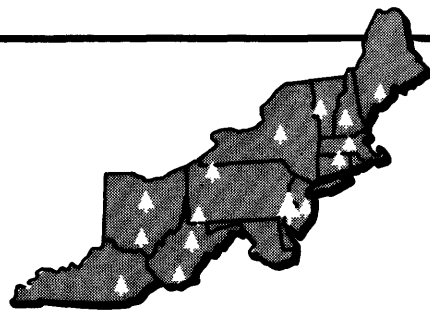


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A PREVIEW OF NEW HAMPSHIRE'S FOREST RESOURCE

Abstract.—Forest continues to be the dominant land use in New Hampshire. Three inventories of the State between 1948 and 1973 show little change in the total forest area but significant shifts in forest type and stand size. Average volume per acre has increased to over 1,400 cubic feet and 2,785 board feet. Growth continues to exceed removals.

Forest is the major natural resource of New Hampshire. Since 1948, this resource has been inventoried three times by the USDA Forest Service, Forest Survey. Each inventory was designed to provide a reliable estimate of the extent and condition of the forest resource, and to indicate what changes were occurring. A detailed statistical and analytical report of the most recent inventory is being prepared for publication. It will give a comprehensive analysis of the current situation and trends in the forest resource. This is a preview of that report.

Forest Land Dominates the New Hampshire Landscape

In 1973, forest occupied 86 percent of the total land area of New Hampshire. It has held this dominant position with very little change in total acreage for 25 years. However, there have been important shifts:

forest land area has increased in the three northern counties and decreased in the southern part of the State. There has been a decrease in the area classified as commercial forest land. The amount of forest land classified in the unproductive and productive reserved categories has increased. Most of this increase was the result of administrative reclassification of public forest land.

Of the nearly 5 million acres of forest, 4,692,000 acres are classified as commercial forest land. In both 1948 and 1973, commercial forest land occupied 81 percent of the total land area; the 1960 inventory showed it occupying 85 percent. However, the difference for 1960 is within the sampling errors associated with each of these statistics. And it is evident that there have been no significant changes in the total area of commercial forest land during the past 25 years.

However, there have been real shifts with-

in the commercial forest land. This third inventory of the State's forest lands revealed several major shifts in the distribution of forest types. The acreage occupied by the spruce-fir and oak forest types declined appreciably, but the growth on the remaining stands produced increases in volume of the species comprising these types. The acreage losses in these types were offset by an increase in the area of the elm-ash-red maple type. Most of this is in the local red maple type. The acreages in northern hardwood and white pine types remained stable.

Since the 1948 forest survey of New Hampshire, size distribution has changed because of the growth of individual trees. The current data show a continued increase in the area in sawtimber stands. The area in poletimber stands has decreased, and the area in seedling and sapling stands has increased. This latter change is probably the result of management in mature stands that were ready for harvest.

Concurrently with this third inventory of the forest resource, the Forest Survey conducted a study of forest landowners. The study indicates that less than one in five of the owners of forest land has harvested timber from his lands. However, these 18 percent of owners own 65 percent of the private commercial forest land in New Hampshire.

Dramatic Increases in Growing Stock and Sawtimber Volume

The most noteworthy change since the earlier inventories is the dramatic increase in both growing stock and sawtimber volume. During the past 13 years, the average volume per acre increased by nearly 50 percent. Total growing-stock volume averages over 1,400 cubic feet per acre. This is nearly 18 cords.¹ The sawtimber portion of growing stock averages 2,785 board feet per acre.

The increase in growing-stock volume has not been uniform for all species. Since 1948 significant changes have occurred in the species composition of the growing stock.

Here are the relative positions of the 10 species with the largest cubic-foot volume in 1948 and in 1973:

<i>Species</i>	<i>1948</i>	<i>1973</i>
White pine	1	1
Yellow birch	2	8
Spruce	3	5
Red maple	4	2
Hemlock	5	4
Paper birch	6	9
Sugar maple	7	7
Balsam fir	8	6
Beech	9	10
Red oak	10	3

White pine continues to be the most common species. Yellow birch, the most prevalent hardwood in 1948, has not increased in volume. The 1948 and 1973 estimates of yellow birch growing stock are the same. With yellow birch dropping to eighth position, red maple, red oak, and sugar maple are now the most prevalent hardwoods in that order. Red maple and red oak each have more volume now than the spruces. Hemlock has now become the second most prevalent softwood, replacing spruce.

Although the volume of sawtimber continues to increase for all species, the quality of the current sawlog supply has declined. In 1948, 36 percent of the board-foot volume of hardwoods was in standard-lumber log grades 1 and 2. Only 29 percent of the current hardwood volume is in these grades. Less than 15 percent of the 4.2 billion board feet of white pine is grade 1 or 2, a drop from 17 percent in 1948.

Net Growth Averages ½ Cord

Average annual net growth of all growing stock was 43.6 cubic feet per acre during the past 13 years. Removals during this period averaged 14.1 cubic feet per acre. Expressed in cords, this was an average annual growth of .54 cords per acre with .18 cords per acre of removals. Removals were approximately one-third of growing-stock growth in both softwoods and hardwoods. The sawtimber portion of growing stock also had a positive balance between growth and removals. However, considerably more of the total sawtimber removals were from softwoods than from hardwoods.

¹ Based on 80 cubic feet of solid wood per standard cord.

**Table 1.—Land area in New Hampshire, by county
and land classes, 1973**

County	Total land area ^a	Nonforest land area	Forest land area		
			Noncom- mercial ^b	Commercial	
	— — —	—	<i>Thousand acres</i>		<i>Percent</i>
Belknap	256.1	50.2	2.3	203.6	80
Carroll	600.2	50.8	34.6	514.8	86
Cheshire	457.8	66.9	8.0	382.9	84
Coos	1,164.7	57.1	101.0	1,006.6	86
Grafton	1,108.3	114.9	103.0	890.4	80
Hillsborough	571.6	115.5	14.6	441.5	77
Merrimack	595.3	110.1	6.9	478.3	80
Rockingham	442.0	111.4	14.8	315.8	71
Strafford	240.3	56.1	2.7	181.5	76
Sullivan	344.8	63.0	5.2	276.6	80
Total	5,781.1	796.0	293.1	4,692.0	81

^a Source: Area Measurement Report, Bureau of the Census, Areas of New Hampshire: 1960, (December, 1966).

^b Includes unproductive and productive-reserved forest land.

Table 2.—Number and area held by private owners of commercial forest land, by form of ownership and timber harvest activity, New Hampshire, 1973

Form of ownership	All owners		Owners who have harvested timber	
	<i>Number</i>	<i>Thousand acres</i>	<i>Number</i>	<i>Thousand acres</i>
Individual and joint	85,600	2,459.1	14,700	1,194.0
Partnership	280	239.0	180	191.0
Corporation	1,150	1,241.0	770	1,130.0
Other ^a	460	143.0	450	135.0
Total	87,490	4,082.1	16,100	2,650.0

^a Includes associations, clubs, and undivided estates.

**Table 3.—Area of commercial forest land, by forest types
and size classes, New Hampshire, 1973**

(In thousands of acres)

Forest type	All stands	Saw- timber stands	Pole- timber stands	Sapling- seedling stands	Non- stocked areas
White and red pine	1,344.6	836.8	237.1	256.4	14.3
Spruce-fir	635.9	169.7	253.8	212.4	—
Pitch pine	35.8	14.8	—	14.3	6.7
Oak-white pine	72.7	37.0	7.2	28.5	—
Oak-hickory	322.9	107.5	158.1	57.3	—
Elm-ash-red maple	737.6	164.8	287.0	278.7	7.1
Maple-beech-birch	1,308.3	580.7	527.9	192.6	7.1
Aspen-birch	234.2	34.9	84.5	114.8	—
All types	4,692.0	1,946.2	1,555.6	1,155.0	35.2

Table 4.—Area of commercial forest land in New Hampshire, by county and forest type, 1973

County	Softwood types	Hardwood types	All types	Sampling error of total ^a
	<i>Thousand acres</i>			<i>Percent</i>
Belknap	97.1	106.5	203.6	5
Carroll	206.8	308.0	514.8	2
Cheshire	166.4	216.5	382.9	3
Coos	446.2	560.4	1,006.6	1
Grafton	323.7	566.7	890.4	2
Hillsborough	198.0	243.5	441.5	4
Merrimack	206.3	272.0	478.3	3
Rockingham	156.8	159.0	315.8	4
Strafford	84.6	96.9	181.5	5
Sullivan	130.4	146.2	276.6	5
Total	2,016.3	2,675.7	4,692.0	1

^a For total commercial forest land, at the 68 percent probability level.

Table 5.—Net volume of growing stock on commercial forest land in New Hampshire, by county and species group, 1973

County	Softwoods	Hardwoods	Total	Sampling error of total
	<i>Million cubic feet</i>			<i>Percent</i>
Belknap	145.5	141.0	286.5	8
Carroll	318.1	395.9	714.0	7
Cheshire	250.8	282.5	533.3	7
Coos	718.5	735.2	1,453.7	4
Grafton	535.7	727.6	1,263.3	5
Hillsborough	308.4	311.9	620.3	6
Merrimack	302.0	333.3	635.3	6
Rockingham	247.0	207.6	454.6	8
Strafford	130.1	117.9	248.0	10
Sullivan	183.8	185.8	369.6	8
Total	3,139.9	3,438.7	6,578.6	2

Table 6.—Net volume of sawtimber on commercial forest land in New Hampshire, by county and species group, 1973

County	Softwoods	Hardwoods	Total	Sampling error of total
	<i>Million board feet^a</i>			<i>Percent</i>
Belknap	409.0	182.4	591.4	13
Carroll	665.5	721.8	1,387.3	11
Cheshire	701.8	370.3	1,072.1	10
Coos	1,453.2	1,305.4	2,758.6	7
Grafton	1,123.4	1,345.2	2,468.6	8
Hillsborough	857.1	415.6	1,272.7	9
Merrimack	845.7	433.4	1,279.1	9
Rockingham	695.2	266.1	961.3	11
Strafford	362.9	154.8	517.7	14
Sullivan	511.2	245.6	756.8	12
Total	7,625.0	5,440.6	13,065.6	3

^a International 1/4-inch rule.

Table 7.—Net volume of growing-stock trees^a on commercial forest land, by species and tree size, New Hampshire, 1973

Species	All trees	Poletimber trees	Sawtimber trees	
	— — —	Million cubic feet	— — —	Million board feet ^b
White and red pine	1,456.3	407.9	1,048.4	4,286.6
Hemlock	563.9	181.1	382.8	1,462.1
Spruce	547.6	308.1	239.5	922.0
Balsam fir	541.3	314.2	227.1	865.3
Other softwoods	30.8	7.3	23.5	89.0
Total softwoods	3,139.9	1,218.6	1,921.3	7,625.0
Northern red oak	530.2	245.1	285.1	1,170.3
Other oaks	93.0	59.6	33.4	136.1
Red maple	854.8	607.2	247.6	977.7
Sugar maple	450.5	233.5	217.0	895.7
Yellow birch	416.5	199.0	217.5	938.2
Paper birch	399.9	315.3	84.6	349.0
Beech	271.1	146.4	124.7	530.2
Ash	132.2	83.9	48.3	199.2
Aspen	153.2	121.7	31.5	124.0
Other hardwoods	137.3	108.0	29.3	120.2
Total hardwoods	3,438.7	2,119.7	1,319.0	5,440.6
All species	6,578.6	3,338.3	3,240.3	13,065.6

^a Growing stock trees are trees that satisfy national specifications for form and cull. Net volumes are given for all such trees 5.0 inches dbh and larger.

^b International ¼-inch rule.

Table 8.—Average annual net growth and removals of growing stock and sawtimber on commercial forest land, softwoods and hardwoods, New Hampshire, 1958-72

Species group	Growing stock		Sawtimber	
	Net growth	Removals	Net growth	Removals
	Thousand cubic feet		Thousand board feet ^a	
Softwoods	107,500	38,100	278,500	124,200
Hardwoods	97,200	28,200	172,100	53,900
Total	204,700	66,300	450,600	178,100
	Percent			
Sampling error of totals	6	18	8	20

^a International ¼-inch rule.

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