I am particularly delighted to have an opportunity to talk to you this morning about our forest resources. It comes at a very opportune time because, over the past 4 years, the United States Forest Service has been busily engaged in making an assay of our forest resources -- what they are and what they should be in order to meet our national requirements for wood at a certain target date, which for purposes of convenience we selected as 2000 A. D.

That date is not very far off. From where you sit, it may look like an interminable period of time; but to the forestry profession and to forestry in general, 43 years is less than what we call one rotation in a forest from seedling to harvested tree. So, if we are going to manage our important forest resources to meet those national goals, we must start doing so now. A little while later will be much too late.

I thought I would like to preface my remarks to you today with a short review of what the forest situation has been in this country and what it is now, so that we can more accurately judge what it may need to be in order to meet our future requirements.

To begin with, I find quite a proportion of the population not very cognizant of the importance of wood in mid-twentieth century civilization. Because wood is about the oldest raw material that man uses; because it is about the most common raw material that he uses, he becomes so familiar with it...
that it loses its significance as an important component of our highly complex modern civilization. For example, Professor Haberman said that he wanted to draw the curtains behind the speaker because it looks prettier.

"Well," I said, "there's a whole lot of wood back there; let's leave it showing." I can point back there and call attention to the fact that we've got wood all around us.

You touch it, you use it, you write upon it, you write with it, you have it everywhere around you; and yet it is so familiar that it has become almost the forgotten good. I remind you, though, that in tonnage wood is exceeded probably by only steel and coal in our usage. I'll quote only two significant figures to you with respect to our modern employment of wood. In the form of wood -- without working it up and making it into various other chemical goods -- in its natural form as wood, each man, woman, and child in North America today uses a little over 200 board-feet per annum.

Some of you may not know what a board-foot is. The system of measuring wood is comparable in its complexity and absurdity only to the English currency system. A board-foot is a piece of wood an inch thick and a foot square. What it weighs can be anything from 1/2 pound to 6 pounds, but don't worry about that. We measure it in board-feet. So visualize a board 200 feet long, an inch thick, and a foot wide and that's what you individually are accountable for in the use of wood as wood in the period of a year. Multiply that by the present population and you get our national consumption of lumber, which amounts to somewhere in the neighborhood of 40 billion board-feet -- an astronomical pile of wood, especially when it is compared to the usage of wood-poor countries, such as those in western Europe.

The second most important use of wood is in the form of paper, or the so-called pulp products. You have them all around you, and some of them you never recognize as wood. For instance, it is quite possible that this blue shirt down here in the front row is made from wood through the avenue of viscose rayon. I wouldn't know for sure; but if it's rayon, the chances are about 90 to 10 that it is made from wood.

Our consumption of pulp and paper products is also almost astronomical. We use better than 400 pounds of paper per capita per annum. That figure is going up as the population grows and as our standard of living goes up. As a matter of fact, if you care to have a little exercise some day, in a purely subjective manner, you might try to correlate the per capita consumption of pulp and paper products with our economic standard of living. You will be surprised how well they correlate.
Those whose economic standards are high have high per capita consumption of pulp and paper products, and conversely. For example, in comparison to our better than 400 pounds per capita per annum of pulp and paper products, India uses a little less than 1 pound per capita per annum. I do not cast any aspersions on our Indian friends at all; I have had many interviews with forest officials from India, and find them quite well aware of the necessity for increasing pulp and paper consumption in India. But, it's one of those chicken-and-egg things; you're not quite sure which comes first -- whether you increase pulp and paper consumption in order to raise the standard of living or raise the standard of living in order to increase pulp and paper consumption. Let's not worry about it. The fact remains that both do go up together.

So it is well, since we are looking ahead (and you are going to determine very soon the future forest policies of the United States), that we take a look at what we have to work with and what our future requirements are going to be. As I mentioned earlier, it seems appropriate that we take a backward look also at the timber history of this country of ours, to examine, if you will, some of the mistakes that we made, some of the historical developments that have come into operation during the middle of the twentieth century; to evaluate those mistakes, and try to think our way to the necessary policies that we need to govern our management of our forest resources.

Admitting that the forest resource is important, admitting that it is self-perpetuating, we must remember that self-perpetuation, as has been demonstrated time and again, is not automatic. Positive measures must be taken in order to ensure the renewal of our timber resource and its perpetuation. There are two or three elementary things that you need to know about forests and their management. We talk of managing a forest; that simply means taking conscious actions in order to accomplish certain things.

You look at a green hillside and you say, "My, isn't that a beautiful forest!" Well, to the eye, esthetically, it may be a beautiful forest. To the forester, however, it may be a collection of junk, because it can't be converted into useful materials. It can't be converted into lumber, it can't be converted into pulp. It cumbers the ground, as far as the commercial forester is concerned, because it occupies land that ought to be producing good trees that can be converted into useful goods.

Now, this is important for you to recognize. In order to achieve optimum growth, it is necessary that each acre of forest land carry as many stems as it can comfortably support. That doesn't mean three or four isolated trees per acre; it means as many trees as can efficiently utilize the sunlight.
that falls on that acre of ground. If we start with, say, 2,000 trees per acre, we're going to have too many when they get a little bigger; and we will go in and thin them, taking out the good material that we remove in the thinning process and converting it into wood pulp. We may thin it again and again, until finally we may have only 150 or 200 trees left on that acre of ground. And these we let grow until they are big trees that yield sawlogs. We will then cut them; but in the meantime we shall have started the next crop. That goes on and on and on; it can go on forever.

There are certain things we have to guard against; we can't allow fire to burn that forest or damage the trees; we can't allow disease, fungus rots, to get in and damage our wood. We can't allow insects to sweep over them in epidemics and kill the trees and damage the wood. All of those, and many more, are foils to successful forestry.

In short, practice of forestry is not greatly dissimilar from the successful practice of any other agricultural pursuit. We try to grow as much as we can per acre of ground employed, and we have to take certain precautions against the enemies of the crop that we're trying to grow. There is this radical difference, however; it takes a long time to complete this cycle from seedling to mature tree. But if we manage well, we shall be able to take from a piece of forest land, every year, trees that represent what it grew that year. Now, obviously, I don't mean from each specific acre; I'm talking particularly about a forest property with hundreds of acres. I can clear quite a few acres each year and never have the whole thing bare, and I'll always be able to take from it that particular increment to which I am entitled each year.

Two things, (1) the long cycle that is required to grow a forest, and (2) the manner in which the forest crop is harvested, determine to a large extent what the nature of the next crop will be. Suppose you had a mixture of, we'll say, spruce and aspen, and suppose that you had a market for spruce and you didn't have a market for aspen. If you cut out all of the spruce and leave only the aspen, you change the composition of your forest.

Now, that process has gone on for a long time in many parts of our country. Where certain species of trees were more desirable for this or that use, we cut them and marketed them, with the result that we left species in the woods for which there were no markets, or low-quality trees for which there likewise were no markets. The next result has been that over a very large proportion of our total forest area we have some really difficult jobs ahead of us. In order to remove the trees we call culls, our ability to convert those trees into useful goods at a profit must be worked out.
You will observe that I stressed our ability to convert those low-value trees into goods at a profit; because I am basing all that I say here on the assumption -- with which I hope you agree -- that we shall continue to have to the year 2000 the same economic and political system under which we now live. Otherwise, my assumptions fall flat. There are those, for example, who tell us -- and you hear them -- that we ought not to permit this desecration and devastation of the forest land; we ought to pass a law. Well, there have been laws passed, and there will be more laws passed. But there is one thing to which I hold rather dearly -- there is a moral responsibility upon each of us to take care of that with which we are entrusted that far transcends the importance of those pieces of paper upon which legislators write laws. So that is why I'm talking about the nature of the forest resource, what it is and what it ought to be.

When our ancestors came to this country we had approximately 820 million acres of forest land, a tremendous amount of unbroken forest. If you read the reports of the early colonists sent home to England, they were really eloquent about the vast and -- note the term -- inexhaustible forests of this new country of ours. In 1952, our forest land was down to 489 million acres; we had decreased it by not quite half. On the face of it, that looks bad; but I don't think we need to criticize our ancestors.

What did they want? What was the nature of the country?

This was an agrarian country. It took about 95 people on farms to keep 5 alive in the city, and the need was for food and for agricultural land; and the forest was a foil. Your grandfathers and my grandfathers cleared the forest away in order to be able to grow wheat, corn, oats, and cotton. And I suspect that if we had been in their position we would have done exactly the same thing. We look back on it now from the vantage point of the middle of the twentieth century, when we know that if we had the magnificent forest that they cleared away in order to liberate agricultural land, we would be immensely wealthy. That doesn't make any sense, however, because the trees they cut had just exactly no value at the time that they cut them. The land underneath was the valuable thing.

So our forests were pushed back to the less desirable agricultural lands, and that's where they mostly are today. And that is perhaps as it should be, although I should point out that these 489 million acres of forest land we have today are infinitely more valuable than they were even a half century ago. Our soil survey scientists used to classify land as being suitable for agricultural and other purposes, and in one category they put a lot of stuff they called "forest and wasteland." Well, that method of classifying land has to
be revised today. For example, down South a great deal of good pine land with a fair stocking of young timber is selling for as much as $100 an acre. You can't quite put that land in the category of "wasteland" any more. For another example, out West, where we still have a lot of virgin timber, many acres have as much as 60,000 board-feet of standing timber -- magnificent 6- and 7-foot Douglas-fir logs worth $30 a thousand. You figure that out, and it comes to $1,800 an acre before cutting. I don't believe we can quite put in the category of "wasteland" land that can grow anything worth that much money. So our concept of forest land has changed radically over the past half century, until we now recognize the indispensability of these 489 million acres of forest land we have left, and the necessity that we manage it well.

More than 300 years ago, some of our ancestors took cognizance of the fact that timber was not inexhaustible. For example, in 1626 the Plymouth colony prohibited timber cutting without official consent. There were good reasons for that. The principal uses for timber were for building, of course, and for fuel. There was no other fuel, and the winters were cold around Plymouth colony. Nor was it desirable to have to go too far from the house to get wood. There were some people in those forests, I'm told, who developed a certain attitude of inhospitality toward the incoming colonists. So you cut wood by official consent.

In 1681, when the timber was beginning to be exhausted around Philadelphia, the Pennsylvania colony required that 1 acre of forest be left for every 5 acres cleared.

In 1710, the first community forest was established in Newington, New Hampshire.

I know those are little straws; but they indicate that even at that remote date men were interested in the welfare of the forest. There's something a little more important back there, though. If you recall the nature of the country from which these forefathers of ours came, the forest did not belong to the people; that has not come about until comparatively recently. The forest was the property of the king, or of his vassal under the feudal system, and, if you were a serf or a peasant, you hunted or fished or cut wood in the forest at your peril. And if you were caught, it went hard with you. Our ancestors who came to this country rebelled at that. They came because they could get free land and an opportunity to develop individuality.

It did not sit well with the New England colonists, for example, when the King's men came into the forest, selected the best white pine trees, and marked them
with the King's broad arrow as the King's property, reserved for masts to propel the English fleet. It is important to recognize that a great deal of the development of English sea power from the seventeenth century on was based upon the superiority of the mast timbers that were harvested in the New England forests from these trees marked with the King's broad arrow.

Now, these ancestors of ours didn't particularly care to have the King's men marking these good trees; and they might cut one once in a while. As a matter of fact, they did. It became a sort of sport, and that particular conflict between government ownership and regulation of the cutting of timber and the private desire to make an honest or dishonest dollar, according to your criteria, has carried right on down to the twentieth century. In no field of economic activity, I suppose, has this conflict between private interests and public interests been more prevalent than in the field of the harvest and utilization of timber.

Timber was very important in sea power. We found out in the war of 1812 how important it could be. Two items, mast timbers and oak for the sides of wooden ships, became especially important. We had fine stands of live oak down in Florida and along the Georgia coast, tremendous groves of live oak that were the world's best timber for the manufacture of these warships.

Well, in the nature of things, men wanted to make money out of that timber. And so they cut it and sold it to the Navy, and made money. But the Navy soon woke up to the fact that, if that process continued very long, the country would be out of that kind of timber. So in 1817 Congress established a live-oak timber reserve for the United States Navy, and this became the first reservation of public land for timber supplies. In 1828, we even established a forest experiment station at Santa Rosa, Florida, where live oaks were grown from acorns, and we cut fire lanes and had various surprisingly modern-sounding forestry activities going on.

In 1831, Congress enacted a very important basic law, the Timber Trespass Act. Specifically related to live oak, it declared certain lands to be the property of the United States Government and forbade trespass on those lands for the purpose of cutting the trees. This law became the basis for the national forest system much later.

I regret to say that the law was not very well enforced. If I recall correctly, there were at that time two so-called timber inspectors who had the responsibility for seeing to it that no timber was cut from the lands of the United States. The lands of the United States, of course, then comprised all of the...
vast forest empire of the Lake States and the Northwest, and much more. So those two inspectors would have been right busy if they had tried to keep people from cutting timber on the lands under national ownership. Well, some interesting things happened.

Remember this, there was an infinity of timber owned by the Federal government on lands that had not yet passed into private ownership. There was just exactly no mechanism by which the Government could sell that timber to private enterprise for conversion into logs and lumber. Under such circumstances, this people of ours has a peculiar way of doing things. If there is a legal vacuum that is created by neglect, what do we do? We move right in and occupy it.

And they did. They moved into those lands and took the timber wherever they found it. Under the Homestead Act, for example, they occupied homesteads, say a quarter of a section; that's big enough to put a sawmill on. And then they began to log and they logged as far as the horizon. We had lots of that right here in the Lake States and we had some mighty good fortunes that were founded in Wisconsin on the basis of what they used to call "grammawing." The sawmiller occupied the quarter section that he owned; but he was logging grammaw's land, which was the land that lay out there beyond the horizon. It didn't belong to anybody, it belonged to the people of the United States. There wasn't anybody to say him nay.

There is a lot of legal history in connection with the evolution of our present system of managing public forests. In 1876, Congress authorized the appointment of a special agent to study forestry conditions, and Dr. Franklin B. Hough was appointed. In 1877, Congress appropriated the sum of $6,000 for studies related to establishment of a division of forestry, to get busy on forestry problems. And a man well known in Wisconsin history, Carl Schurz, became Secretary of the Interior and was the first to advocate federal forest reservations and scientific forestry.

In 1881, a division of forestry was established in the Department of Agriculture. And in 1891, largely at the instance of a committee that had been established by the American Association for the Advancement of Science, the President was authorized by the Congress to establish forest reserves on the government-owned land. That was a very important date. President Benjamin Harrison -- as a matter of fact, I believe that this is the only thing he was really noted for -- withdrew the first timber reserve, which was called in those days the Yellowstone Timber Land Reserve, consisting of a million to a million and a quarter acres in Wyoming. Much later that reserve became Yellowstone National Park.
That was the beginning of the national forest system. In 1897, Congress passed a law for organization and management of the public forests, making possible their use; but there was still no real mechanism for the sale of timber from the national forests. In 1890, Gifford Pinchot became head of the Bureau of Forestry in the Department of Agriculture. Thereby, the foresters were in the Department of Agriculture, but the forests were over in the Department of the Interior. But in 1905, under President Theodore Roosevelt, the Bureau of Forestry became the Forest Service and took over the administration of the forest reserves from the Department of the Interior. So the Forest Service as such has existed 52 years.

You can easily magnify the importance of the Forest Service. Actually, the Forest Service has under its administration about 89 million acres of commercial timberland, which is about one-sixth of the total acreage of our commercial timberland. We have certain production goals for the national forests, but we don't think we can ever achieve production on public land of more than about a sixth of the requirements of our public for timber.

There has been a lot of other legislative history, which I am not going to give you. Instead, I'm going to go through a few charts that have been prepared to illustrate findings of the Timber Resource Review recently conducted by the Forest Service. They illustrate what I have been saying and what I am going to say a little better than if I just talked to you.

As we look at them, I want you to keep this in mind: Only one-sixth of our timber requirements will probably come from publicly owned land. The other five-sixths has to come from privately owned lands. And those privately owned lands have to be managed well in order to meet those goals.

I am not talking now about a lot of other values the forests offer us. I am not talking about the beauties of the forest -- you know them as well as I do. Those of you who have had an opportunity to enjoy the forests for vacations know what I am talking about. I don't know what the economic value of the recreational opportunities afforded by forests is. I don't know, for that matter, how much it's worth to me to be able to stand an hour up on Observatory Hill watching the sun set over Lake Mendota; I don't think we can put a dollar sign on it. Neither do I know what the absolute dollar value of forests may be as regulators of watersheds. We do know, however, that they have tremendous values over and above their ability to supply goods. But I'm talking today only about our needs for forest goods and where we stand in that regard.

In assessing requirements for timber in 2000 A.D. we have to make two assumptions: One is that, according to Census Bureau projections, we shall...
have 275 million people in the United States in the year 2000. Unless things change -- and there isn't any indication they will if we are able to maintain our present economic standards -- that population will be achieved. Likewise, if our gross national product in terms of 1953 constant dollars continues to go up, as predicted, it will reach a figure of 1,200 billions of dollars in the year 2000.

Now let's take a look at what we have in the way of timberlands. This chart tells us that 34 percent of our total land area in the United States and coastal Alaska is in forests. About 9 percent of the land is in commercial use, 21 percent is crop land, 36 percent is pasture land. Remember, one-third of the total land area is in forests.

Next, let's see where we are with respect to our consumption of industrial wood. This figure, in billions of cubic feet, obviously takes in a lot of uses for wood other than lumber. For example, we measure pulpwood in cubic feet, and fuelwood too.

The curve begins in 1900. You will observe, of course, that we took a tremendous dip in our gross consumption of industrial wood during the years of the depression. But look at the curve since then, up to 1950, and as projected to the year 2000. We have a lower-level estimate and an upper-level estimate, and somewhere in between them is where the real level will be.

You will observe that the lower-level estimate for demand is about 18 billion cubic feet and the upper-level about 22 billion cubic feet as compared to a 1952 demand of about 10 billion cubic feet. A convenient figure for you to recall would be that we will probably double our total use of wood by the year 2000.

Where does all this wood go? As of 1952, 53 percent of our 10 billion cubic feet went into lumber, 16 percent into fuel, 3 percent into veneer and plywood, 22 percent into pulpwood, and 6 percent into what we call other products. Looking ahead, we expect that our per capita consumption of lumber will continue to decrease slowly but steadily; that our per capita consumption of pulp and paper products will increase, as will our consumption of veneer and plywood; that our fuelwood consumption will continue to decrease. These are bases for the projections.

I should say this in passing. Wood is obviously in tremendous competition with a lot of other materials. But, strangely enough, it holds its own very well, in spite of the tremendous claims that are made for other materials, which apparently can do anything a little bit better than wood can do it.
Curiously, though, folks continue to buy and use wood. There are several very good reasons why. One is that wood is cheaper than most competing products; another, that it does the job well; a third, that people are familiar with it and know how to use it; and a fourth (and I hold this one as rather important) that a large portion of the population is not yet convinced that because something is new it must be better.

True, wood is rather old. If we didn't have wood, though, we'd obviously have to invent it in order to do the jobs that we have to do. I sometimes get to thinking about our new synthetic fabrics, nylon, orlon, rayon, and so on. Quite obviously, if we didn't have wool, we'd have to invent it because it has all of the favorable characteristics of every synthetic that I know, and some in addition. As a matter of fact, if all we had were these synthetics and someone suddenly invented wool, that would indeed be hailed as the miracle fabric. So if we didn't have wood, we'd have to invent it in order to do the jobs that we have to do.

This chart shows what we have in the way of standing timber. There are two or three things about this chart I want to call to your attention. Obviously, we have a great deal more softwood than hardwood, and I'll translate that. Softwoods, to the forester, are needle-bearing trees and hardwoods are broadleaf trees. We have soft hardwoods and we have hard softwoods, but don't worry about it. The softwoods are trees with needles and the hardwoods are trees with broad leaves.

Notice that by far the major part of our softwood timber is in the West. This is standing timber -- we have 1,406 billion cubic feet of softwood remaining in the West. That's a long way from market. We have 242 billion in the East. Most of our standing hardwoods, 381 billion board-feet, are in the East and only 28 billion in the West. That's rather important when you're thinking about management policies.

This chart tells what we grew and what we cut in 1952. Notice that in the East -- and this includes the South, remember -- our growth in eastern softwoods, 16.97 billion cubic feet, is a little bigger than our cut, and so our budget is in balance. In eastern hardwoods, our budget looks as if it were still better balanced. We're growing 19 billion cubic feet a year and cutting 12.

But take a look at our West. We're growing 11 billion cubic feet but cutting 22-1/2 billion. Adding that all up, it looks as if it were in balance. But obviously our softwood budget is not in balance. That's not good, because we use a great deal more softwood than hardwood. In the East, a large part
of our advantage is made up of hardwoods. The reason we're not cutting those hardwoods is that we don't know how to use them as widely as softwoods. So it isn't quite the beautifully optimistic picture it ought to be.

In the next chart, we project what we expect we will need. You will observe that we project for the year 2000 a gross demand of about somewhere near 70 billion board-feet, on the basis of present practices; but we will need 79 billion at the lower-level demand. The projected figures for upper-level demand, which probably will materialize if we have good times up until 2000 are a growth of about 25 billion board-feet but a demand of 105 billion. This will result because meantime we shall continue to cut into our timber reserves, so that our growth will not be able to keep up. And this is where we would land unless we take measures. Well, that's exactly what we don't want to let happen.

Now, let us examine for a moment some of the implications of what we have just looked at. What are the things that need to be done? There are several things that we need to consider. One is that more than half of our commercial timberland is in small ownerships, of less than 500 acres. A lot of them may be 5- to 20-acre woodlots on farms. And in the nationwide assay of future timber supply, it has become clear that the major deficiency in our growth of timber lies in that area of small ownerships.

How many ownerships are there? It's an astonishing figure -- 4-1/2 million. Some owners don't even live on their lands, are absentee owners.

Somebody says, "conduct an educational program." That's quite an undertaking.

Somebody says, "Do the same thing with them that you do with the rest of the farmers, pay them for putting their woodlots in good shape."

Well, there is such a thing as going too far with this subsidy business. I don't know how far you can go. One thing is certain; I think we've learned that if you have a subsidy you rarely get rid of it. So we like to stay away from that if we can.

But here is the crux of the problem: How do you get 4-1/2 million small parcels of timberland to grow the kind and quality of timber that we need?

The major commercial ownerships are doing a pretty good job. The large timberland owners know the value of good management of their timber. And it goes without saying that public ownerships, State and Federal, know the
necessity for good management of timber properties, and are doing a good job.

I come now to the reason, ladies and gentlemen, why we have this institution out on the west end of the campus that I have the honor to head. I have believed for many years that the best way to achieve good management of a timber property is to provide markets for all the wood that it grows. And so we come back to this surplus of low-quality hardwoods that I pointed to in the East, which occupies possibly 40 or 50 million acres of land that ought to be growing better trees. The reason it's in bad shape is that the owners can't sell the stuff that it's growing.

It goes without saying that very few people ever establish a dairy herd without having at least a cheese factory or some other market for dairy products. And why should a man go to the trouble of managing a woodlot to grow good trees if he doesn't know that he's going to sell them?

That's why we're working here at the Forest Products Laboratory. I can't take time today to go into the details of why we're trying hard to create broader and better and deeper markets for forest products. The heart of the problem is the utilization of hardwoods. We are putting a tremendous amount of effort into laboratory research to create new and different uses for hardwoods.

That's only a small part of the total research that your Government is carrying out. Your Government has a number of forest experiment stations in different parts of the United States, each of which is entrusted with the development of a scientific basis for better management of the forest land in its territory. I can assure you that program is going forward and going forward well.
Figure 1. -- Trends in population and gross national product estimated through the year 2000. (Source: Timber Resource Review)
Figure 2. -- How the land area of the United States and Coastal Alaska is used.
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<thead>
<tr>
<th>Ownership</th>
<th>Private Commercial Forest Land</th>
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<tbody>
<tr>
<td></td>
<td>no. of ownerships</td>
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<td>23,500</td>
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<tr>
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<td>3,302,500</td>
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<tr>
<td>Other</td>
<td>1,104,700</td>
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<td>Total</td>
<td>4,510,700</td>
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Figure 3. --Farmers are the largest single group of private commercial forest land owners. (Source: Timber Resource Review)
Figure 4. -- Estimated consumption of wood for all industrial purposes in 1975 and 2000.
(Source: Timber Resource Review)
CONSUMPTION OF TIMBER PRODUCTS - 1952

TOTAL - 12.2 billion cubic feet

LUMBER 53%
FUELWOOD 16%
PULPWOOD 22%
YEEER-PLYWOOD 6%
OTHER PRODUCTS 3%

Figure 5. -- Comparative volume of various timber products consumed in the United States, 1952. (Source: Timber Resource Review)
Figure 6. -- Distribution of softwood and hardwood sawtimber in the eastern and western United States, 1952. (Source: Timber Resource Review)
Figure 7. -- Estimates of sawtimber growth needed and expected, at two demand levels for the years 1975 and 2000. (Source: Timber Resource Review)
Figure 8. Almost three-fourths of all eastern hardwoods are of low quality. (Source: Timber Resource Review)