow pines, southern spruces, and balsam fir, southern cypress, oaks (over a dozen species), birches, beech, and maples, gums, yellow (or tulip) poplar, ashes, and hickories.

The national forests contain about one-third of the standing saw timber and the lumbermen own nearly one-half of the total. Farmers
FOREST TREES AND FOREST REGIONS OF THE U. S.

own about one-twelfth of the saw timber and one-third of the cordwood timber. About 88,000,000 acres of commercial forest land are in public ownership mostly in the national forests, 10,600,000 in State, county, or town ownership, while 150,000,000 acres are owned by farmers and 247,000,000 acres by other private individuals or lumber concerns.

CORDWOOD

A vast amount of timber less than saw-timber size is now growing in our forests. A portion is found in saw-timber trees, while the greater amount is on forest lands where the trees have not yet reached saw-timber sizes. The total amount is estimated at nearly 2,400,000,000 cords. The annual cut of cordwood material for all purposes, including fuel wood and pulpwood, is probably about 80,000,000 cords. The total supply of wood suitable for paper pulpwood is estimated at 1,800 million cords, or about one-third of the total quantity of wood of all kinds and sizes in continental United States. Nearly one-half is in the southeastern part of the country, one-fifth in the Pacific-coast region, one-tenth in New England, and the rest in the central and Rocky Mountain regions.

FOREST DRAIN AND GROWTH

The total amount of timber being cut or destroyed is estimated at 16 billion cubic feet yearly. Of the drain on forests as a whole, about 5 percent is due to fire, 6 percent to insects, disease, drought, or wind, and 86 percent to cutting for use. The yearly drain of standing saw timber by cutting for lumber and by other losses amounts to a total of 69 billion board feet, or six times the amount of growth of that class of timber.31

The yearly growth of timber of all kinds or species in the United States (continental area) has been estimated at a little over 7 billion cubic feet. Of this a little over one-half is softwoods (pines, spruces, firs, etc.). The yearly growth of saw timber is estimated at a total of 9.7 billion board feet. Of this two-thirds is softwoods and one-third hardwoods. More than one-half of the total growth of all timber, including saw timber, is taking place on somewhat more than 100 million acres of forest land in the southeastern portion of the United States (southern and a portion of the central hardwood forest regions). The western forest region is making a small growth because of the larger percentage of old growth timber and young timber.

Thus the forest timber supplies of the United States are being seriously depleted. The total yearly drain on saw timber amounts to about six times the estimated yearly growth, and about twice for all kinds of wood in trees including saw timber and all smaller material.

FOREST TYPES OR TREE ASSOCIATIONS

Within each of the forest regions are found various natural groups or associations of different species of trees. They occur over areas varying widely in extent from a few acres to millions of acres. Such groups or tree associations are known as "forest types."

The relation between cubic feet of wood in trees and board feet of saw timber varies greatly with the size and shape of the trees. In round figures, the present estimates are based upon 1,000 cubic feet of wood in trees yielding about 4,000 board feet of saw timber and 3,000 cords of wood. Saw-timber trees often yield 5,000 board feet of saw timber for each 1,000 cubic feet of wood in the tree.
Forest types may be compared to the make-up of various associations of people within a large city where, over rather extensive areas, one or different races predominate, either as a single race or, as often happens, two or more compatible races that are able to cooperate or supplement each other in making the best of existing conditions. The forest types that prevail over extensive areas have been defined and named by the one or more dominating kind or species of trees and have come to be well known. Such, for example, are the spruce-fir and the birch-beech-maple types within the northern forest region, and the Douglas fir and sugar pine-ponderosa pine types of the Pacific coast forest region as shown below.

### Forest Types Composing Each of the Six Forest Regions of Continental United States

<table>
<thead>
<tr>
<th>Region</th>
<th>Type</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern</strong></td>
<td>Pines</td>
<td>14,487,000</td>
</tr>
<tr>
<td></td>
<td>Spruces and firs</td>
<td>29,085,000</td>
</tr>
<tr>
<td></td>
<td>Aspen</td>
<td>21,088,000</td>
</tr>
<tr>
<td></td>
<td>Birch-beech-maples</td>
<td>17,118,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>83,201,000</strong></td>
</tr>
<tr>
<td><strong>Central hardwood</strong></td>
<td>Oak-hickories</td>
<td>44,342,000</td>
</tr>
<tr>
<td></td>
<td>Oak-pines</td>
<td>35,575,000</td>
</tr>
<tr>
<td></td>
<td>Oak-chestnut-yellow poplar</td>
<td>52,436,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>132,376,000</strong></td>
</tr>
<tr>
<td><strong>Southern</strong></td>
<td>Southern pines (8 species)</td>
<td>126,027,000</td>
</tr>
<tr>
<td></td>
<td>Cypress-southern hardwoods</td>
<td>23,412,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>149,439,000</strong></td>
</tr>
<tr>
<td><strong>Tropical</strong></td>
<td>Mixed hardwoods (tropical)</td>
<td>400,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>400,000</strong></td>
</tr>
<tr>
<td><strong>Rocky Mountain</strong></td>
<td>Ponderosa pine</td>
<td>21,811,000</td>
</tr>
<tr>
<td></td>
<td>Western white pine-western larch</td>
<td>12,984,000</td>
</tr>
<tr>
<td></td>
<td>Lodgepole pine</td>
<td>16,541,000</td>
</tr>
<tr>
<td></td>
<td>Spruces-firs</td>
<td>11,563,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>62,899,000</strong></td>
</tr>
<tr>
<td><strong>Pacific coast</strong></td>
<td>Douglas fir</td>
<td>27,587,000</td>
</tr>
<tr>
<td></td>
<td>Ponderosa pine</td>
<td>25,070,000</td>
</tr>
<tr>
<td></td>
<td>Sugar pine-ponderosa pine</td>
<td>10,188,000</td>
</tr>
<tr>
<td></td>
<td>Western white pine-western larch</td>
<td>660,000</td>
</tr>
<tr>
<td></td>
<td>Spruces-firs</td>
<td>1,532,000</td>
</tr>
<tr>
<td></td>
<td>Coast redwood-bigtree</td>
<td>1,544,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>66,685,000</strong></td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td></td>
<td><strong>495,000,000</strong></td>
</tr>
</tbody>
</table>

*Does not include Alaska, Puerto Rico, and Hawaii (figs. 8, 9, and 10). (See fig. 7.)*

### Forest Trees and Forest Regions of the U.S.

**Northern Forest Region**

The northern forest region covers most of New England and New York, extends southward over the Allegheny Plateau and Appalachian Mountains to northern Georgia, and in the Lake States includes most of Michigan, Wisconsin, and Minnesota (fig. 7). It was the first land in the United States to be logged and it now contains only insignificant areas of virgin timber. Cutting is going on mostly in small-sized timber which produces small dimension lumber (used for boxes and many forms of novelties), pulpwood, and fuel wood. The area of all types in forest or woods is roughly estimated at 83,201,000 acres divided into 17,118,000 acres of birch-beech-maple type, 14,487,000 of pine type, 21,688,000 acres of aspen type, and 29,908,000 acres of spruce-fir type. The reestablishment of forests on denuded or abandoned agricultural land is progressing rapidly either naturally or by planting in this region, especially on low-grade farm lands in New York and Michigan, where public and private agencies are working aggressively. Forest protection is well developed, and the use of forests for game and recreational purposes is important.

The northern forest region is characterized by the predominance of northern white pine, eastern hemlock, red and white spruces, gray, paper, sweet, and yellow birches, beech, sugar maple, basswoods, and northern red and scarlet oaks (pis. 3 and 4). Each of these species varies in abundance in different parts of the region, and most of them are absent in some places. For example, northern white pine is relatively abundant in the southern parts of Maine and New Hampshire, red or Norway pine in northern Minnesota, red spruce in upper Maine, New Hampshire, and New York, and white spruce in the northern portions of Michigan, Wisconsin, and Minnesota. The southern extension of the region is characterized by an abundance of oaks of various kinds, chestnut, black gum, yellow poplar, cucumber tree, black locust, and southern balsam fir. Once chestnut formed more than one-half of the total stand, but the blight has reduced the species to a remnant in the extreme southern portion. Vast quantities of chestnut wood and bark have been used for tannin extract (acid wood) and the straight trees for poles.

The more abundant or valuable trees composing the two divisions of the northern forest region in their relative importance beginning with the highest are as follows:

#### Northern Forest Trees

**Northern portion:**
- Red, black, and white spruces.
- Balsam fir.
- White, red (Norway), jack, and pitch pines.
- Hemlock.
- Sugar and red maples.
- Beech.
- Northern red, white, black, and scarlet oaks.
- Yellow, paper, black, and gray birches.

**Northern portion—Continued:**
- Aspen (popple) and largetooth aspen.
- Basswoods.
- Black cherry.
- American, rock, and slippery elms.
- White and black ashes.
- Shagbark and pignut hickories.
- Butternut.
- Northern white cedar.
- Tamarack.
The hardwood trees as a group reach their maximum number of different species, and for many of them the highest number of individual trees in a given species, in the central hardwood forest region. As shown in figure 7, the region covers a large amount of the central portion of the eastern half of the United States. Its area is approximately 132,376,000 acres, or about 27 percent of the total forest area of the country. Excluding the southern Appalachian Mountain country, it extends from Connecticut westward to southern Minnesota and south through the piedmont area and the Cumberland Plateau to the northern parts of Georgia, Alabama, and Mississippi, and through Arkansas to eastern Oklahoma and central Texas.

In the northern portion of the range, chestnut was formerly the most abundant tree. The region is strongly characterized by the variety and abundance of different oaks and hickories, and, on the better soils, yellow or tulip poplar and the tree "aristocrat"—the black walnut (pl. 5).

Generally distributed over the region are white and black oaks, mockernut and pignut hickories, American elm, red maple, and sycamore. The northern red and scarlet oaks of the northern division of the region give way in the southern division to the southern red, post, and willow oaks. Chestnut (formerly very abundant), shagbark hickory, sugar maple, and rock elm practically drop out, while shortleaf pine greatly increases in abundance, dogwood and eastern red cedar become commercially important, and Osage-orange and persimmon appear frequently. The Texas extension of the region comprises vast areas of small-sized trees of post, southern red, and blackjack oaks, mesquite, and a number of different junipers or cedars.

The principal kinds of trees that make up the two divisions of the central hardwood forest region, in the relative order of their importance, are:

**CENTRAL HARDWOOD FOREST TREES**

Northern portion:
- White, black, northern red, scarlet, bur, chestnut, and chinquapin oaks.
- Shagbark, mockernut, pignut, and bitternut hickories.
- White, blue, green, and red ashes.
- American, rock, and slippery elms.
- Red and silver maples.

Northern portion—Continued.
- Beech.
- Pitch, shortleaf, and Virginia pines.
- Yellow poplar (tulip poplar).
- Sycamore.
- Chestnut.
- Black walnut.
- Cottonwood.
- Black locust.
The forests of the region furnish large quantities of high-grade hardwood lumber which has constituted the raw material for wood-manufacturing industries in many States, especially Ohio, Indiana, Michigan, and North Carolina. Memphis, Tenn., has for many years been the largest center for hardwood lumber in the country.

Much high-grade hardwood lumber is shipped from this region to other parts of the United States or to foreign countries. White and red oaks, tulip or yellow poplar for many uses; black locust, red cedar, and chestnut for fence posts, grape stakes, and poles; black walnut for radio cabinets and other kinds of furniture; and ash for athletic and sporting goods and implement handles. Much of the cut of all classes of timber, including saw logs, crossties, piling, poles, and pulpwood, has been obtained from farm woods.

This is a region of great agricultural areas with woodlands forming from 10 to 15 percent of the total lands in farms in Ohio, Indiana, and Illinois, 30 percent in Tennessee, and 40 percent in Arkansas (based upon 1930 United States census). Lumber companies and others have large holdings in the rough and more inaccessible parts of the region.

Three types, or natural associations, of important tree species prevail in the region, with the following approximate acreages in each type: Oak-hickory type, about 44,342,000 acres, oak-chestnut-yellow poplar type, 52,459,000 acres, and the oak-pine type, 35,575,000 acres. This makes a total area of 132,376,000 acres of forest land in the region.

**SOUTHERN FOREST REGION**

The yellow pine forests of the Southeastern States afford the only remaining important source of large timber production in the eastern half of the United States. Interspersed with the pine-bearing lands are extensive river and creek bottom lands and swamps in which are growing stands of mixed hardwoods and southern cypress. The region covers the Atlantic and Gulf Coastal Plains from eastern Maryland to eastern Texas, including portions of Missouri, Arkansas, and Oklahoma (fig. 7). The natural conditions are a soil of relatively low agricultural value, abundant rainfall, long growing season, and many species of trees of high commercial importance. The area is the largest of the natural forest regions, with a total of 149,439,000
acres, made up of 126,027,000 acres of southern pines and 23,412,000 acres of wet-land hardwoods and cypress (pl. 6). It embraces about 30 percent of the total forest lands of the country.

Four species of pines, namely, shortleaf, loblolly, longleaf, and slash, make up the bulk of the stands (pl. 7). These are mentioned in the order of their prevalence in passing from north to south across the region. Shortleaf pine is found over an extensive region from New Jersey south to Florida and west to Missouri, Oklahoma, and Texas. Its best growth is in the broad piedmont or hilly area between the mountains and the Coastal Plain. Loblolly pine grows extensively over the upper Coastal Plain. Mixed loblolly and shortleaf pines occur over a vast area in large timber holdings and on hundreds of thousands of farms. Over two-thirds of the total naval stores (spirits of turpentine and rosin) of the world is derived from the crude gum or resin of longleaf and slash pines growing in the southeastern part of the United States. The bulk of production centers in southern Georgia and northern Florida. During the past few years, the amount produced yearly has averaged about 600,000 casks of turpentine (50 gallons each) and about 2,000,000 barrels of rosin (500 pounds each), together valued at about $17,000,000.

Three other pines make a slight addition to the total amount; namely, the pond pine (a close relative of the pitch pine of the East) in the acid lands and swamps of the Atlantic Coastal Plain; the sand pine of the sand barrens of Florida; and the spruce pine, a tree which, although it is not a white pine, somewhat resembles the northern white pine in appearance of the bark, color of the foliage, and softness of the wood.

The southern pines yield the bulk of the total timber cut from the region (lumber and other timber products), which has ranged mostly from 6 to 12 billion board feet of lumber and 1½ million cords of pulpwood yearly, besides large quantities of railroad ties, pilings, and fuel wood (pl. 8). About half of this, it is estimated, was cut from stands of second-growth or comparatively young trees. The lumber cut of the South alone is about one-third of the total for the United States.

The lowland and swamp hardwoods, southern cypress, and an intermittent fringe of southern white cedar cover about one-third of the total area of the southern forest region. The prevailing hardwood trees are red (or sweet) gum, swamp black gum, and tupelo gum, willow oak, water oak, cottonwoods, willows, magnolias, and bays. The red (or sweet) gum occurs over an extensive area, grows rapidly, and holds a high position with respect to quantity cut annually and total value. The large size of the tree and the interlocked fiber of the wood make it one of the leading veneer woods of the country. Only a relatively small amount of the once abundant and highly useful cypress is left; when logged it does not come back abundantly as do the pines.

The prevailing trees, which compose the forests of the two divisions of the Southern region, follow in the order of their relative importance:
Forest Industries in the Southern Forest Region.

A. The yearly cut of southern pines exceeds that of any other species or group, amounting to more than 3 billion feet of lumber, 1½ million cords of pulpwood, and many other products. B. Longleaf and slash pines yield crude resin from which turpentine and rosin are obtained. Two-thirds of the world's production come from these trees in the southern forest region.

Southern Forest Trees

Pinelands:
- Longleaf, shortleaf, loblolly, and slash pines.
- Southern red, turkey, black, post, laurel, and willow oak.
- Red gum (sweetgum).
- Winged, American, and cedar elms.
- Black, red, sand, and pignut hickories.
- Eastern and southern red cedars.
- Pond and sand pines.

Hardwood bottoms and swamps:
- Red or sweet, tupelo, and swamp black gums.
- Water, laurel, live, overcup, Texas red, and swamp chestnut oaks.
- Southern cypress.

Tropical Forest Region

Two fringes of forest, made up chiefly of tropical tree species, occur along the coast in extreme southern Florida and in extreme southern coastal Texas. The total area involved is probably not over 400,000 acres and the stand of trees varies greatly in density. Many kinds of hardwood trees, most of which are small and bear evergreen leaves and pulpy berries or stone fruit, make up the stand. A few are of some commercial or economic importance, like mastic or "wild olive", and the mangrove, whose impenetrable thickets hold the muddy banks, causing land to be built up, and form a protection against tropical hurricanes. The trees represent the northernmost extension of their natural ranges, which mostly include some or all of the West Indies, Bahamas, Central America, and South America. They have probably sprung from seeds washed ashore during storms or distributed by birds.

The principal trees in this forest region are:

Tropical Forest Trees

Mangrove.
- Royal and thatch palms.
- Florida yew.
- Wild fig.
- Pigeon plum.
- Bitty.
- Wild tamarind.

Rocky Mountain Forest Region

Spread over a vast extent of mountains and high plateaus in the central-western part of the United States, the Rocky Mountain forest region reaches from Canada to Mexico, a length of about 1,300 miles, and from the Great Plains west to the great basin of Nevada and eastern parts of Oregon and Washington, a breadth of 800 miles. It embraces over 40 isolated forest areas or patches, some of large size like that in western Montana, northern Idaho, and eastern Washington, and another in Colorado, New Mexico, and Arizona.
Many are relatively small timbered tracts, lying on the ridges and higher mountain plateaus, interspersed with great treeless stretches and sometimes widely scattered in large arid districts, as in parts of Nevada, Utah, and Arizona. As a result, the timber is locally in good demand and valuable for development, as well as for shipping to other points.

The change in forest cover as one ascends a mountain slope may be illustrated by the successive belts in the southern Colorado-New Mexico forest area. First, at altitudes ranging from 5,000 feet on moister situations to 6,000 feet on drier slopes occurs a belt of one-seeded, alligator, or Utah junipers and pinon, or nut pine; above it ponderosa (western yellow) pine which forms extensive forests over the highly dissected Colorado plateau; with Douglas fir and white fir mingling in the stand in the upper part of the belt, and often so predominating as to form pure stands at 8,000 feet; and finally Engelmann spruce over an extensive horizontal belt terminating at the upper portion at altitudes of 9,000 to 11,000 feet in a belt of alpine fir.

In the northern Montana-Idaho portion of the Rocky Mountain region, forest growth begins at elevations of 3,000 to 4,000 feet and, depending very much upon the exposure and soil moisture, extends upward to 6,500 to 7,000 feet. Limber and western white pine blend at 4,500 feet. The maximum commercial forest growth occurs at about 5,000 feet with limber pine on the dry southern exposures and on the moister or northern slopes Engelmann spruce and alpine fir. Another important tree in the central portion of the region is lodgepole pine, a tall slender tree which grows in dense stands, deriving its name from its use by Indians in making lodges or tepees.

The total area of the many separate divisions or blocks of the Rocky Mountain region amounts to about 62,899,000 acres, or about 13 percent of the total forest land in the United States. The most extensive type is the ponderosa (western yellow) pine, occupying 21,811,000 acres, or about 35 percent of the region. The lodgepole pine type covers about 20 percent or 16,541,000 acres, the western white pine-western larch type about 21 percent or 12,984,000 acres, and the Douglas fir and Engelmann spruce (with some others) about 18 percent or 11,563,000 acres.

The present condition of the Rocky Mountain region is to a very large degree the result of extensive fires set by prospectors in search for outcroppings of gold, silver, or copper ores, over much of the period since the early fifties, and those set by other early pioneers and by tourists who came later. In an earlier day, the Spaniards and their descendants regularly burned over the mountains to get rid of the forest and in its place provide forage for their goats and sheep. Lumbering has been carried on, on a varying scale, as markets have been available during the past 60 years or so, both locally and over the treeless agricultural region to the east.

An idea of the composition of the forest in the various parts of the Rocky Mountain region can be gained from the grouping of the trees in the order of their relative importance for each of the northern, central, and southern portions, as follows:
MIXED FOREST OF CONIFERS OF THE NORTHERN PORTION OF ROCKY MOUNTAIN AND PACIFIC COAST FOREST REGIONS.

The trees are mostly Douglas fir, with western hemlock, western red cedar, and western white pine.

PLATE 10

FOREST TREES AND FOREST REGIONS OF THE U.S.

ROCKY MOUNTAIN FOREST TREES

Northern portion: Northern Idaho and western Montana:
- Lodgepole pine.
- Douglas fir.
- Western larch.
- Engelmann spruce.
- Ponderosa pine.
- Western white pine.
- Western red cedar.
- Lowland white and alpine firs.
- Western and mountain hemlocks.
- Whitebark pine.
- Balsam poplar (Balm-of-Gilead).

Central portion (Colorado, Utah, and Nevada):
- Lodgepole pine.
- Engelmann and blue spruces.
- Alpine and white firs.
- Douglas fir.
- Ponderosa pine.
- Aspens and cottonwoods.
- Pinon and singleleaf pinon.
- Rocky Mountain red cedar and Utah juniper.
- Bristlecone and limber pines.
- Mountain mahogany.

Southern portion (New Mexico and Arizona):
- Ponderosa pine.
- Douglas fir.
- White, alpine, and corkbark firs.
- Engelmann and blue spruces.
- Pinon and Mexican pinon.
- One-seeded and alligator junipers and Rocky Mountain red cedar.
- Aspens and cottonwoods.
- Limber, Mexican white, and Arizona pines.
- Oaks, walnut, sycamore, alder, boxelder.
- Arizona and smooth cypresses.

PACIFIC COAST FOREST REGION

Stands of very large firs, pines, hemlock, and cedars characterize the Pacific coast forest region. These are dense in the coastal forests of Washington and Oregon. In the extreme southern portion, in southern California, the timbered lands are surrounded with margins of a dense growth of dwarf broadleaf trees known as “chaparral.”

The big trees, or Sierra redwoods, of the Sierra Nevada mountains in central-eastern California, reach enormous heights of over 300 feet and diameters up to 40 feet, and single trees contain up to 360,000 board feet of lumber. Another large tree is the coast redwood of the low coastal mountain ranges of central and northern California. One such coast redwood measuring 364 feet in height is reported to be the tallest living tree in the United States. The western red cedar, Douglas fir, and sugar pine of California all grow to heights of over 200 feet with diameters up to 12 to 15 feet (pl. 9). The western red cedar averages the largest of this group. Douglas fir, somewhat smaller, and sugar pine, with its thin rather smooth bark, range mostly from 6 to 9 feet in diameter. About four-fifths of the total standing saw timber of the country is found west of the Great
Plains in the Rocky Mountain and Pacific coast forest regions. The Pacific region, with about one-seventh of the total forest area of the country, contains more than one-half (62 percent) of the total saw timber of the United States, or about 1,042 billion board feet.

One-half of the total standing softwood saw timber (pines, spruces, firs, etc.) in the United States is contained in the two trees, Douglas fir and ponderosa pine, both important in the two western forest regions. Four-fifths of the total Douglas fir (530 billion board feet) is growing in two States, Oregon and Washington, of the Pacific coast region. Ponderosa pine, which ranks second in this country, occurs to the extent of 70 percent of its total amount in the same forest region.

The Pacific coast forest region contains a total of 66,685,000 acres, or about 13 percent, of the total forest area in the country. A forest type dominated by Douglas fir (pl. 10) contains about 27,687,000 acres, and another in which ponderosa (western yellow) pine predominates, 25,070,000 acres. The type consisting mostly of sugar pine and ponderosa pine has 10,183,000 acres, western white pine and western larch an area of about 669,000 acres, spruce and fir about 1,532,000 acres, and the coast redwood and the big tree jointly 1,544,000 acres.

Lumbering operations going forward on a large scale are in fact almost pure engineering. Many of the different trees produce extremely large cuts of clear, useful lumber, much of which is now being delivered by ships to many world ports, some via the Panama Canal to the more important eastern harbors, where it is distributed and sold widely in competition with local lumber.

The important or more common trees in the two natural divisions of the region are:

**PACIFIC COAST FOREST TREES**

Northern portion (western Washington and western Oregon):
- Douglas fir.
- Western hemlock.
- Lowland white, noble, and silver firs.
- Western red cedar.
- Sitka and Engelmann spruces.
- Western white pine.
- Port Orford and Alaska cedars.
- Western and Lyall larches.
- Lodgepole pine.
- Mountain hemlock.
- Oaks, ash, maples, birches, alders, cottonwood, madrone.

Southern portion (California):
- Ponderosa and Jeffrey pines.
- Sugar pine.
- Redwood and bigtree.
- White, red, lowland white, and Shasta red firs.
- Incense cedar.
- Douglas fir.
- Lodgepole pine.
- Knobcone and digger pines.
- Bigcone spruce.
- Monterey and Gowen cypresses.
- Western and California junipers.
- Singleleaf pine.
- Oaks, buckeye, laurel, alder, madrone.

**FORESTS OF ALASKA**

Along the southeastern coast of Alaska for more than 1,000 miles stretches a gradually narrowing belt of dense forest made up of trees of good sizes and commercial species. This is the most northern extension of the mixed coniferous forest found in Oregon, Washington, and British Columbia. About three-fourths of the total stand of timber consists of western hemlock and the remainder mostly of Sitka spruce, with small amounts of western red cedar and Alaska.
cedar. Mountain hemlock and lodgepole pine are rarely found. Cottonwood, alders, and willows represent the so-called "hardwood" group. The spruce overtops the other species, and below the main stand of hemlock and some cedar occurs a dense understory of small trees, blueberry, devil's club, and other shrubs, with a thick forest carpet of moss overlying the ground (pls. 11 and 12).

The total stand of timber is estimated at about 81 billion board feet, of which 78 billion is located within the Tongass National Forest,
Forest, and the combined area of the two national forests is 21,000,000 acres. A very different type, known as the "interior" forest, lies mostly within the drainage basins of the Yukon and Kuskokwim Rivers. It is composed of small-sized trees of spruces, birches, and aspens and other poplars which form dense stands over large areas. White spruce is the only tree growing to saw-timber size. Trees which occur in Alaska, but not in continental United States and therefore not listed on pages 5 to 32, include the bigleaf willow (Salix amplifolia), felt leaf willow (S. alaxensis), Kenai birch (Betula kenaica), Alaska white birch (B. nepalakana), and Alaska red birch (B. euramericana). This type of forest prevails over a vast area estimated at some 80,000,000 acres (fig. 8).

The prevailing trees of the two forest regions are:

**Coast forest:**
- Western hemlock (important).
- Sitka spruce (important).
- Western red cedar.
- Alaska cedar (yellow cedar).
- Mountain hemlock.
- Lodgepole pine.
- Black cottonwood.
- Red and Sitka alders.
- Willows.

**Interior forest:**
- White (important) and black spruce.
- Alaska white (important) and Kenai birches.
- Black cottonwood.
- Balsam poplar (Balm-of-Gilead).
- Aspen.
- Willows.
- Tamarack.

**FORESTS OF PUERTO RICO**

The forests of Puerto Rico are tropical and may be divided roughly into wet forest, dry forest, and mangrove swamps, as shown in figure 9. These forest types are separated by the central mountain range, which causes a heavy rainfall on the north-facing slopes and a great shortage in precipitation on the south side in the southern portion of the island. Forest vegetation culminates in density and luxuriance of growth in the tropical rain forests of the northern and central portions of the island (pl. 13). In the southern portion, the lower mountain slopes, foothills, and coast lands are sparsely covered with an open growth of short-bodied deciduous trees and shrubs. The original forests of the island have largely disappeared through clearing land for agriculture, heavy overcutting of timber, close grazing, and burning. The second-growth forest, although irregular in occurrence, consists of a great variety of species and forest types.

The total forest area is reported to be about 100,000 acres, or about 5 percent of the total land surface, which originally was all in forest growth. This is only one-fifteenth of an acre of forest land for each inhabitant. Saw timber occurs on about 30,000 acres. The Caribbean National Forest, with an area of about 15,000 acres and reaching a climax in forest tree growth at an elevation of 2,000 feet, is being managed on a conservative basis by the Forest Service. There are some 37,000 acres of mangrove swamp of which about 15,000 acres are in insular forest for protection of the coast. The principal forest industry is burning charcoal. The island has no forest products for export; on the other hand, it imports large quantities of lumber and wood products. Only about 10,000 acres of virgin saw-timber forest remain, located on the bottomlands and slopes of the mountains of the national forest, and all rather difficult of access.

In the order of their relative importance or abundance the principal trees are as follows:

**Wet forest:**
- Roble (Tabebuia several species).
- Moon (cabbage bark) (Andira inermis).
- Guamanguo (muskmood) (Guarea guarea).
- Guayu (tiga inma).
- Guamyu (tiga laurea).
- Tabonuco (incense tree) (Dacyrid eda escuala).
- Palma de Sierra (mountain palm) (Euterpe globa).

**Dry forest—Continued:**
- Albarillo (wild quinine) (Eostoma carubrum).
- Jobo (hog plum) (Spondia mosi).
- Mangrove swamps:

**Mangrove swamps:**
- Mangle (mangrove): (Rhizophora mangle).
- Teaca (candlewood) (Amryis elemi-fera).

**FORESTS OF HAWAII**

The native forests of Hawaii are tropical in character and consist of wet and dry types (fig. 10). They are found mostly between elevations of 1,500 and 6,000 feet above sea level. The timber forests grow on the coastal plain and lower mountain slopes in districts of very heavy rainfall, and are naturally dense and jungelike. Above them, and extending far up the mountain slopes (to 8,000 feet), is a forest cover of low trees or shrubs of little value for timber, but of high importance for protection against soil erosion and rapid run-off of rain water. No Temperate Zone trees occur naturally, which results in large areas at high elevations without trees of any kind. Below 1,500 feet elevation, where the rainfall is light, the tree growth consists mostly of mesquite (known as "algaraba") which was introduced from southwestern United States as far back as 1828 and
extensively planted for wood and forage for livestock. Various species of eucalyptus, native of Australia, have also been planted and now furnish timber.

The total forest area is a little over a million acres (1,031,840), or about three times as much as the forested land of Delaware or two-thirds as much as that of Connecticut. This is an average of 4 acres to each inhabitant, as compared with 2 acres per capita in continental United States. The forests occur on 7 of the 8 islands making up the Territory and comprise one-quarter of the total land surface. Four-fifths of the forest lands, or about 800,000 acres, have been created as reserves, of which about 560,000 acres are in Government ownership and the balance privately owned. Two-thirds of the total is on the Island of Hawaii, while the remainder is mostly on Kauai and Maui. The present forests are very greatly depleted, largely because of extensive browsing of goats, hogs, and cattle and severe unchecked fires. Prior to 100 years ago the overflow of lava from volcanoes was the only source of destruction to timber. The forests of today do not yield sufficient products for the people, and timber has to be imported.

The forests are composed mainly of five distinct types: Pure growths of ohia lehua, koa, mamane, and kukui, and mixed forests composed largely of the above and koa, koaia, kopiko, kolea, naio, pua, and other trees.

The ohia lehua tree is found extensively in pure stands or with some mixture of other trees, in dense junglelike growth over districts of very heavy rainfall, such as northeastern mountain slopes and tops up to 6,000 feet, as shown in plate 14. This type comprises about three-fourths of the native forest. The tree at its best reaches heights up to 100 feet and trunk diameters up to 4 feet. Koa, known as Hawaiian mahogany, also forms pure stands and occurs widely in mixture with other species. As it is a high-grade cabinet wood used...
About three-fourths of the trees in the islands are ohia lehua; those shown here are 90 feet in height. The trail has been cleared through a dense growth of large ferns, shrubs, and vines.

at home and exported, it has been extensively cut. Kukui is an abundant tree, deriving its English name "candlenut" from the oil in the nut, which the natives formerly used for illumination. One or more native species of the true sandalwood, known as "iliihi", have been cut and exported to such an extent that the trees are relatively very scarce.

The first four trees listed below are of much importance in the forest, while the others mentioned are only a few of the 200 or more native species on the islands:

**HAWAIIAN FOREST TREES**

- Ohia lehua (*Metrosideros polymorpha*)
- Koa (*maloa*) (*Acacia koa*)
- Mamane (*Sophora chrysophylla*)
- Kukui (*candlenut*) (*Aleurites triplod*)
- Kokia (*clone* kokia)
- Kopiko (*Streusia enoccorpa*)
- Kolea (*Saratoca opatholato*)
- Naio (*false sandalwood*) (*Myoporum sandwicensi*)
- Pua (*Orangeus sandwicensis*)
- A'e (*Xanthoxyllum kaouiance*)
- Lapa (*Maha sandwicensis*)
- A1ha (*Cideroxylon awahine*)
- Ilauha (*sandalwood*) (*Santalum freycinetianum*)
- Algaraba (mesquite) (*Prosopis juliflora*)

**TREE LABELS**

Tree names are of interest to adults but probably even more so to young people. A suitable label on a tree performs a useful service by furnishing ready information to the curious passer-by. Inquiries are frequently received by this Department as to desirable methods of labeling specimen trees. The following method is suggested as simple, attractive, and inexpensive.

The common and scientific names, and if desired also the natural home or range of the tree, are embossed on pieces of aluminum "tape." These are then fastened with zinc or brass brads to small wooden blocks cut from ordinary inch boards. Redwood and southern cypress stand weathering and hold paint well. The blocks should be beveled deeply on the 4 face edges and 2 holes bored 1 above and 1 below the center for taking nails. This allows for considerable growth of the tree without damage to the labels. The blocks are painted black on all sides. A good way might be to dip them in thin paint or dark creosote stain. The dipping can be done quickly by hooking a wire into a hole of one or more of the blocks. If creosote is used it is suggested that the blocks be strung on a wire or cord and soaked for 12 hours. Only galvanized nails should be used, as common nails will cause rust stains. For holding the blocks, tenpenny or twelvepenny nails are suggested, depending on the thickness of the bark, and for fastening the strips on the blocks, brass or galvanized brads. Two suggested designs of tree labels are shown in figure 11.

The size and shape of the blocks will vary with the number of metal strips used or the amount of wording. A narrow margin is suggested since small blocks are more economical, less subject to weather checking, and less attractive as targets. In putting up the labels the nails should not be driven in to the head. This will allow for some growth of the tree without injuring the blocks. A height of 5 to 6 feet up the tree is probably about right for easy reading and for the desired protection.
Many States have published popular forest-tree guides, handbooks, or pamphlets describing all or the more abundant native trees. Some include the more common exotic or foreign trees. These guides are very helpful in identifying trees. In the preparation of the text and illustrations of many of them the Forest Service has been a cooperator. The distribution is made wholly by the States, either free or at a nominal cost. Recently a few States have been financially unable to continue distribution, or at least to keep up stock at all times. The names and addresses of the State agencies to whom requests should be sent are indicated by asterisks (*) in the list printed below. Many of the other State agencies have tree lists or other information available upon request.

California.—Chief Forester, Department of Natural Resources, Sacramento. *Chief Forester, Department of Natural Resources, Sacramento.
Delaware.—State Forester, State Forestry Department, Dover. *Superintendent, Department of Education, Dover.
District of Columbia.—Secretary, American Forestry Association, 1713 K Street NW, Washington, D.C. *Secretary, American Forestry Association, 1713 K Street NW, Washington, D.C.
Florida.—State Forester, Board of Forestry, Tallahassee. *State Forester, Board of Forestry, Tallahassee.
Georgia.—State Forester, Department of Forestry and Geological Development, Atlanta. *State Forester, Department of Forestry and Geological Development, Atlanta.
Indiana.—State Forester, Department of Conservation, Indianapolis. *State Forester, Department of Conservation, Indianapolis.
Iowa.—State Forester, State Board of Administration, Des Moines. *State Forester, State Board of Administration, Des Moines.
Kansas.—State Forester, State Board of Agriculture, Topeka. *State Forester, State Board of Agriculture, Topeka.
Kentucky.—State Forester, State Board of Agriculture, Frankfort. *State Forester, State Board of Agriculture, Frankfort.
Louisiana.—State Forester, Department of Conservation, New Orleans. *State Forester, Department of Conservation, New Orleans.
Maryland.—State Forester, Department of Forestry, Baltimore. *State Forester, Department of Forestry, Baltimore.
Massachusetts.—State Forester, Department of Conservation, Boston. *State Forester, Department of Conservation, Boston.
Minnesota.—Director, Department of Conservation, St. Paul. *Director, Department of Conservation, St. Paul.
Mississippi.—State Forester, Commission of Forestry, Jackson. *State Forester, Commission of Forestry, Jackson.
Missouri.—State Forester, Department of Fish and Game, Jefferson City. *State Forester, Department of Fish and Game, Jefferson City.
Montana.—State Forester, Forestry Department, Missoula. *State Forester, Forestry Department, Missoula.
Nebraska.—State Forester, State Board of Agriculture, Lincoln. *State Forester, State Board of Agriculture, Lincoln.
New York.—Director, State University Library, Buffalo. *Director, State University Library, Buffalo.
North Carolina.—State Forester, Division of Forestry, Raleigh. *State Forester, Division of Forestry, Raleigh.
North Dakota.—State Forester, State School of Forestry, Bottineau. *State Forester, State School of Forestry, Bottineau.
Ohio.—State Forester, Department of Forestry, Wooster. *State Forester, Department of Forestry, Wooster.
Oklahoma.—State Forester, Oklahoma Forest Commission, Oklahoma City. *State Forester, Oklahoma Forest Commission, Oklahoma City.
Oregon.—State Forester, State Board of Forestry, Salem. *State Forester, State Board of Forestry, Salem.
Pennsylvania.—Secretary, Department of Forests and Waters, Harrisburg. *Secretary, Department of Forests and Waters, Harrisburg.
Tennessee.—State Forester, Division of Forestry, Nashville. *State Forester, Division of Forestry, Nashville.
Texas.—State Forester, Texas Forest Service, College Station. *State Forester, Texas Forest Service, College Station.
Virginia.—State Forester, State Forest Service, University. *State Forester, State Forest Service, University.
Washington.—State Forester, Department of Conservation, Olympia. *State Forester, Department of Conservation, Olympia.

BOOKS ON FOREST TREES

Many books have been published giving popular or technical botanical descriptions of forest trees or native forest shrubs. For information concerning these it is suggested that inquiries be addressed to any of the various State forestry agencies mentioned above or, if desired, to the Forest Service, United States Department of Agriculture, Washington, D.C.

FEDERAL PUBLICATIONS

A Check List of the Forest Trees of the United States, Their Names and Ranges (Miscellaneous Circular 92), 17 gives the names of all the known tree species and many of the recognized varieties and hybrids, and their known ranges. They are botanically grouped by genera, families, and classes, but no descriptions of trees are given. Other publications deal with a few individual species and various phases of forest management, including planting, thinning, cutting, and utilization of the products. A list may be requested from the Forest Service, United States Department of Agriculture, Washington, D.C.

17 This publication is no longer available for distribution, but may be found in the larger libraries.
Motion pictures, film strips, and colored lantern slide sets (accompanied by lecture notes) dealing with many phases of forestry are available for use by responsible public or private agencies, including schools, 4-H clubs, Scouts, and other educational or civic clubs. The conditions are that borrowers pay transportation charges, assume responsibility for damage due to carelessness, and return or forward the borrowed material promptly upon request. Applications should be sent as far as possible in advance, to the Forest Service, or to the Extension Service, United States Department of Agriculture, Washington, D. C.