BIENNIAL REPORT OF N. H. FORESTRY AND RECREATION COMMISSION
1951-52

ERRATA:

1. Page 72. Under caption to illustration change word "County" to "Management".

2. Page 79. Delete dollar signs in last section of Table 27.

# State of New Hampshire

# BIENNIAL REPORT

*of the*

# FORESTRY DIVISION

Concord, New Hampshire
1951 - 1952

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# REPORT

*To His Excellency the Governor*
*and the Honorable Council:*

The Forestry and Recreation Commission submits herewith its report for the two fiscal years ending June 30, 1952. This consists of a record of the activities of the two Divisions and brief accounts of related agencies prepared by the State Forester and Director of Recreation and their staffs.

HARRY K. ROGERS,
OWEN JOHNSON,
RANDALL E. SPALDING,
CHARLES E. GREENMAN,
JASON C. SAWYER,
*Forestry and Recreation Commission.*

WILLIAM H. MESSECK, JR., *State Forester*
RUSSELL B. TOBEY, *Director of Recreation*

*W. R. Brown, Forestry Commissioner 1909-1952*

Photo Fabian Bachrach

## W. R. BROWN RETIRES FROM THE COMMISSION

After 43 years of service, first as Secretary and soon as Chairman of the Forestry and Recreation Commission, W. Robinson Brown retired in July 1952. Later at a dinner tendered him by his many friends and co-workers a finely carved plaque was presented by Acting Governor Blaylock Atherton, along with an illuminated scroll reading as follows:

"Progress, whether in business, industry or government, does not result from the efforts of mere time-servers. Every improvement in man's management of his affairs can be traced back to the restless activity of some member of society whose questing mind probed persistently for newer and better ways of doing things than the methods accepted by his more complacent fellow men.

"You, William Robinson Brown, are one of these self-starting members of human society whose energy and imagination in finding new approaches to old problems give the key to the reason why human history has been a history of progress and improvement, not of retrogression or of stagnation. You have served New Hampshire long, without compensation and without thought of compensation; but the strength of your service is not in its length, nor in its unselfishness. It is in the pioneering nature of everything to which you have turned your hand.

"You were one of the three original members of the New Hampshire Forestry Commission. You helped in selecting the first State Forester. You were a leader in persuading New Hampshire people to preserve for all time the beauties of Crawford and Franconia Notches by making State Reservations of them. You were Chairman of the Forestry Commission when it conducted the first survey of New Hampshire's forest resources.

"Your forward-looking activities in the field of forestry were carried on in private employment as well as in the public service. As an officer of Brown Company for many years, you were a pioneer in interesting paper companies in forest management and forest research, and you were responsible for your Company's becoming the first paper company to employ a full-time forester.

"Your latest and one of your most notable accmplishments is your almost single-handed success in securing interest on the part of insurance companies in writing forest fire insurance. Previously, in 1917, you had organized the first forest fire insurance company in the United States.

"Even in your choice of hobbies, you were not satisfied with doing those things which many other men have also done. You made your-

self an authority on Arabian horses, visited the country from which the breed takes its name, and wrote an authoritative monograph, 'The Horse of the Desert.'

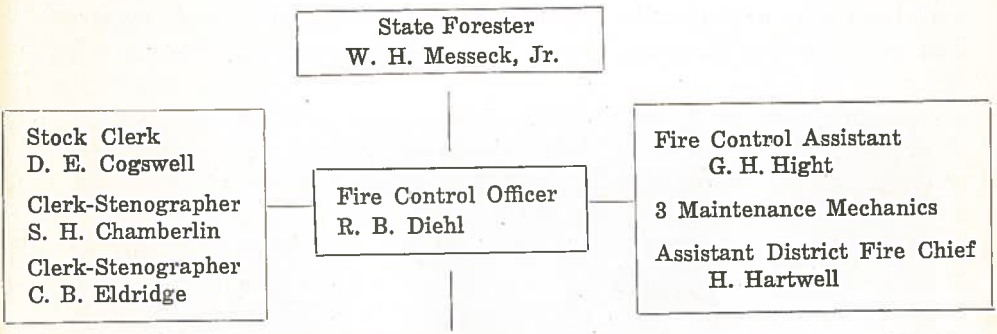
"You have been blessed with overriding enthusiasm in every endeavor into which your eager spirit has led you. What is rarer, you have also been blessed with that tenacity which made it possible to carry through to the logical conclusion the many projects you have undertaken.

"For what you have been and for what you have done, here are our thanks. The Government of the State of New Hampshire and the half-million people which it represents are richer for the forty-three years in which you have served as a member and as Chairman of the Forestry and Recreation Commission. It is well that your retirement provides us with an occasion for this long overdue expression of appreciation. May you long enjoy the deserts of your labors, and may you bring the same zeal to all your future activities that you have brought to your service of the State."

## FOREST FIRE SERVICE

### Administration

As a result of reorganization in the fall of 1950 the forest fire service has now a straight line organization with definite responsibilities in every position. Working directly under the State Forester, Fire Control Officer Richard B. Diehl is in charge of the forest fire service. He is assisted in maintenance and purchase by Fire Control Assistant Gerald H. Hight. Ten full-time District Fire Chiefs in charge of field work are in charge of the 28 state lookout watchmen. The revised organization is as follows:




**District Fire Chiefs**

| District | Chief | Number of Lookout Watchmen |
|---|---|---|
| 1 | G. O. Hollis | 4 |
| 1A | M. A. Webber | 3 |
| 1B | F. J. Baker | 2 |
| 2 | T. J. King | 4 |
| 3 | J. Q. Ricard | 3 |
| 4 | S. Goodhue | 1 |
| 5 | R. W. Smith | 2 |
| 6 | R. B. Smith | 3 |
| 7 | H. B. Chase | 4 and Conn. Lakes patrolman |
| 8 | E. R. Buckley | 3 |

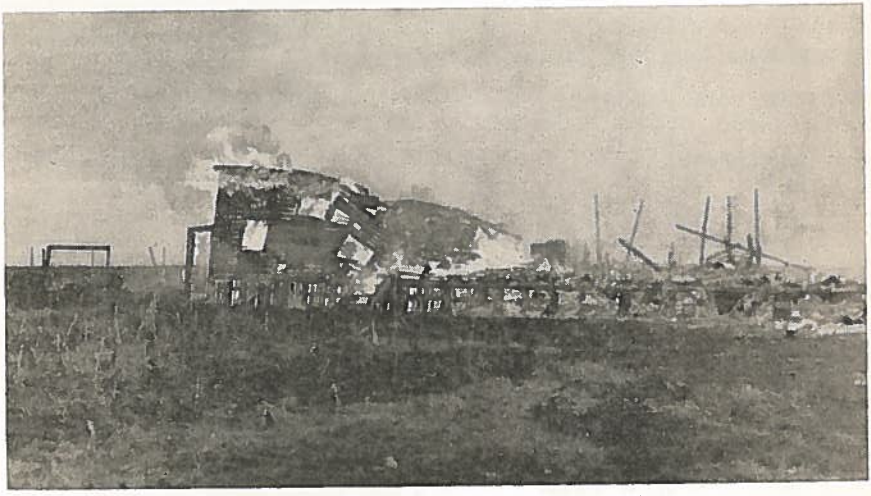
The District Fire Chiefs deal directly with the appointed town forest fire wardens and deputies.

To bring about the change in the districts, three men who formerly combined the Blister Rust District Leaders and District Fire Chiefs shifted to full-time Blister Rust District Leaders with increased areas. These were W. S. Codman, G. F. Richardson, Jr. and S. H. Boomer. Sargent Goodhue, J. Q. Ricard and R. B. Smith were appointed to succeed them as District Fire Chiefs, the latter two advancing from district assistants. F. J. Baker and T. J. King relinquished their blister rust leader jobs to become full-time district fire chiefs.

This direct line of authority has resulted in increased efficiency, service and progress and has relieved the State Forester of many de-

tails not having to do with policy. The Concord office by means of radio now knows what is going on as it happens and can plan and act immediately to dispatch needed state help or relay messages to towns. Many changes have been made in warden and deputy appointments in the biennium in order to keep the organization active. The town resource sheets for Districts 2, 4 and 5 have been revised and District 3 completed.

Attendance by all members of the service at meetings of the ten forest fire wardens associations and active participation in the programs have been stimulating and informative on both sides. These meetings present an opportunity to show films, give wardens the latest information, and discuss administration, forest fires and forestry items. The recommendations of the Federation of Forest Fire



*Buildings Destroyed by Grass Fire*

Wardens Associations have been the basis for laws and administrative planning especially in training and prevention.

Plans are going forward for constructing a building in the Concord area for storage of fire and maintenance equipment to serve also as a maintenance shop and a warehouse for state and town tools that are now stored at the State Forest Nursery at Boscawen.

Following the policy of having all fire matters come under the forest fire service the patrolman at Connecticut Lakes is now supervised by the District Fire Chief. He makes daily patrols of the highway leading into Canada, inspects fire tool boxes, registers campers and collects fees at Moose Falls camp ground and operates the fire danger station making daily reports by radio through Magalloway

Mt. into Concord. He is based at the Moose Falls camp and maintains the telephone line south to Second Connecticut Lake.

**Review of Forest Fire Conditions**

1. **The 1950 Season.** Lack of normal rainfall in July 1950 dried up streams, wells and vegetation. Fire incidence rose accordingly. The largest fire was in Londonderry where 25 acres of slash in a logging operation burned. There were a number of lightning fires, two occurring in New Boston. Permission was obtained from the Governor and Council to impose restrictions when needed. On July 30th, on the Sanbornton-Meredith line, a fire starting from a burned hovel on a logging operation threatened a large area, but was stopped in the slash and held to 29 acres by fast and determined action by the Meredith and Sanbornton fire fighters. The dry weather continued to mid-August in the central area, the lower and seacoast region having heavy thunderstorms early in the month. Fires continued and increased in size with the most difficult in Gilford, Stoddard and Dunbarton. The Stoddard fire burned 50 acres of old slash in a pulpwood operation where water was trucked in tanks to supplement a long hose line from a swamp. The Gilford fire, although held to one-half acre, required the laying of 6000 feet of hose and the use of 4 pumps to relay water to extinguish it.

Heavy rains in the central area on August 20th temporarily relieved the situation in central New Hampshire but not in Carroll County where on August 17th a lightning fire occurred on Grant's Peak in Ossipee, and burned 45 acres necessitating long hose lines and relay pumps to bring about control. All these fires had been trenched but with such underlying dryness water was needed to put them out.

The frequent rains continued through early September after which fire danger increased with dry cool weather, the coolest since 1893, until a heavy frost terminated the growing season on the 25th. On that day, 25 acres of slash burned in Wilton where a clearing crew was attempting to clean slash on a woodlot. Smoke haze from fires outside the state cut down visibility from September 26th to 29th.

October was warmer than normal and very dry during the second half. Ground water levels continued to drop and wells went dry. Fire incidence, which was low for September, rose again with the advent of the hunting season. The lookout stations in the northern half of the state were closed by the 31st, but those south of Concord continued for a week with Jeremy Hill, Federal Hill, Warner Hill and Kearsarge Mountain continuing until mid-month.

A severe storm with very high winds and heavy rain swept through most of New England and New York on November 25th and

26th. This storm was one of the most destructive in history —second only in actual destruction of property and timber to the great hurricane of September, 1938. The greatest destruction to timber occurred in northern New Hampshire, in Vermont and in the Adirondacks of New York where the destruction paralleled that of the 1938 disaster. In Coos County woods roads and fire trails were blocked, the large areas of windblown softwoods presented a new hazard. Paper companies moved in to salvage what they could. To meet this new threat it was decided to man the U. S. Forest Service tower on Mill Mountain in Stark. Additional radios were allotted to this area to speed up communication. The year 1950 ended with a deficiency of 2.98 inches of precipitation and an accumulated deficiency of 4.81 inches since June, 1947.

2. **The 1951 Season.** With the exception of a period in late April and early May, the 1951 fire season was characterized by frequent showers resulting in the best record for the lowest number of fires since 1929. The showers in late April were spotty, followed by rapid drying that resulted in a rising incidence of fires from the third week which continued through the third week of May. The worst day was May 2 with high winds resulting in large losses mostly in Cheshire County. The spring dry weather built up to Class 4 from May 1st to 8th. Governor Adams closed the woods May 5th and lifted the ban on all but Coos County on May 11th. Coos closure was lifted to a "no smoking — no open fires" ban on the 12th which stayed on until the 28th.

Fires five acres and over which occurred in this period were:

| Date | Town | Acres | Cause | Source |
|---|---|---|---|---|
| April 20 | Dover | 50 | Debris Burning | Town Dump |
| April 21 | Croydon | 6 | Debris Burning | Farmer |
| April 23 | Derry | 5 | Debris Burning | Farmer |
| April | Salem | 10 | Unknown | Unknown |
| April 30 | Loudon | 40 | Smoking | Lumberman |
| May 1 | Littleton | 10 | Sparks | Railroad |
| May 2 | Winchester | 1080 | Debris Burning | Town Dump |
| May 2 | Troy | 46 | Sparks | Railroad |
| May 2 | Troy | 40 | Smoking | Fisherman |
| May 2 | Surry-Keene | 405 | Sparks | High Tension Line |
| May 2 | Swanzey | 6 | Debris Burning | Farmer |
| May 2 | Tuftonboro | 40 | Unknown | Unknown |
| May 2 | Rochester | 6 | Spontaneous Combustion | Unknown |
| May 2 | Berlin | 42 | Smoking | Fisherman |
| May 4 | Merrimack | 10 | Smoking | Roadside |
| May 5 | Epsom | 123 | Smoking | Lumberman |
| May 5 | Freedom | 10 | Sparks | Tractor |
| May 6 | Merrimack | 5 | Sparks | Railroad |
| May 10 | Freedom | 6 | Smoking | Roadside |
| May 13 | Freedom | 20 | Unknown | Unknown |
| May 15 | Belmont | 75 | Debris Burning | Town Dump |
| May 15 | Dummer | 128 | Smoking | Unknown |
| May 16 | Mont Vernon | 7 | Sparks | Tractor |
| May 16 | Ashland | 300 | Smoking | Roadside |
| May 26 | Andover | 5 | Unknown | Unknown |

The above listing takes no account of the great number of fires which were kept small by prompt and efficient action by lookouts, wardens and fire departments. It also points up the fact that even with excellent organization and trained fire fighters high winds will cause heavy loss once the fire starts to run. Prevention is the only way to save loss and the expense of suppression.

The balance of 1951 was quiet with only a few lightning fires in late July. The year ended with an above normal precipitation of 11.75 inches. The accumulated deficiency since June of 1947 was turned into an excess of 6.94 inches.

**3. The 1952 Season.** Snow remained until the first week of April when heavy rains caused flooding of streams. The grass fire season in the central and southern sections was in full swing by the 10th and threatened many buildings. By April 12th fires were reported all over the southern counties and the danger continued until soaking rains came on the 28th. Fires over five acres occurring during this period were:

| Date | Town | Acres | Cause | Source |
|---|---|---|---|---|
| April 10 | Stratham | 20 | Camp Fire | Unknown |
| April 12 | Nottingham | 5 | Debris Burning | Resident |
| April 12 | Londonderry | 10 | Smoking | Lumberman |
| April 12 | Merrimack | 4 | Debris Burning | Farmer |
| April 18 | Lyndeboro | 5 | Debris Burning | Farmer |
| April 18 | Hooksett-Manchester | 5 | Smoking | Roadside |
| April 18 | Haverhill | 5 | Sparks | Railroad |
| April 18 | Mont Vernon | 5 | Debris Burning | Farmer |
| April 20 | Hooksett | 70 | Debris Burning | Farmer |
| April 20 | Gilmanton | 30 | Debris Burning | Farmer |
| April 20 | Farmington | 5 | Debris Burning | Resident |
| April 20 | Londonderry | 25 | Spark | Gas Engine |
| April 20 | Milton | 11 | Debris Burning | Blueberry Clearing |
| April 20 | Somersworth | 13 | Debris Burning | Town Dump |
| April 20 | Wentworth | 15 | Debris Burning | Farmer |
| April 20 | Lisbon | 10 | Debris Burning | Resident |
| April 20 | Epping | 5 | Debris Burning | Town Dump |

Strong winds on the 20th accounted for the size of the fires. Prevention publicity held fire occurrence down for the rest of the dry period. Following the heavy rains there were a number of fire calls from improperly extinguished debris-burning fires made during the rain, but the balance of the year to June 30th was relatively quiet. The rainfall for 1952 totalled 3.62 inches above normal to June 30th or an excess of 10.56 inches since June, 1947.

**Record of Forest Fires.**

Statistics of forest fires have been kept in the same manner as in former years and are shown in Tables 1 - 7. The details of previous years may be found in earlier reports. The averages for 41 years since

1912 and the average for the 10-year period preceding the biennium here reported are given in Tables 4 and 5. These tables show a marked reduction in fire losses compared with the average of preceding periods.

Fire statistics are of value in planning for protection and suppression in time and location. Such statistics have shown that the forest fire hazard in New Hampshire is an insurable risk and were in large measure responsible for the establishment of favorable fire insurance rates on growing timber now available to New Hampshire forest owners.

## Table 1

### NUMBER OF FIRES BY MONTHS
(Exclusive of Railroad Fires)
Fiscal Year Ending June 30th

| Month | 1951-51 | 1951-52 |
|---|---|---|
| July | 92 | 12 |
| August | 85 | 2 |
| September | 8 | 1 |
| October | 43 | 9 |
| November | 20 | 2 |
| December | 0 | 0 |
| January | 0 | 0 |
| February | 1 | 0 |
| March | 9 | 3 |
| April | 84 | 160 |
| May | 105 | 41 |
| June | 15 | 42 |
| Totals | 462 | 272 |

## Table 2

### TOTAL NUMBER OF FOREST FIRES, AREA AND DAMAGE BY CAUSES
For Fiscal Years 1951-52

| Causes | Percent Total No. of Fires | Percent Total Area Burned | Percent Total Damage |
|---|---|---|---|
| Railroads | 7.5 | 5.0 | .7 |
| Smokers | 30.0 | 30.0 | 13.4 |
| Burning Brush | 24.0 | 36.0 | 29.0 |
| Miscellaneous | 13.6 | 16.0 | 16.0 |
| Lumbering | 3.0 | 4.0 | .9 |
| Incendiary | 4.4 | 1.0 | .8 |
| Lightning | 6.5 | 2.0 | .6 |
| Campfires | 4.6 | 1.0 | .5 |
| Unknown | 6.4 | 5.0 | 38.1 |
| Totals | 100.0 | 100.0 | 100.0 |

## Table 3

### FIRE RECORD BY COUNTIES FOR FISCAL YEARS 1951 AND 1952

(Exclusive of Railroad Fires)

| County | Year | Number of Fires | Total Acres Burned | Average Area Per Fire Acres | Total Damage | Average Damage Per Fire | Total Cost of Fighting | Average Cost of Fighting Per Fire |
|---|---|---|---|---|---|---|---|---|
| Belknap | 1951 | 37 | 128 | 3.5 | $2,382.00 | $64.38 | $2,912.67 | $78.72 |
| | 1952 | 27 | 50 | 1.8 | 22.50 | .83 | 613.02 | 22.70 |
| Carroll | 1951 | 41 | 159 | 3.8 | 489.00 | 11.92 | 9,221.65 | 224.92 |
| | 1952 | 19 | 11 | .6 | 95.00 | 5.00 | 2,257.99 | 118.84 |
| Cheshire | 1951 | 56 | 1631 | 29.1 | 30,249.00 | 540.16 | 24,353.32 | 434.88 |
| | 1952 | 35 | 78 | 2.2 | 285.00 | 8.14 | 1,581.58 | 45.19 |
| Coos | 1951 | 26 | 217 | 8.3 | 211.00 | 8.11 | 4,956.63 | 190.63 |
| | 1952 | 22 | 48 | 2.2 | 170.00 | 7.72 | 610.52 | 27.75 |
| Grafton | 1951 | 28 | 315 | 11.2 | 1,589.50 | 56.76 | 3,283.26 | 117.26 |
| | 1952 | 22 | 41 | 1.8 | 20.00 | .91 | 1,061.75 | 48.26 |
| Hillsborough | 1951 | 91 | 118 | 1.3 | 25,897.00 | 284.38 | 4,657.34 | 51.18 |
| | 1952 | 35 | 28 | .8 | 32.00 | .91 | 699.83 | 19.99 |
| Merrimack | 1951 | 64 | 257 | 4.0 | 1,224.50 | 19.13 | 6,544.41 | 102.26 |
| | 1952 | 36 | 108 | 2.9 | 680.00 | 18.88 | 2,282.96 | 63.41 |
| Rockingham | 1951 | 63 | 133 | 2.1 | 1,374.50 | 21.81 | 1,382.33 | 21.94 |
| | 1952 | 44 | 115 | 2.6 | 1,264.50 | 28.74 | 1,947.54 | 44.26 |
| Strafford | 1951 | 31 | 37 | 1.2 | 115.00 | 3.71 | 1,799.58 | 58.05 |
| | 1952 | 22 | 94 | 4.3 | 259.00 | 11.77 | 688.80 | 31.31 |
| Sullivan | 1951 | 25 | 13 | .5 | 117.00 | 4.68 | 767.08 | 30.68 |
| | 1952 | 10 | 6 | .6 | 15.00 | 1.50 | 1,321.58 | 132.16 |
| State Total | 1951 | 462 | 3008 | 6.5 | $63,648.50 | $137.76 | $59,878.27 | $129.61 |
| | 1952 | 272 | 579 | 2.1 | $2,843.00 | $10.45 | $13,065.57 | $48.03 |

## Table 4

### AVERAGE FIRE STATISTICS

(Exclusive of railroad fires)

(For details of previous years see 1949-50 Biennial Report, Page 12)

| Period | Total Number of Fires | Total Area Burned (Acres) | Average Area Burned Per Fire | Total Damage | Average Damage Per Fire |
|---|---|---|---|---|---|
| 1912-1952 (41 years) | 16,851 | 271,220 | 16.1 | $2,336,703 | $138.70 |
| 1941-1950 (10 years) | 4,796 | 69,618 | 14.5 | 722,923 | 150.00 |
| 1951 | 462 | 3,008 | 6.5 | 63,649 | 137.76 |
| 1952 | 272 | 579 | 2.1 | 2,843 | 10.45 |

## Table 5

### AVERAGE ANNUAL FIRE LOSS

| | Average Number of Fires Per Year | Average Area Burned Annually (Acres) | Average Annual Damage |
|---|---|---|---|
| 1912-1952 (41 years) ..... | 411 | 6,615 | $56,992 |
| 1941-1950 (10 years) ..... | 480 | 6,962 | 72,292 |
| 1951-1952 (2 years) ..... | 367 | 1,794 | 33,246 |

## Table 6

### RAILROAD FIRE RECORD FOR FISCAL YEARS 1951 AND 1952

| Year | No. Fires | Total Area Burned Acres | Average Area Per Fire Acres | Total Damage | Average Damage Per Fire |
|---|---|---|---|---|---|
| 1951 | 43 | 168.7 | 3.9 | $413.00 | $9.60 |
| 1952 | 17 | 19.4 | 1.1 | $35.00 | 2.05 |

## Table 7

### COMBINED FOREST FIRE RECORD FOR FISCAL YEARS 1951-52

| | 1951 | | | 1952 | | | Total 1951-52 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number of Fires | Area Burned Acres | Damage | Number of Fires | Area Burned Acres | Damage | Number of Fires | Area Burned Acres | Damage |
| Railroad Caused | 43 | 169 | $413 | 17 | 19 | $35 | 60 | 188 | $448 |
| Other Causes | 462 | 3008 | 63,649 | 272 | 579 | 2843 | 734 | 3587 | 66,492 |
| White Mountain National Forest | None | None | None | 3 | Negligible | None | 3 | Negligible | None |
| Totals | 505 | 3177 | $64,062 | 292 | 598 | $2878 | 797 | 3775 | $66,940 |

**Fire Prevention**

It is difficult to evaluate properly the money, time and effort put into fire prevention. It necessarily requires an educational and selling approach to impress persons with the desire to be careful with fire in order to protect and preserve something they may not own or in which they may have only a slight interest. It also must be a continuing appeal because there will always be new persons to impress with its importance.

The efforts of the Commission in using posters, blotters, advertising, radio, moving picture films, talks and exhibits have continued. In order to reach the traveling public, 10 roadside signs were erected on our most traveled highways. These large signs carry a positive fire prevention suggestion and also tell the traveler of the fire danger that exists on that day. These eye-catching signs in colored "Scotchlight" are noted daily by the traveler and have acquainted many with the changing fire danger. The signs are changed by a local resident who gets his information from the nearest fire weather station. There are four ratings, Low, Medium, High and Extreme. There was a noticeable lack of roadside fires caused by smoking in the areas served by these signs despite an increase of hazard brought about by the practice of covering bare areas along state highways with old hay.

In April and May, 1952, during a very dry period, no closures were put into effect, but newspaper and radio appeals to the public resulted in good cooperation. It was unnecessary to close the woods during the fishing season.

The fire prevention message was also carried in many fair exhibits, including the Eastern States Exposition, by poster contests among the Fire Wardens Associations, participation in Fire Prevention Week exhibits and demonstrations, and by the distribution of cooperative fire prevention and American Forest Products Industries, Inc. posters, advertisements by industry, leaflets, blotters and stickers. Good law enforcement continues to be the best deterrent in preventing debris-burning and grass-burning fires from getting out of control.

A new prevention film, "Watershed Fire," and several shorts featuring Smokey, the Bear were acquired for the film library. Fire prevention films have had a wide circulation to varied groups.

One phase of prevention which has shown remarkable results since the passage of the law and enforcement by the district fire chiefs is that of fires resulting from operating mills. One big factor in this is the almost total disappearance of the portable steam mill in favor of gas and diesel, but the good housekeeping about mills required by law, and regulation is the most important factor. Sawmill settings are

inspected about every 4 to 6 weeks and serious violations are seldom found.

Much more serious were the great number of roadside, railroad and boundary line slash violations. For these to be found involves either much scouting or inquiry, and to get them cleaned up often means two to four inspections, letters and resort to court action. Literally miles of such violations were cleaned up when the responsible party was located.

**The Northeastern Forest Fire Protection Commission**

The compact which is the basis for this Commission was approved by the Congress and the member states including all of the New England States and New York in 1949. In 1950 the Commission was formed to carry out its provisions. Its purpose as stated in the compact is "to promote effective prevention and control of forest fires in the Northeastern region of the United States and adjacent areas in Canada by the development of integrated forest fire plans, by the maintenance of adequate forest fire fighting services by the member states, by providing for mutual aid in fighting forest fires, and by the establishment of a central agency to coordinate the services of member states."

The Commissioners first appointed from New Hampshire were the former State Forester, John H. Foster, Wakefield Dort of Chesterfield and Howard T. Woodward of Berlin. John B. Evans of Lancaster succeeded Mr. Woodward, but was forced to resign because of illness. George L. Porter of Langdon was then appointed. The Commission selected Robie M. Evans as its executive secretary and the White Mountain National Forest generously contributed an office in Laconia. In the spring of 1952, Mr. Evans resigned as Executive Secretary and Mr. Arthur S. Hopkins, former director of the Division of Lands and Forests in New York, was selected to succeed him. The office is now in Chatham, New York.

A technical committee composed of state foresters and fire control officers of the member states was formed to carry out the provisions of the compact and the broad program of the commissioners. In the main this program was aimed at establishing uniform procedures on forest fire matters such as uniform woods closure laws, equipment, terms and training to the end that any help sent to any state requesting it will function without confusion. Procedure for keeping track of the fire situation and for giving and reimbursing for aid were worked out.

The greatest activity was in training for organization on large fires. With instructors selected from the states and the valued assist-

ance of Robert F. Collins of the U. S. Forest Service, Region Seven, two five-day training meetings for supervisory personnel were held. The first was in Laconia in January, 1951, and covered in broad terms the whole organization for large fires. The second, held in the State House, February 5-8, 1952, dealt with planning. Since these training schools could not accommodate all personnel of the various states, the men selected were instructed to train others in their respective states. To supplement the indoor work, a three-day field problem was worked out in October, 1951, in Canaan, Conn. New Hampshire was represented on the training team by Richard B. Diehl. The team prepared detailed lesson plans and teaching aids on each job of the fire organization.

The compact is now preparing a pocket guide for field use. Aside from the practical training, the association of fire control men from the various states has enabled them to recognize each other's problems and has led to better relations and mutual help in training.

**Training of Wardens and Deputies**

The training of wardens and deputies falls into two categories: training in administrative details and in forest fire suppression. Administrative subjects include action on requests for slash burning permits, making out fire reports and bills, town fire plans and the care and housing of tools and equipment. Fire control training is a large subject covering, as it must, everything from the proper use of equipment in extinguishing fires to the fire boss job involving the supervision of hundreds of men and many pieces of equipment on a large fire. In order to prepare for this situation thorough training in basic fire organization and a full knowledge of what can be done with the tools and equipment available is essential.

To supply this training the district chiefs conduct training meetings at which demonstrations, motion pictures, charts and discussions are supplemented by actual field use of the tools and equipment. They present the tried and proven methods which will work in the field. This training is limited by the funds available. Under the law the towns and state share in the cost which includes payment to wardens at $1.00 per hour plus travel at $.06 per mile and subsistence.

Due to the fact that wardens and deputies perform their work as volunteers, paid only for services performed, it is often difficult to obtain attendance at training meetings. Meetings may be all-day indoor, or one-half indoor and half field, or they may be evening meetings. Some are sectional in nature, involving one to five towns that may work together; others may be district-wide. The district fire chief conducts the type of meeting which he feels the men need and at a

time most convenient for greatest attendance. He also makes use of the opportunity on an actual fire to field-train his wardens.

This training has shown results in less area burned, smaller fire bills and fewer second-day fires. However, with some annual turnover of personnel and with such a broad field of fire suppression training and with so little money available for town reimbursement, the same

*Training Organization for Large Fires*

common errors in fire fighting constantly are cropping up, thus emphasizing the need for continuous training.

The training is not all received at a cost to the state. Much of it is conducted at meetings of the county forest fire warden associations that firemen and wardens attend at their own expense. Men from paid fire departments and some others do not present bills to their towns, preferring to give their time as a public service. The fire fighting men of the state as a whole are one of the most public-spirited groups, imbued with a desire to do a good job for their towns, and always willing to help out another town asking for aid. Mutual aid is the key to our successful control of large fires in New Hampshire.

**Training Films**

New Hampshire, along with the other states in Region Seven of the U. S. Forest Service, participates in a cooperative program of financing the production of fire-fighting, prevention and training films. The films so far produced are "It's No Picnic," "Only a Bunch of Tools," "Fire in the Forest," and "Building the Line." Currently in production is one on the use of water in fire fighting. These and other films on training in the library are "Common Errors," "Fighting Large Fires in Brush and Grass," "The One Lick Method" and "Campaign Fire."

**Training of Special Deputies**

The training of special deputy wardens continued and their use on fires increased greatly as the wardens began to realize what these men can do for them. Specially trained men can relieve the warden of the details of administration of his fire and leave him free to direct his organization against the enemy fire.

The training received by the district chiefs in the school conducted by the compact was passed on to the special deputies. In the spring of 1951 they put on a creditable demonstration of a large fire organization before the annual forest fire conference sponsored by the Fire Control Committee of the New England Section of the Society of American Foresters. Following an evening meeting, high-lighted by talks by members of the U. S. Forest Service, a complete fire camp was set up at Bear Brook State Park where all the sections of a large fire organization were staffed and operated on a mock fire. The field kitchen actually performed to serve a dinner to all. New Hampshire members of the committee were George F. Richardson, Jr. of Lebanon, Chairman, Robert S. Monahan of Hanover, George L. Porter of Langdon, Thomas J. King of Concord and Richard B. Diehl of Pembroke.

Many of the special deputies met monthly to receive training in some speciality, often at their own expense, since only limited funds were available to them. The state paid for training special deputies. These men leave their regular jobs to serve on fires and their assistance is of inestimable value. They were provided with U. S. G. S. maps of the district in which they live and a limited number of scout kits were available in each district. The district chiefs placed increased responsibilities on them as their experience at fires proved their training.

**Lookout Watchmen**

Twice during the biennium a two-day school for lookout watchmen was held at Bear Brook State Park. The results of this training were very noticeable the first year in improving standards of efficiency in

our lookout service. The subjects covered were reporting smokes, communication, both telephone and radio, use of fire-finder and map-reading, care of equipment and quarters and keeping records. As a result of these meetings and the increased use of radio, the watchman now realizes he is one of a team instead of an isolated outpost. The training given at the schools was supplemented by on-the-job training by district chiefs and experienced watchmen during the season.

### Rates of Pay for Fire Fighting

Along with the cost of living and wages, the cost of fire-fighting is rising. Even the very small fire may cost $15.00 to $20.00 and if it lasts a few hours or becomes stubborn to control, this cost may reach large sums and become a real burden on the towns and state. The maximum rates set by the Commission which the state shared with the towns during the biennium were as follows:

**Labor**

| | |
|---|---|
| Warden—Deputy Wardens— | Hourly rate authorized by towns |
| Special Deputies and Special Equipment Operators | $1.10 per hour |
| Members of organized fire departments or trained fire departments | $1.00 per hour |
| Untrained fire fighters | $ .85 per hour |

**Equipment Rental**

| | |
|---|---|
| Portable pump, low pressure | $2.50 per hour |
| Portable pump, high pressure | $3.00 per hour |
| Tank trucks of 500 gallons or more or fire department pumpers | $5.00 per hour |
| Bulldozer D-6 | $6.50 per hour |
| Bulldozer D-7 | $8.00 per hour |
| Use of cars | 6 cents per mile |

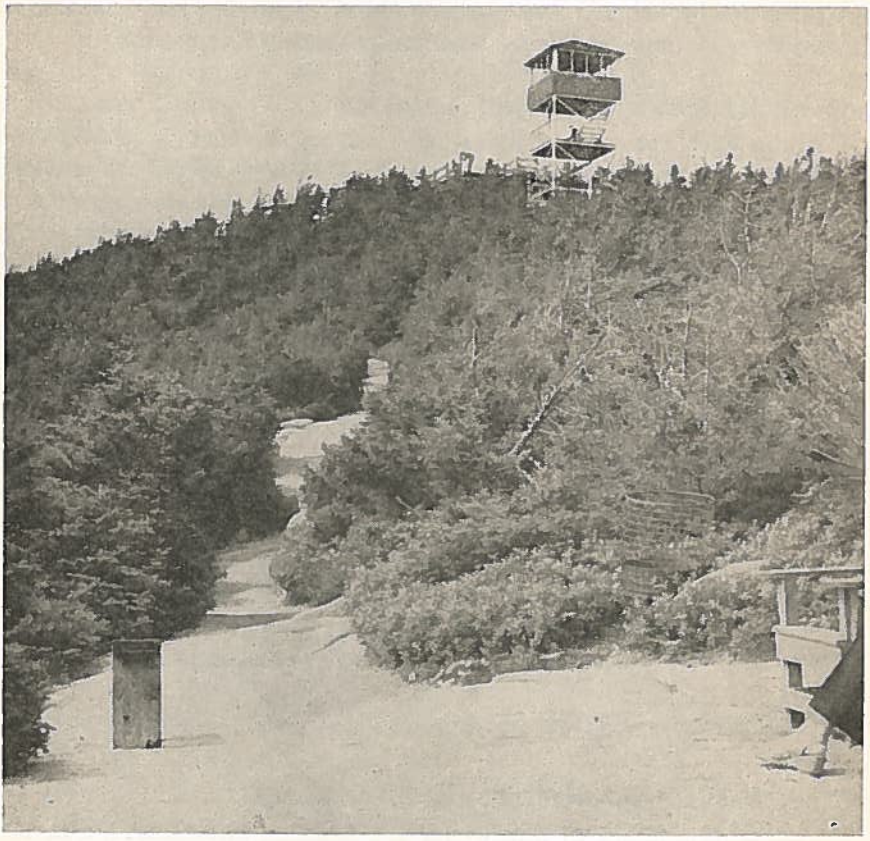
Use of trucks, busses—rate not set, paid by hour or mile depending on particular use.

### Lookout Station Improvements and Maintenance

Following a policy of improving the lookout watchman's quarters for greater comfort, convenience and appearance, the cabins at Red Hill and Cardigan Mt. were insulated, window casings made, new windows added and cupboards built in. The cabin at Warner Hill was enlarged by adding six feet to the length thus relieving the cramped bedroom space. The new cabin at Pitcher Mt. now occupied during the fire season required cupboards and screening. Many of the tower roofs required repair which led to the discovery that a number of such roofs needed rebuilding since the boards no longer held roofing nails. In all repairs improved standards of construction were employed to cut down maintenance. Minor repairs such as painting the inside of towers, stair treads, landings, cabins, replacing treads and broken glass were done by the watchman where the job was within his capabilities.

The watchman who could do carpentry or electrical work was supplied materials with which to do the work himself under the supervision of the District Fire Chief and with approval of the state office.

The angle-iron stair tread supports initially welded have been drilled and bolted on Hyland Hill and Rock Rimmon towers. New fire-



*Cannon Mountain Lookout*

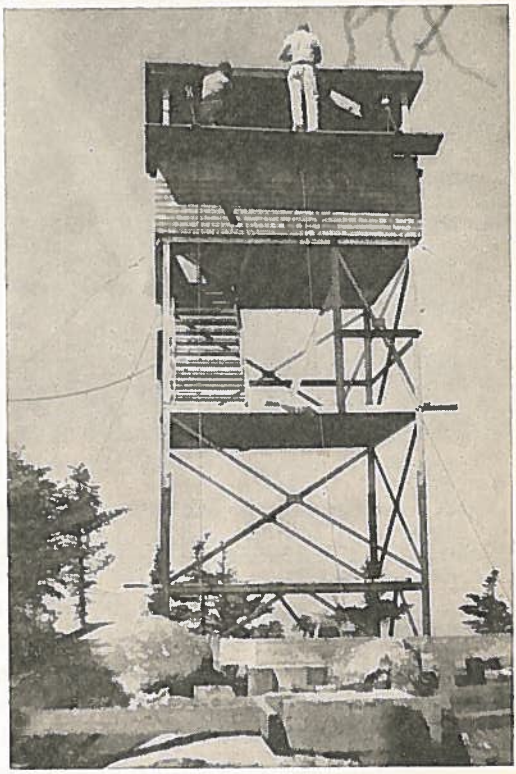
finder maps were made for Pawtuckaway, Federal Hill, Mill Mt., Kearsarge Mt. and Cannon Mt. New cross check maps were made for Cardigan, Red Hill, Blue Job, Hyland Hill, Bear Hill and Pawtuckaway. Five new 6 x 30 field glasses were purchased to replace obsolete glasses.

At the Croydon Mt. station a garage building large enough to provide a room in the rear for an emergency camp was built at the end of the road. This is at the foot of the three-mile trail to the top and provides storage and quarters for the watchman when working on the lower telephone line or in an emergency. It has a telephone and

is furnished with a stove, dishes and bed. Much of the upper end of the telephone line was rebuilt. Electricity was installed in the Uncanoonuc Mt., Pitcher Mt., Federal Hill, Belknap Mt. and Craney Hill cabins and the towers of Great Hill, Federal Hill and Pitcher Mt. Electricity is now installed in nine stations and available at two others. The new cabin at Franconia Notch and the garage-cabin at Croydon were outfitted with stoves, kitchen and other furnishings and the watchman's house at Great Hill was furnished with dining equipment. Culverts have been ordered for placement in several lookout roads.

**New Station Construction at Cannon Mountain**

In order to provide lookout coverage for the area in the north end of District Four and a much needed radio dispatch point for the whole



*Cannon Mountain Lookout Construction*

district as well as a radio relay station north across the mountains, it was decided to erect a lookout station on Cannon Mt. After agreements on location were worked out with the Recreation Division and the White Mountain National Forest, construction was started on a large steel tower just north of the present observation platform at the sum-

mit. A cabin on the shore of Echo Lake was secured for quarters for the watchman. Running water was piped in from a spring and a woodshed added.

## Table 8

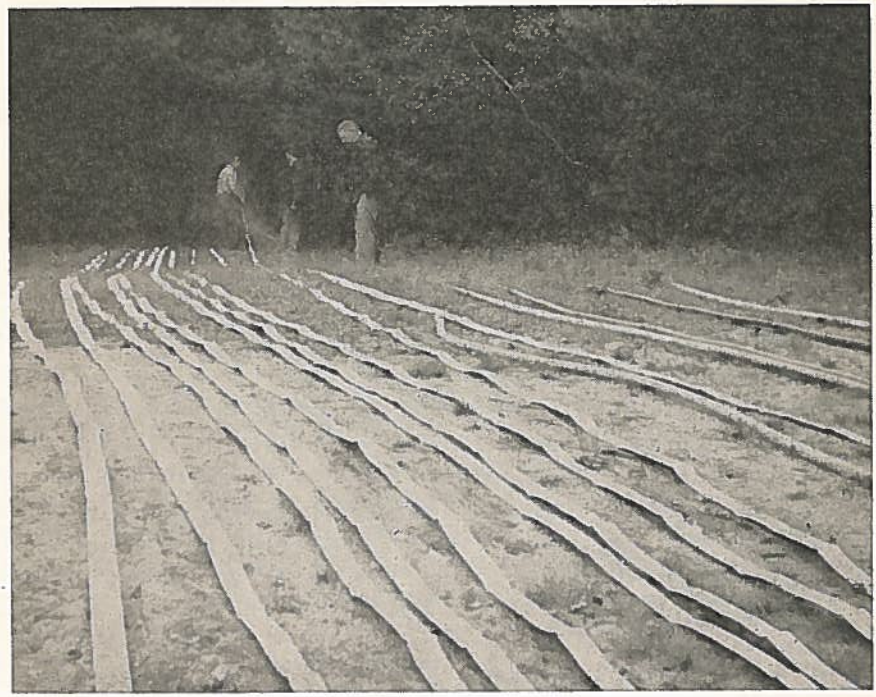
### FIRE LOOKOUT STATION STATISTICS

| Name of Station | Number of Smokes Discovered | | Number of Fires Reported | | Number of Visitors Registered | |
|---|---|---|---|---|---|---|
| | 1951 | 1952 | 1951 | 1952 | 1951 | 1952 |
| Bear Hill | 56 | 87 | 21 | 42 | 779 | 688 |
| Belknap Mt. | 299 | 136 | 178 | 98 | 1,409 | 1,811 |
| Blue Job Mt. | 386 | 422 | 140 | 165 | 1,211 | 1,714 |
| Cardigan Mt. | 25 | 29 | 24 | 29 | 2,962 | 3,508 |
| Craney Hill | 76 | 63 | 36 | 43 | 111 | 239 |
| Croydon Mt. | 36 | 74 | 28 | 70 | 32 | 80 |
| Deer Mt. | 3 | 4 | 1 | 3 | 64 | 60 |
| Federal Hill | 97 | 104 | 81 | 78 | 453 | 829 |
| Great Hill | 7 | 15 | 2 | 1 | 391 | 520 |
| Green Mt. | 34 | 25 | 23 | 25 | 1,187 | 1,166 |
| Hyland Hill | 36 | 26 | 22 | 24 | 104 | 144 |
| Jeremy Hill | 52 | 107 | 24 | 60 | 602 | 773 |
| Kearsarge Mt. | 119 | 197 | 101 | 168 | 7,011 | 8,056 |
| Magalloway Mt. | 4 | 4 | 4 | 2 | 20 | 4 |
| Milan Hill | 47 | 19 | 47 | 19 | 953 | 623 |
| Mill Mt. | 9 | 15 | 8 | 15 | 132 | 63 |
| Miller Park | 58 | 53 | 35 | 98 | 3,432 | 4,504 |
| Oak Hill | 305 | 434 | 122 | 265 | 169 | 320 |
| Pawtuckaway Mt. | 263 | 408 | 44 | 84 | 1,210 | 1,433 |
| Pitcher Mt. | 18 | 10 | 11 | 10 | 694 | 523 |
| Prospect Mt. | 36 | 75 | 7 | 29 | 2,544 | 4,729 |
| Red Hill | 66 | 16 | 21 | 16 | 1,549 | 1,517 |
| Rock Rimmon Hill | | 115 | | 41 | | 1,008 |
| Signal Mt. | 36 | 9 | 36 | 9 | 80 | 35 |
| Stratham Hill | 54 | 70 | 17 | 37 | 1,401 | 1,469 |
| Sugar Loaf Mt. | 7 | 3 | 1 | 2 | 32 | 14 |
| Uncanoonuc Mt. | 109 | 274 | 64 | 250 | 1,498 | 1,525 |
| Warner Hill | 146 | 141 | 50 | 88 | 369 | 432 |
| Totals | 2,384 | 2,935 | 1,148 | 1,701 | 30,399 | 37,787 |

### State Equipment

Motor vehicles acquired in 1950 included a ¾ ton pickup truck for use by the maintenance crew and two ½ ton pickup trucks for use by District Four and the assistant district chief. In 1951 a car was purchased for District Two and a 4-wheel drive Willys pickup truck for District Eight. Six sirens were purchased for district chiefs' cars, for aid in getting through traffic to fires. Forty-one gridded town maps mounted on sheet steel were made for wardens and a sectional map for District One-A for field use was mounted on quadrangle-sized sheets of aluminum. Four sets of forest fire weather instruments con-

sisting of anemometer, rain gauge and fuel moisture scales were purchased and four sets of iron-framed copper-screened shades and pipe anemometer supports were constructed in the shop. Twenty-four A. M. Motorola two-way radios were secured secondhand at a fraction of their original cost. Eight portable link sets were obtained at a nominal cost from the Maine Forest Service. A six-volt motor generator unit



*Inspecting 1½ inch Linen Fire Hose*

was assembled from purchased parts for use at Oak Hill. A 110-volt 1250-watt A. C. portable generator was purchased for auxiliary power to insure radio communication or for use where power is not available. In order to aid in patrolling and checking fires on the shore of northern lakes and ponds and for crossing First Connecticut Lake to the trail up Magalloway Mt., two 14 ft. Alumnacraft boats with oars and two 5 H. P. Johnson outboard motors were purchased for Districts Seven and Eight. Two Pacific Marine power fire pumps were purchased. One was the standard Type Y which has been found best for portability and high pressure. The other was the new 38-pound pump useful for packing in to remote fires. Fire hose purchases included 3,000 ft. of 1½ in. linen coupled in 100 ft. lengths and packed 300 ft. to each hose bag and 2,000 ft. of single jacket cotton rubber-lined coupled in 50 ft. lengths. This was for normal hose replacement at state pump caches.

## Table 9

### STATE EQUIPMENT PURCHASES

**Fiscal Years 1950-51 and 1951-52**

| | Type | Use | Cost |
|---|---|---|---|
| **Vehicles** | | | |
| | ¾ t. pickup | Maintenance—Nov. 1950 | $1,477.55 |
| 2 | ½ t. pickups | District 4—Dec. 1950 | 1,150.00 |
| | | Ass't. D. C. Hartwell—Nov. 1950 | 1,030.54 |
| 1 | 2 dr. passenger | District 2—with Plymouth turn-in | 1,526.36 |
| 1 | 4-wheel dr. Willys pickup | District 8 | 1,765.00 |
| **Accessories** | | | |
| | 6 car sirens Sterling Mod. 20 | D. C.'s cars | 227.85 |
| **Preparation of Maps** | | | |
| 41 | Town Maps | Wardens | 222.00 |
| 6 | Tower Maps | Cross checking | 279.00 |
| 4 | Tower Maps | Fire finder | 42.00 |
| 1 | District Map | District 1-A | 86.50 |
| **Fire Weather Instruments** | | | |
| 4 | Anemometers | Weather Stations | 60.84 |
| 8 | Rain Gauges | Weather Stations | 41.52 |
| 4 | Fuel Moisture Scales | Weather Stations | 75.62 |
| **Radio** | | | |
| 1 | Receiver for Concord Station | New Motorola Senicen | 270.00 |
| 23 | Used Radios | All Districts | 1,930.50 |
| 1 | F. M. Receiver—New | | 44.95 |
| 6 | A. M. Receivers—Used | | 366.00 |
| 9 | Link Radios | All Districts | 320.00 |
| 1 | 6 vt. Motor Generator | District 4 | 245.00 |
| 1 | 110 vt. A. C. 1250 Wt. Motor Generator | Concord Office | 282.24 |
| **Pumps and Hose** | | | |
| 1 | Type Y P. M. Power Pump | Standby | 512.00 |
| 1 | 38 lb. P. M. Power Pump | Standby | 369.00 |
| 3M | ft. linen hose | All Districts | 974.70 |
| 2M | ft. C. R. lined hose | All Districts | 800.00 |
| 10 | Hose Bags | All Districts | 75.00 |
| **Binoculars** | | | |
| 5 | pr. 6 x 30 binoculars | Replacements | 297.50 |
| | Repairing, aligning, cleaning | Old Glasses | 44.02 |
| **Boats** | | | |
| 2 | 14 ft. Alumna Craft Boats with oars | Districts 7 and 8 | 297.50 |
| 2 | 5 HP Johnson Outboard Motors | Districts 7 and 8 | 313.60 |
| **Miscellaneous Equipment** | | | |
| | Cook stoves | 18 and 20 | 38.00 |
| | Household items—beds, mattresses, kitchenware | | |
| | Metal Culverts—8 in. x 12 ft. | | 105.00 |
| | Total | | $15,269.79 |

**Town Equipment**

The policy of purchasing fire tools for resale to towns was established in 1913. This activity has expanded so that now New Hampshire can proudly point to the best and most varied forest fire tool equipment of any state in possession of the towns. There are still towns that could improve their tool stock both in variety and number. The following equipment was purchased by the Commission for resale to the towns during the biennium:

| | |
|---|---|
| 615 Knapsack Pumps (Brass) | $9,761.96 |
| 25 Knapsack Pumps (Galvanized) | 341.75 |
| 468 Repair and Replacement parts for Knapsack Pumps | 2,260.92 |
| 144 Fire Rakes | 289.40 |
| 468 Special Fire Shovels | 768.08 |
| 150 Headlights | 551.25 |
| 36 Pulp Saws | 116.42 |
| | $14,089.78 |

Purchase was made from a $5,000 appropriation plus some funds carried over from the previous year; old bills collected from the towns and by rebuying from current collections. It is possible to keep a reserve stock on hand prior to the beginning of each fire season in sufficient quantity to take care of orders on all items except knapsack pumps. By limiting the number sold to any one town to six a year, it was possible to fill all orders. There was often a delay in new purchases until sufficient money had collected from sales. The cost to the towns of the principal items carried (the state absorbing one-half the cost) was as follows:

| | | | |
|---|---|---|---|
| Knapsack Pumps (Brass) | $10.35 each | Canteens—I gallon | $1.75 each |
| Knapsack Pumps (Galvanized) | $6.85 each | Headlights—electric | $1.86 each |
| Fire Rakes | $1.15 each | Lanterns—oil | $5.50 a dozen |
| Fire Shovels | $11.40 a dozen | Axes | $7.00 a dozen |
| Hazel Hoes | $19.25 a dozen | Pulaski Tools | $14.25 a dozen |
| Pulpwood Saws | $2.27 each | | |

Town tools are now for the most part stored in fire houses or at the wardens' homes. They are subject to yearly inspection by the district chief when recommendations for purchase and repair are made. Many towns take care of their tools in racks in the fire house and in boxes on the fire trucks. More towns should construct tool boxes for transporting and housing tools at the fire.

State-owned tools allotted to towns are often stored with town tools. The service now maintains portable pumps and 2,400 ft. of hose at 19 places in the state. It has an agreement with the warden to transport the equipment to a fire on a call from the dispatcher or district chief in return for its use in the town itself. Expenses of transporta-

tion and operators are charged to the town calling for aid. Present locations are Portsmouth, Exeter, Pelham, Milford, Keene, Weare, Canaan, Rochester, Boscawen, Bear Brook State Park in Allenstown, Bristol, Rumney, Lisbon, North Conway, Berlin, Groveton, Colebrook and at the Flume and Tramway in Franconia Notch. In addition five trucks with boxes of tools for 100 men and a portable pump and hose

*Town of Bristol Forest Fire Truck and Equipment*

are available. One of these is located at Lancaster during the fire season, the rest at Bear Brook State Park. These are available on a call from the dispatcher or district chief. No charge is made to the towns for the use of state equipment, only for the drivers, operators and supplies used and tools lost or broken.

The state maintains 25 fire tool caches on large state forests and throughout the north country. These are at strategic road junctions where the tools are available for use by the traveler who sees a fire as well as by the caretaker or patrolman. There is need for a better variety of tools in some of these boxes. They are inspected regularly by the district chiefs.

**Radio Communication**

The initial phase of our long term radio communication program first visualized in 1942 was nearly achieved in the biennium. Second-hand A. M. radio transmitter-receivers were installed at Federal Hill,

August 3, 1950; Mt. Kearsarge, August 5, 1950; Pitcher Mt., April 4, 1951; Milan Hill, June 8, 1951; Prospect Mt., June 15, 1951; Great Hill, May 19, 1952; and Blue Job, July 1, 1952. A 120-watt unit went into operation on August 24, 1950 on Jordan Hill in Concord with a remote control in the fire control office in the State Office Building. Thus practically the whole state is covered during the fire season with radio in each district dispatcher's tower except Districts Two and Four. District Two was in part covered by Kearsarge and in part by the use of mobile radio equipment in the Oak Hill tower. With no funds for extending electric power lines to Oak Hill or Blue Job a small generator and storage battery outfit were assembled by the maintenance crew for Blue Job. These were housed at the base of the tower with the batteries in the tower and gave excellent and economical service. A similar power source is planned for Oak Hill.

Nine district chiefs and five other state officials had radio-equipped cars during the biennium. Enough factory-reconditioned equipment is now on hand for District Two and the four dispatchers and the other state cars of the administrative and forest management personnel, a total of seven. There are also one replacement unit and two station sets for additional lookouts. A station was installed in the Newport Fire Station to facilitate the gathering of weather information and to provide radio contact in the area. By using a small pack set on Magalloway Mt. and a mobile unit in the patrolman's car at Connecticut Lakes, radio contact was established with the northern areas. A pack set on Oak Hill had considerable use during the 1952 fire season. A set installed in the car of the inspector from the Fire Marshal's Office proved of value to both services.

In addition to state-owned radios eleven towns had both a central station and mobile sets while 19 additional towns had mobile radios on the forestry frequency. In all there were 22 base stations and 98 mobile sets on the forestry frequency.

The Commission was represented at two annual meetings of the Forestry Conservation Communications Association, an organization sponsored by the state foresters to exchange knowledge in forestry radio use and to protect state use of assigned radio frequencies.

Radio has proved a very valuable aid in the prevention and control of forest fires. It has speeded up accurate location of smokes, in getting district supervision on large fires and dispatching additional help. It keeps the state office currently informed of conditions and has welded our organization together as a working unit for maximum forest protection. Equipment was maintained by cooperation of the State Police radio staff. With the growing use of radio there is definite need for additional maintenance personnel in the State Police unit.

This could be financed by the various departments that have caused the large increase of work load.

**Civil Defense Radio**

The Commission has cooperated with the N. H. Civil Defense Agency in the purchase of 50 "walkie-talkie" portable radios. These cost $10,996 supplied equally by the Commission and from matching federal civil defense funds. These units are available for emergency communication in case of any disaster. The sets have been distributed to each district with equipment to keep batteries fully charged. Wardens and local fire departments have been instructed in their use. It is planned to obtain two battery-operated pack radios for use on lookouts. A portable A. C. generator is also available in case of power failure.

**Table 10**

**RADIO PURCHASES**

**Mobile and Station Sets**

| Fiscal Year | Sets Purchased | Cost |
|---|---|---|
| 1945-46 | 1 station set—New | $340.00 |
| | 1 mobile—New | 300.00 |
| 1947-48 | 2 mobiles—New | 600.00 |
| 1949-50 | 7 mobiles—Secondhand | 280.00 |
| | 1 station set—Secondhand | 250.00 |
| | 2 A. C. Receivers—Secondhand | 90.00 |
| 1951-52 | 1 Stancor Transmitter—New | 115.00 |
| | 1 Motorola Receiver—New | 270.00 |
| | 2 Main Stations—Secondhand | 275.00 |
| | 16 Mobiles—Secondhand | 1,555.50 |
| | 3 Transmitters—Secondhand | 265.00 |
| | 6 A. C. Receivers—Secondhand | 450.00 |
| | 7 Mobiles Factory—Reconditioned | 1,245.00 |
| | 2 6 vt. Receivers—Reconditioned | 66.00 |
| | Total | $6,101.50 |

New, $1,625.00; Secondhand, $3,231.50; Reconditioned, $1,245.00

**HAND PORTABLE SETS**

| | | |
|---|---|---|
| 1941-42 | 4 S. X. U. S. F. S. sets—New | |
| | 2 S. X. headquarters adapters—New | |
| 1951-52 | 9 Link sets—Secondhand | $330.00 |
| | With C. D. 30 Motorola Handi-Talkies—New F. M. | 8,316.00 |
| | " " " 20 Morrow Radio A. M.—New | 2,300.00 |
| | " " " 2 Morrow Radio Pack Sets A. M.—New | 400.00 |
| | Total | $11,346.00 |
| Grand Total | | $17,247.50 |

**Fire Weather Stations and Forecasts**

Sites for five weather stations were selected in the fall of 1951 in cooperation with John Keetch, fire weather expert of the U. S. Forest Service. This involved relocation of the Jeremy Hill station to Federal Hill in order to give a better sampling of southern Hillsborough County and the moving of the Great Hill station to Ossipee Lake in Freedom in order to reflect more accurately conditions in the plains. New stations were selected at Goshen, Oak Hill in Loudon, Merrymeeting Lake in New Durham and at Moose Falls in Pittsburg. The Federal Hill, Freedom, Goshen and Moose Falls stations operated in 1952. The station located at Wentworth Location in 1950 operated only partially in 1952 due to difficulty in securing an operator.

Woods stations operating and reporting in 1952 were Warner Hill, Federal Hill, Hyland Hill, Prospect Mt. and Milan Hill. Goshen, Freedom, Wentworth Location, Moose Falls, Stinson Mt. and Littleton were open stations. The latter two were operated by the U. S. Forest Service. Open stations are located in open areas with controlled simulated shade for the fuel moisture sticks and have a different meter for computing burning index. They give an indication of the fire danger in open hardwood areas.

Readings from all stations are relayed to Concord daily by radio and serve as a basis for planning preventive action. Coded reports are sent to a special fire weather forecaster at the East Boston Airport. Evening and early morning forecasts of fire weather are received which are again relayed by radio to all of our state fire personnel. When the average burning index for a section of the state rises above the normal for the same area, the differences are added. When this figure approaches 100, the fire potential build-up is sufficient to justify special prevention measures; when it reaches 200 the danger has reached the closure stage. Burning index also determines the setting of the roadside fire danger signs and most wardens use it to determine when to issue permits.

Another use for fire weather data is to determine the effectiveness of fire prevention by comparing the number of fires expected with a given burning index against the actual fires reported. The number of expected fires is a normal figure obtained from years of records.

**Eastern States Exposition**

The New Hampshire building at the Eastern States Exposition in Springfield, Mass. was given over in 1951 entirely to exhibits on forestry and forest products with the theme "New Hampshire Forests, the State's Greatest Natural Resource." The Commission was allotted much of the central area for display purposes. After much planning

for the forest fire service exhibit, it was decided to show the present status and practice of forest fire control and prevention in New Hampshire. Accordingly, exhibits were prepared to tell the story of all of the state services toward this end.

The central piece was a steel-framed lookout, towering into the roof trusses, accessible by a wide stairway. (This tower has since been erected on Cannon Mountain where it will serve as a much needed lookout for that valuable scenic area). Inside the tower was a modern fire finder, maps and two-way radio. Surrounding the tower and separating it from the exhibits was a stand of varied evergreen and hardwood


*Part of Exhibit at Eastern States Exposition*

trees set in buckets of water to preserve their freshness. Under the tower was a modern fire danger station with all its instruments. Standing back-to-back east of the tower were two large exhibits. Under the heading "Working Together Keeping New Hampshire Green, Town, State, Federal, Public" facing the north aisle was one of our roadside fire prevention signs against a background of greenery. Next was a specially wired map of the state, which by the aid of small light bulbs periodically showed the location of district dispatchers with radio, other lookouts, fire weather stations and state pump units. Flanking the map were panels showing the functions of the state and district administration. There were also three large panels showing the fire-fighting organization with explanation of the warden's job and photographs of town trucks suitable for forest fire fighting. A display of fire fighting tools filled up the foreground with

numbers indicating the total tools in the state and town cooperative tool caches in New Hampshire.

On the opposite side facing the middle aisle the display depicted fire control on large fires. The central space held a large scale model and painted backdrop of an actual fire (Sharon-Temple 1950) showing the various phases of large fire organizations such as headquarters, radio, road blocks, traffic control, pump lines, line building, supply and supervision. Flanking these were displays of all the modern pumping equipment needed to get water on a fire and modern two-way radio with a fire headquarters set up with field telephone, maps, time sheets, fire log, etc. Two large panels explained the organization for large fires and how each panel fitted into the whole.

A loud speaker controlled from the tower enabled the district chief on duty to explain the exhibits which were carefully studied and brought many comments and inquiries from the viewers. Two district chiefs were on duty at all times manning the exhibit. With the exception of printing the posters all of the work on the exhibits including the design and steel work on the tower was done by the maintenance crew and members of the Commission. Parts of the exhibit material will be available to show at local fairs.

**Wood Processing Mill Registrations**

The slash which includes the top and limbs of trees left after logging operations is the greatest hazard we face in the protection of our woodlands. The enforcement of the laws and regulations which will tend to isolate this slash from ways of public travel and activities such as a mill operation and to dispose of it at boundary lines consumes the greater part of the district fire chief's time. Recognizing this fact, the 1951 Legislature amended the registration law so that all wood-processing mills using primary forest products irrespective of location shall be registered and the registration fee raised to $25.00. An exception was made of those mills which are run seasonally as an incidental part of the farm operation for which the registration fee is $10.00. Registrations during the last three months of the year are $10.00 and $3.00 respectively.

**Table 11**

**MILL REGISTRATIONS UNDER THE NEW LAW 1952**

| | | |
|---|---|---|
| 472 | plates issued at $10.00 | $4,720.00 |
| 13 | plates issued at $3.00 | 39.00 |
| 2 | replacement plates at $ .50 | 1.00 |
| 487 | plates — Total | $4,760.00 |

## Table 12

### MILL REGISTRATION UNDER THE NEW LAW 1952

| | | | |
|---|---|---|---|
| 472 | Class I plates issued at $25.00 .... | $11,800.00 | |
| 13 | plates issued at $10.00 .... | 130.00 | |
| 1 | replacement plate ..... | .50 | |
| 486 | plates Total ..... | | $11,930.50 |
| 53 | Class II plates issued at $10.00 .... | $530.00 | |
| 2 | Class II plates issued at $3.00 .... | 6.00 | |
| 55 | Total ..... | | 536.00 |
| 541 | Total ..... | | $12,466.50 |

## Table 13

### SAWMILL REGISTRATION

**Calendar Years 1951-52**

| | Number of Mills Registered | | Additional Permits Issued | |
|---|---|---|---|---|
| **Kind of Mills** | **1951** | **1952** | **1951** | **1952** |
| Sawmills ..... | 438 | 500 | 518 | 512 |
| Planing Mills ..... | 32 | 20 | 18 | 7 |
| Edging Mills ..... | 0 | 0 | 0 | 0 |
| Shingle Mills ..... | 3 | 2 | 1 | 1 |
| Other ..... | 12 | 18 | 5 | 11 |
| Totals ..... | 485 | 540 | 542 | 531 |
| **Mills Classified by Type of Power** | **1951** | **1952** | **1951** | **1952** |
| Steam ..... | 18 | 21 | 8 | 12 |
| Gasoline ..... | 270 | 249 | 289 | 243 |
| Diesel ..... | 157 | 175 | 225 | 216 |
| Electric ..... | 30 | 67 | 12 | 38 |
| Combination ..... | 10 | 26 | 8 | 20 |
| Water ..... | 0 | 2 | 0 | 2 |
| Totals ..... | 485 | 540 | 542 | 531 |

### MIGRATION OF PORTABLE MILLS

| Calendar Year | Remained at One Site | Number of Additional Settings 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total Mills |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1951 | 244 | 131 | 46 | 19 | 17 | 11 | 6 | 3 | 5 | 2 | 1 | 485 |
| 1952 | 239 | 212 | 32 | 16 | 24 | 5 | 6 | 4 | 1 | 1 | 0 | 540 |

## WHITE PINE BLISTER RUST CONTROL

### Introduction

Following the 1938 hurricane the general opinion commonly expressed throughout New Hampshire was that our most valuable forest tree, white pine, was on its way out as a major forest species. In a

measure, this feeling was understandable since well over 500 million board feet of pine had been uprooted or severely damaged. However, it has since been evident that this sentiment was unwarranted, for the area and volume of pine prior to the hurricane was far in excess of any public or private estimates. That this must have been true will be borne out by subsequent statements.

The cut of white pine during the years 1939 through 1941 was so intermingled with standing and blowdown stumpage as to make it almost impossible to separate any normal production from that which was salvaged. Nevertheless, reports to the State Forester for those years indicated the total salvaged and standing pine cut to be 739 million board feet. During the ten-year period which followed, namely 1942-1951 inc., the lumber cut of this species, stimulated by World War II, aggregated 2,586, 287,000 board feet. This amounted to a yearly average of over 258 million. Actually, the commercial drain upon the white pine forests of this state was even greater since it was cut for many other uses such as slack cooperage, pulpwood, etc., much of which was not reported to the Forestry Commission.

The fact that for a decade following the hurricane it was possible to maintain an average annual cut of over 250 million feet is ample evidence of the volume and extent of the white pine stands of this state. It is also indicative of the rapid growth so characteristic of this tree.

On first thought the production record of those thirteen years is impressive. It is also likely to instill an optimistic feeling, encouraging a continuance of such a cut. However, maintenance of this high production was attained only through short-sighted and destructive operations. Too often, tempted by the lure of a "quick dollar," clear cutting has been the practice, when partial, or selective logging would have been to the future benefit of the woodland owner. Furthermore cutting of immature trees containing little volume has been another habit altogether too common. Many stands or portions thereof have been cut at a time of greatest volume growth thus losing some of the best years of growth. This indifferent treatment of these softwood forests, supplemented by waste in logging and manufacture, have steadily reduced our white pine reserves.

Nevertheless, irrespective of these man-made handicaps, Nature has put up a splendid struggle to overcome such destructive logging practices and short-sighted management of privately owned woodlands. This is evidenced by the thousands of acres of thrifty growing young white pine which in the majority of instances has come in on cut-over areas and abandoned fields and pastures. With such abundant reseeding along with a still considerable acreage of older stands,

yet immature, and supplemented by better forest practices, there should be adequate future supplies of good quality white pine lumber as well as material for other needed purposes. Along with carefully planned cutting, other necessary forest practices are the protection of this species from fire, insects and disease. Good forest management has increased and still will enhance the productivity of woodlands.

**White Pine Reproduction Threatened.**

During the past twenty years, due to the introduction and improvement of logging machinery, an increasing number of white pine operations are conducted during warm weather rather than being confined to the winter months. As a consequence, a greater disturbance of the forest soil takes place than was the case when the ground was frozen and covered with several feet of snow. This breaking up of the soil has, no doubt, often been beneficial for putting the surface in good condition for heavy crops of white pine seed. Unfortunately, at the same time this soil disturbance is also helpful to the germination of the seeds of wild currant and gooseberry bushes lying dormant in the ground. Thus, along with the development of a new crop of white pine, the stage is set for an outbreak among these young trees of the blister rust, a serious bark disease girdling the stem and ultimately killing the tree. Wherever these two plants, white pines and currant or gooseberry bushes, are in association destruction of the pines is the ultimate result.

There is no cure for the blister rust disease, but by reason of its nature and the manner of its spread, effective control is possible. This disease has two hosts or plants which are necessary for its development and spread. These are white pines and currant and gooseberry bushes known botanically as Ribes. The spread of the rust between its two hosts is effected by windblown spores. While the infecting range of the spores which develop in the bark of pines may be up to 100 miles or more, those developing within the leaves of Ribes are fortunately short-lived. Under average forest conditions the spores from these bushes seldom cause much damage beyond 900 to 1,000 feet. It is this fact which makes possible the commercial protection of white pines from the rust through the destruction of Ribes within and around white pine forests.

**Control Methods Employed**

For the benefit of white pine owners and others interested in forestry practices the methods used in the control of the rust are herewith explained in some detail. Certain facts are necessary before the removal of Ribes is attempted. First, the location and extent of

white pine stands, and secondly, the distribution and abundance of Ribes, as well as their proximity to the pines requiring protection, must be ascertained. This information is secured by detailed mapping of a given section of a town. On these maps are indicated the white pine stands both pure and in mixture with other forest species. Minimum pine stocking standards have been set up as a guide and areas which do not appear to offer a promise of at least 50 pines per acre upon maturing are eliminated. Mixed pine and hardwoods may be included in the control area provided the proportion of pine is sufficient and conditions appear favorable for it to come through to maturity. Otherwise such mixtures along with pure hardwoods and other softwood types are eliminated. In addition to the forest types the detailed maps indicate the location of stone walls, fences, woods roads and trails as well as drainage. Through the use of aerial photographs and by other improved techniques these maps are produced at a cost averaging about seven cents per acre.

Utilizing the detailed map, scouting of the territory is then undertaken. Where wild Ribes are scattered and so few that one man can eradicate them, this is accomplished as the examination of the land proceeds. Sites containing large numbers of these bushes are indicated on the map for future working by two or more men. The limits of the protective strip or zone are also marked as a guide for the eradication crews or units.

These detailed maps have a use and value beyond the initial working of an area. They give a permanent record of where control measures were performed and what lands were eliminated. In future years when a re-examination of areas is deemed advisable, the sections given first attention are those on which Ribes were originally found or where they are most likely to re-occur. Changes in forest types which have taken place during the interval between first and second inspections are easily and inexpensively made.

To sum up, the detailed map provides an accurate picture of white pine and Ribes distribution. It has been instrumental in eliminating thousands of acres of non-pine lands or those where the amount of this species is insufficient to warrant control measures. Thus local control areas have been materially reduced, saving thousands of dollars of town, state and federal funds. The few cents per acre necessary to produce these maps have been more than justified.

**Ribes Eradication**

Wild Ribes are found along stone walls, in rocky pastures, openings in and around white pine throughout wet locations often bordering streams and marshy meadows, in cut-over lands, around logs and

stumps or edges of slash. All these are common sites. Fence-rows and along roadsides are also favorable locations.

Field crews trained in the identification of wild Ribes and the methods developed in their removal are organized into units of 2 or 3 up to 6 men each. Where these plants are found in scattered concentrations such as stream valleys or along walls and fences, a 2 or 3 man crew is the most efficient. Over lands where the bushes are fairly abundant a larger crew is more effective. Crew strips or lanes are marked by dropping small squares of paper as the unit advances. This prevents missing ground and also re-working land covered on the previous strip. Considerable advance was made in spraying with weed-killing chemicals certain species of wild Ribes. Aside from being trained in the identification of these bushes, crews are given careful instruction as to the methods used in uprooting such plants. The need of getting ALL of the roots so as to avoid regrowth is constantly stressed. Crews are informed as to the locations where Ribes are most likely to be missed and emphasis is placed on the need of carefully examining such sites as the crew proceeds through the woods.

**Cooperative Control of Blister Rust**

In New Hampshire cooperation by the state with towns, cities and individuals in the control of the white pine blister rust has been an outstanding example in the field of combatting a major forest tree disease. Out of the 258 towns, cities and unincorporated places which comprise this state there are 225 which have sufficient white pine to warrant local expenditures in its protection. In addition to these political sub-divisions over 600 individuals, corporations and land and forest associations have cooperated financially in this program upon their own woodlands.

From the beginning of this program with towns, the Forestry Commission recommended annual appropriations of $400. Some towns and many of the cities have annually raised larger amounts but on the average this modest sum has been the amount voted. Irrespective of a continued upward trend in wages and transportation costs the Commission has not increased this early recommended appropriation although economic conditions warranted such a policy. It is obvious that present day accomplishments even with improved methods of control cannot hope to equal those of 15 or 20 years ago. Local control would be greatly speeded up if, where necessary, towns would increase their annual appropriations for this work.

In the following paragraphs the details of cooperative control with towns, cities and individuals by calendar years are submitted.

**Cooperative Control — 1951**

Reports submitted to the State Forester indicated that 85 towns, following their annual meetings had voted $30,500 for blister rust control. The city budgets of Claremont, Concord, Franklin and Laconia included a total of $3,400, thus giving a state-wide appropriation of $33,900. State and federal funds combined made possible increasing town and city funds by $13,791, which amounted to 41 per cent of all local funds. For the second consecutive year the Blue Mountain Forest Association made available cash and labor totaling $1,020 for control measures within the boundaries of its property. During the calendar year, through mapping and examination of town control areas, reductions in the then existing control area amounted to 57,000 acres.

**Cooperative Control — 1952**

A summary of town meeting returns disclosed that 100 appropriated $35,750. In addition later reports from five cities of $2,300 increased the state-wide total to $38,050. This figure established an all-time record since it exceeded any year since blister rust control was first undertaken. Aside from cooperation by these 105 political subdivisions, the Blue Mountain Forest Association and four other land owners made available $1,360.

**Application of Section 9, Chapter 238, Revised Laws.**

On April 30, 1952, following a recommendation of the State Forester and the Commissioner of Agriculture, the Governor and Council approved the application of this section of the state blister rust law in 14 towns where control measures were deemed necessary and for which no appropriations had been made at town meeting.

Conforming to the new amendment of Section 9, enacted in 1949, the Boards of Selectmen of these towns were notified two weeks or more in advance of the date control measures were scheduled and also as to the location of such work. Similarly, as with cooperating towns, a report of accomplishments was rendered each of these towns at the conclusion of the field season.

**Federal Cooperation — 1951 and 1952**

Allotments for white pine blister rust control from the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, are made to cooperating states on a fiscal year basis. Federal allotments are divided into two distinct projects, viz., (1) the salaries of the district leaders who are responsible for the direct supervision of control work in their respective territory. They also inspect white pine

areas to determine the presence or absence of the disease, and the distribution of wild Ribes. They cooperate with white pine owners and carry on informational and service work. (2) The allotment provides for the expense of district leaders and the wages and travel expense of temporary laborers employed in scouting, detailed mapping and Ribes eradication.

For the fiscal year 1951 the federal allotment for the second-mentioned project was $18,325 which was $3,675 less than that received in 1949. Of this total, $6,785 was distributed among cooperating towns for direct control work and $6,663 in scouting and detailed mapping of white pine and control areas. The balance was expended in district leader station and traveling expenses.

The 1952 allotment was $22,500 and while this represented an apparent increase of $4,175 over the previous fiscal year, nevertheless, it did not permit larger disbursements to towns inasmuch as some of this allotment was ear-marked for one-half of the expenses of an area leader and also office leases, etc. of the district leaders.

**Pine and Control Area Mapping**

Elsewhere in this report under the caption "Control Methods Employed" will be found a description of detailed mapping, and the value of such surveys in blister rust control. The following table gives a condensed statement of accomplishments in this project for the years indicated.

**Table 14**

**SUMMARY OF DETAILED MAPPING**

**(As of September 30, 1952)**

| Year | Initially Mapped | Remapped Acres | Total All Mapping |
|---|---|---|---|
| 1951 | 91,926 | 26,156 | 118,082 |
| 1952 | 86,085 | 36,729 | 122,814 |
| Totals | 178,011 | 62,885 | 240,896 |

The average cost for all mapping was $0.067 per acre.

**Control Measures Effective**

As of September 30, 1952, initial or first workings totaled 2,642,559 acres or 98.5 per cent of the combined control areas of all the cooperating towns. Of the 225 towns and cities first workings had been completed in 206; there being 19 in which such workings remained to be concluded. Second workings totaled 1,573,448 acres or 58.6 per cent

of the state-wide control area. There are 51 towns and cities which have carried on this program so consistently that second workings of their present control areas are completed.

In those white pine areas and their environs where the Ribes population has been reduced to an average of four or less bushes to the acre and conditions do not indicate the need of working or inspection for a period of less than 10 years, such lands are placed on maintenance. There are 36 towns and cities in which the entire control area was so placed and 82 where 50 per cent or more has been put in this category. The total acreage on maintenance throughout the state amounts to 1,262,106 acres.

Continuous effort is made to reduce, without danger to existing white pine, local control areas. That accomplishments in this direction are being made is indicated by the fact that during the calendar years of 1951-52 a total of 123,938 acres were discontinued since there was not sufficient pine to warrant expenditures for Ribes removal. The total land area of the 225 towns and cities amounts to 4,928,945 acres. Since the inception of this project, through examination and mapping, 2,245,331 acres have been eliminated or discontinued leaving at the present time a control area of 2,683,614 acres.

**Disease Under Control.** The removal of over 61 million currant and goosebury bushes within and around white pine growth has been instrumental in bringing about commercial protection to a majority of the stands of this state. Where years ago woodlots with 20 to 70 per cent or over of the trees infected were common, the number today by contrast is comparatively small. While evidence of those early outbreaks is still apparent in the form of dead and dying pines, extensive outbreaks are no longer the general rule.

However, the great exploitation of white pine during the past 10-15 years has produced a new problem in blister rust control through soil disturbances which has brought about a re-occurrence of Ribes in a great many of the cut-over areas. This has been commented upon earlier in this report but the need for urgent measures to protect natural white pine reproduction in logged-off lands cannot be stressed too strongly.

The following table summarizes the accomplishments in Ribes eradication during the past two seasons:

Table 15

BLISTER RUST CONTROL — FISCAL YEARS 1951 AND 1952

Town, State and Federal Programs

| All Programs | First Workings | | Second and Other Workings | | All Workings | |
|---|---|---|---|---|---|---|
| | Acres Covered | No. Ribes Destroyed | Acres Covered | No. Ribes Destroyed | Acres | Ribes |
| 1951 | 18,666 | 86,880 | 177,411 | 423,611 | 196,077 | 510,491 |
| 1952 | 17,416 | 163,527 | 257,113 | 645,236 | 274,529 | 808,763 |
| Totals | 36,082 | 250,407 | 434,524 | 1,068,847 | 470,606 | 1,319,254 |

## FOREST INSECTS AND DISEASES

Aside from white pine blister rust (covered elsewhere in this report) and the Dutch elm disease, the two-year period has been marked by relative freedom from serious outbreaks of other insects and diseases. There are, of course, a number of native insects and diseases that occasion continuing damage year after year but this is difficult or impossible to assess without a large number of permanent observation plots. The following notes are made on some of the more important forest pests:

**Hemlock Looper.** Since the outbreaks in the summer of 1950 described in the last report, no further damage by this insect has been reported. Since this outbreak occurred in the biennium covered in this report it may be well to add that the spraying operation that controlled this outbreak constitutes a good example of cooperative effort by state and federal agencies and private owners and serves as an example of the type of control work contemplated by the Federal Forest Pest Control Act. Prompt action and active work by all concerned gave excellent results.

**White Pine Weevil.** All young white pine and Norway spruce growing in the open are subject to injury by this insect, often termed the most important forest insect in New England. The New England Council appointed a special committee in 1952 to study the damage caused. The U. S. Bureau of Entomology and Plant Quarantine has established a large number of survey plots in cooperation with other agencies. From observations on these plots and elsewhere, it would appear that the insect is currently at a low population level. Protection of plantations and young natural stands can be secured by spraying the leading buds with lead arsenate early in April. One spraying often gives good control for two to four years.

**Birch Dieback.** Examination of the New Hampshire study plots in 1951 failed to show the improvement in tree conditions noticed in Maine. While most of the birch at higher elevations in the White Mountains is dead, little increase in death of trees can be noticed elsewhere. There was some indication of recovery in some areas in 1952.

**Oak Wilt.** No reports have yet been confirmed in New England of this serious disease of all species of oak, but its prevalence in Pennsylvania gives cause for alarm lest it spread farther east. Scouting for oak wilt can best be done with aircraft, and it is planned to ask the cooperation of private flyers to watch for it in 1953.

**Pine Bark Beetles.** Many complaints are received from landowners of damage to white pines caused by various bark beetles. In every case so far investigated some external influence such as grading about trees appears to have caused the attack by the insects which are not known to infest healthy vigorous trees.

**Tent Caterpillars.** The eastern tent caterpillar was particularly noticeable and on the increase in the early spring of 1952 but no really extensive outbreak of the forest tent caterpillar has been noticed. This insect, however, has defoliated hundreds of thousands of acres in New York during the past two years.

**Gypsy and Brown-tail Moths.** Following years of a very low population level (only 12 acres were recorded defoliated in 1950) gypsy moths increased sharply in 1951 when over 2,400 acres in the state showed some defoliation. Figures are not yet available for 1952, but evidence suggests that the insect is very definitely again on the upswing. Likewise the brown-tail moth appears to be increasing in numbers along with the gypsy moth.

**Beech Scale-Nectria.** This introduced scale insect, a carrier of a serious bark disease that has already killed most of the beech in the Maritime Provinces and possibly 60% of the beech in Maine has been found in the White Mountain National Forest and adjoining territory for several years. Here it has caused the death of a large quantity of beech, mostly older beech of large size. During 1952 it was reported in the town of Hebron and in the vicinity of Lake Sunapee and Kearsarge Mt.

**Dutch Elm Disease.** It had long been expected that this dread disease of one of our favorite shade trees would sometime reach New Hampshire, since the bark beetles that are known to carry the disease had been found in many towns. Following the discovery of the

first diseased trees in Keene and Hinsdale in 1950, continued scouting revealed numerous diseased trees in the southern towns bordering on Massachusetts and in 1952 diseased trees were found in Concord. The number discovered in Salem suggests that the disease has been present there several years and probably over 200 trees have been infected. The total number of infected trees confirmed was 98 in 1950-51 and 120 in 1952.

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## STATE FORESTS AND RESERVATIONS

The Forestry and Recreation Commission has recently adopted a new policy in regard to its forest and recreational lands: to reduce the number of tracts. The state has title to 137 tracts of land located in 104 towns. The Commission believes that lands held by the state which are commercial, industrial or residential areas near cities and villages should be sold to the highest bidder. The funds so acquired from these sales should be used to purchase lands, if possible, adjacent to the larger state areas. There are also several small forest tracts which are remote from highways or have little value to the state which should likewise be sold. Recent requests for the sale or lease of the whole or portions of several tracts have brought about the above policy.

During the past two years, 2,224 acres in 8 towns were purchased at a cost of $17,375, an average cost of $7.81 per acre. In addition there were acquired by gift 243 acres in 4 towns making a total of 2,467 acres. During the biennium the state sold nine different parcels of land with buildings containing in all 201 acres, the receipts amounting to $33,278. There were two cases of exchange of lands between the state and private parties with no money consideration involved that resulted in an increase of 117 acres in state ownership. The net additions show the state acquired 2,372 acres which, added to the acreage of 55,649 last reported, makes a grand total of 58,021 acres of forest and recreational lands under supervision of the Commission. The following table shows the acquisitions, the sales and the transfers during the years 1951 and 1952:

## Table 16

### STATE FOREST LANDS

### ACQUISITIONS 1951 — 1952

#### By Purchase

| Tract | Town | Acreage | Cost |
|---|---|---|---|
| Cardigan | Orange | 1,113 | $4,525 |
| Pillsbury | Washington | 674 | 4,650 |
| Bear Brook | Allenstown | 25 | 600 |
| Bear Brook | Deerfield | 139 | 3,000 |
| Kearsarge | Warner | 75 | 750 |
| Pawtuckaway | Deerfield | 8 | 750 |
| Pawtuckaway | Nottingham | 88 | |
| Fox | Hillsboro | 100 | 3,000 |
| North Branch | Stoddard | 2 | 100 |
| Total | | 2,224 | $17,375 |

#### By Gift

| Tract | Town | Acreage |
|---|---|---|
| Duncan | Plainfield | 113 |
| W. M. Lord | Ossipee | 75 |
| Smith | Nottingham | 50 |
| Bradford Pines | Bradford | 5 |
| Total | | 243 |

#### By Exchange

Acquired by the State

| Tract | Town | Acres |
|---|---|---|
| Toll Gate | Warner | 69 |
| Page's Corner | Bow | 78 |
| Total | | 147 |

| Conveyed by the State | | | Net Gain |
|---|---|---|---|
| Tract | Town | Acres | Acres |
| Kearsarge CCC Camp | Warner | 20 | 49 |
| Craney Hill | Henniker | 10 | 68 |
| Net Decrease | | 30 | 117 |
| Total Acquisitions | 2,584 acres | $17,375 | |

#### Changes in Area Due to New Survey

| Tract | Town | Acres |
|---|---|---|
| Wentworth Beach | Wolfeboro | + 1 |
| Franklin Pierce Homestead | Hillsboro | —12 |
| Total Net Decrease | | —11 |

**State Lands Sold**

| Tract | Town | Acreage | Receipts |
|---|---|---|---|
| Stockdale | Manchester | 57 | $15,800 |
| Stockdale | Hooksett | 8 | 700 |
| Casalis | Peterborough | 17 | 5,150 |
| North Branch | Stoddard | 73 | 1,818 |
| Cardigan CCC Camp | Danbury | 17 | 510 |
| Pillsbury CCC Camp | Goshen | 19 | 200 |
| Glover | Pembroke | 7 | 100 |
| *Endicott Rock | Laconia | 3 | 9,000 |
| Total | | 201 | $33,278 |

* Credited to Recreation Division.

**Summary**

| | Acres | Cost | Receipts |
|---|---|---|---|
| Total Acquisitions | 2,584 | $17,375 | ..... |
| Total Sales and Reductions | 212 | ..... | $33,278 |
| Net Acquisitions | 2,372 | | $15,903 |
| Previously Reported | 55,649 | | |
| Total Area, December 31, 1952 | 58,021 | | |

## PURCHASES

**Cardigan.** Following recommendations of the Commission to increase the area of some of the larger state holdings, purchases were made from four parties consisting of 1,113 acres costing $4,525; 905 acres for $3,200 from the General Lumber Co. of Canaan; 105 acres for $350 from the McDermott Estate of New York City and $150 from Gladys Hazelton of Manchester; 3 acres for $75 from Romie E. Bowker of Canaan; and 100 acres for $750 from Harry E. Powell of Orange. These forest lands have recently been cut over and are all located in the Town of Orange on the westerly side of Cardigan Mountain. These additions bring the total of the Cardigan Mountain Reservation to 4,203 acres.

**Pillsbury.** Three parcels of land were purchased near the Pillsbury Reservation in the Town of Washington; from the Max Israel Estate, 474 acres for $3,500; John Gillingham and Martha G. Blake, 42 acres for $150; Stanley Dyer and Joseph Toffoloni, 158 acres for $1,000; making a total of 674 acres for $4,650. These lands have not been operated for many years and are adjacent to the old Washington Center-Bradford Road; they include valuable young growth and merchantable timber.

**Bear Brook State Park.** A 25-acre tract in the Town of Allenstown was purchased from George A. Moran of Marblehead, Mass., for

$600. This lot is located on the main road to Bear Hill and Spruce Pond and includes valuable white and pitch pine. An additional purchase of 139 acres in the Town of Deerfield was made for $3,000 from Mrs. Bertha M. Brown of Deerfield. This tract containing considerable timber is located on one of the main roads and is in part surrounded by state land. These recent purchases bring the total area to 7,013 acres.

**Kearsarge.** Marion H. Whitford of Warner sold to the state two tracts of forest land along the Kearsarge Mt. Toll Road in Warner for $750. The old "Half-Way House," now in ruins, is located on the smaller lot. This purchase adds more than 3,000 linear feet along the old Kearsarge Mt. Road and includes valuable stands of spruce and hardwood.

**Pawtuckaway.** An addition to the Pawtuckaway Reservation was made by the purchase of 96 acres from Gertrude A. Tilton of Deerfield for $750. Eighty-eight acres are in the Town of Nottingham and eight in Deerfield. This tract is located near the easterly entrance to Pawtuckaway Reservation and includes a strip along both sides of the road consisting of hardwood and softwood. The present area of Pawtuckaway Reservation is 1,384 acres.

**Fox State Forest.** A purchase of 100 acres was made from Florence K. Favor of Hillsboro for $3,000. This is surrounded on three sides by state land. The tract has good stands of timber and materially adds to the value of the Forest.

**North Branch.** A purchase of two acres of forest land in the Town of Stoddard for $100 was made from the Public Service Company of New Hampshire. This small tract was a plot of land completely surrounded by state land acquired by the state in 1919. This purchase enabled the state later to sell the whole tract in one block.

## GIFTS

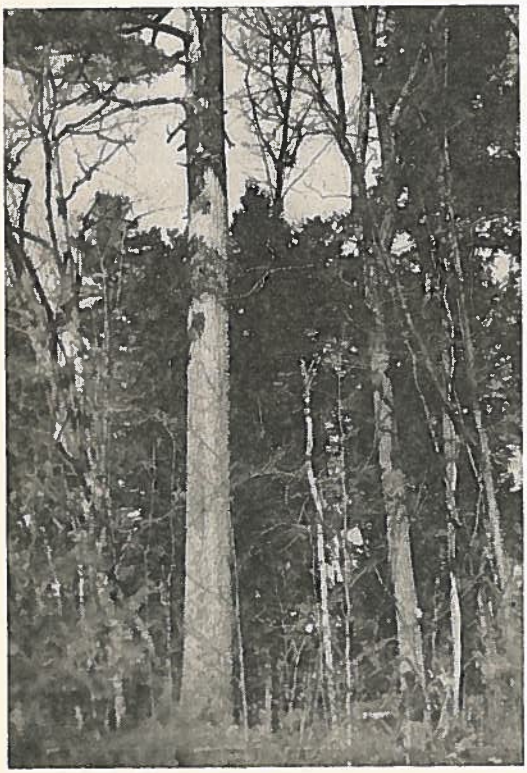
**Duncan.** Miss Annie E. Duncan of Plainfield deeded as a gift 113 acres of land located in the northeast part of that town. This tract consists mostly of young hardwoods with scattered stands of pine and hemlock and in time will make a valuable addition to our state forest areas.

**W. M. Lord.** Several years ago William M. Lord of Wakefield gave a tract of forest land to the Town of Ossipee. A clause in the deed specified that if the Town did not use the land it reverted to the

Society for Protection of New Hampshire Forests and then to the State of New Hampshire. After Mr. Lord's death a beneficiary of the Lord Estate gave a deed to part of this land to a private individual who built a small cottage on it. In order to unravel the title and permit the owner to retain his home, the Town, Society and State waived their interest in the land and in return the beneficiary of the Lord Estate conveyed about 75 acres of land to the state, located between the main highway Route No. 16 and Pine River in Ossipee.

**Smith.** Miss Vienna Smith of Raymond deeded 50 acres of land to the state in the Town of Nottingham. A mature stand of white pine is reserved by Miss Smith but becomes the property of the state unless otherwise disposed of by her before her death.

**Bradford Pines.** Within a quarter of a mile to the west of the Boston and Maine Railroad Station in Bradford are located 22 of the largest pines in New Hampshire. These trees and 5 acres on which they stand were reserved by Davis and Symonds Lumber Company of Claremont when they operated the lot several years ago and were deeded as a gift to the state. These trees have been carefully examined



*The Largest Tree, Bradford Pines Reservation*

and lightning rods have been installed on three trees. One tree may be the largest pine in New Hampshire. It is 130 feet high, 60 feet to the first limb, 52 inches in diameter on the stump and probably contains over 5,000 board feet. It is expected that a better entrance can be arranged so that the public may visit these trees.

## SALES

**Stockdale.** Due to the new policy of disposing of land held by the state in residential areas, bids were requested for the sale of the Stockdale Farm located on Mammoth Road in Manchester. This tract included an old farm house, barn attached, open fields desirable for house lots and some forest land. The open land on the highway was carefully surveyed and sub-divided into desirable house lots. The highest bid for the whole property was from Kenneth G. Moore of Manchester for $12,000. Another Stockdale tract of 13 acres was later deeded to the highest bidder, W. A. Stiles of Manchester, for $3,800. Eight acres in the Town of Hooksett was bid off to Michael T. Lankalis, also of Manchester for $700 making a total of $16,500 received from the Stockdale property. These receipts were placed in the Forest Improvement Fund to be used for purchasing other forest lands about the state.

**Casalis.** In 1931, Mrs. Isabel Casalis deeded to the state 247 acres of forest land and a large house and small barn. Efforts were made during the years to lease this property to good tenants but without success. Mrs. Casalis generously allowed the state to sell the buildings and 17 acres of land. Walter R. Peterson of Peterborough made the highest bid of $5,150. This action was approved by the Hillsborough County Superior Court.

**North Branch.** The state purchased for $335 in 1918 a tract of 71 acres known as the North Branch Tract in the Town of Stoddard. At that time the main highway between Concord and Keene passed through this tract and it appeared to be a desirable purchase. Later the main highway was changed and this state forest became an isolated area on an old abandoned road. The Commission gave approval to sell this tract and the highest bidder was J. M. Attridge of Antrim who offered $1,818. This included also two acres which the state acquired from the Public Service Company of New Hampshire in order to offer to the public the tract as a unit. The net receipts from this sale amounted to $1,718.

**Cardigan CCC Camp.** A CCC camp was located in Danbury in 1933 and 17 acres of land were purchased for that purpose. Ten years

later the CCC buildings were sold and removed. The land has remained idle since that time. Since the land lies within a quarter of a mile of the railroad station, an effort was made by the selectmen to obtain this land for school purposes, but the town was not able to raise sufficient funds. Second bids were requested and Axel E. Bergstrom of Danbury made the highest offer of $510 which was accepted.

**Pillsbury CCC Camp.** This old CCC camp site of 19 acres located in the Town of Goshen adjacent to the Dartmouth College Highway was also offered for sale to the public. Harry A. Warburton of Goshen who lived adjacent to this property was awarded the sale for $200.

**Glover.** A small tract of 7 acres located in the Town of Pembroke was acquired by escheat in 1922. Some cordwood was cut from this tract years ago but as the land had little value it was finally decided by the Commission to make a sale to the highest bidder who was Forrest K. Townsend who offered the state $100.

**Endicott Rock.** Chapter 219 of the Laws of 1951 authorized the Governor and Council to reconvey this land to the City of Laconia, to be maintained by the City as a recreational park. The sum of $9,000 was deemed a just consideration. This money was then stipulated by law to be used for purchase and development of land on Lake Winnipesaukee. Endicott Rock and monument together with a right-of-way to the Rock were excepted from the transfer.

## EXCHANGES

**Kearsarge CCC Camp.** An offer to exchange lands with the state in the Town of Warner was made by Fred N. Creed of that town. Mr. Creed owned a tract of land adjacent to the old Toll Gate entrance to Kearsarge Mt. and was anxious to exchange a portion of his land for the Kearsarge CCC Camp located midway to Warner Village. After preliminary surveys the state made an exchange with no money involved for 69 acres of forest land in return for 20 acres of the CCC Camp site which the state deeded to Mr. Creed.

**Craney Hill.** Another transfer was made with Harold Martin of Hopkinton whereby 78 acres of land in Bow near Page's Corner were deeded to the state in return for 10 acres of the Craney Hill lot in Henniker. The purpose of this exchange was to allow Mr. Martin an opportunity to acquire gravel from land of his own. The land at Page's Corner acquired by the state has been cut over but contains excellent stands of young pine and hardwoods.

## MANAGEMENT OF STATE FORESTS

### Past and Current Operations

Management operations have been both varied and extensive during the past two years. The aim has been to put as many acres as possible under plan, meanwhile carrying out the objectives of each plan by starting operations on these tracts. Several operations were initiated on tracts which had not been cruised. Time did not permit an intensive survey and the necessity of doing harvest or improvement work was obvious.

The management section has also taken on the planning and operating of forests of other state agencies. These included the lands of the Water Resources Board, Glencliff Sanatorium, Laconia State School, and the State Industrial School. These jobs have been done at cost, providing sound plans for the management of forest lands plus gaining income for the institutions from sale of products. The compilation work and working plans for several tracts have not been completed, although the data are available.

Following is a brief description of each timber and improvement operation carried on during the past two years on state forests and other state lands:

1. **Annett** — Approximately 800 acres of red pine plantation are in need of release. Forty acres were done at an approximate labor cost of $6.00/acre. The tract was cruised and typed during the past year.

2. **Baker** — Five acres of 35-year red and white pine were thinned with a yield of approximately 10 cords per acre. Stumpage was sold at $ .25/cord. This area is to be designated as a forestry demonstration area.

3. **Bear Brook** — Numerous operations were conducted on this tract:

a. Hayes Farm Area — Removal of an overstory of poor quality hardwoods overtopping a young stand of white pine covered approximately 20 acres with a yield of 8 cords per acre. The wood was sold for fuelwood.

b. Spruce Pond Road — A selective cut of softwood resulting in a volume of 31,142 board feet was harvested from 10 acres. The residual stand is composed of better quality white pine, spruce, hemlock and some hardwoods.

c. Blowdown — Cleanup of 60,000 board feet of windthrown timber, scattered about the entire area, was accomplished during the spring of 1951. The blowdown occurred during the storm of November, 1950.

d. Catamount Hill — Release of young white pine by removal of a hardwood overstory was started. The whole area of this type covers about 700 acres, and plans call for doing about 200 acres in this operation. The soil is more suited for growing pine than hardwoods. Scattered oak will be left, however, for the production of acorns for deer and other wild life. Subsequent sprouts will not bother the pine and should also provide browsing for deer. Additional road building will be necessary before completion of this operation.

e. Pitch Pine Area — Ten acres of a pitch pine-white pine type were cut, removing all merchantable pitch pine for pulpwood. A fine residual stand of 20 to 40-year white pine was left.

f. Pitch Pine Trail Area — This area of about 45 acres was clearcut since the stand was entirely pitch pine. It is to be replanted to red pine during 1953-54.

g. Catamount Road — Thinning of a 10-acre white pine stand resulted in a cut of 6 cords per acre. This stand will have to be thinned again within 10 years. Several acres of red pine adjoining this stand were pruned.

h. Spring Brook — A selective cut of pitch pine was carried on in this stand of about 25 acres leaving a good stand of 20-40 year white pine. Some spot planting may be necessary in areas where the pitch pine was found in groups.

i. Podunk Road — Weeding and release of white pine covered an area of 10 acres. Costs were somewhat high since slash disposal was necessary.

4. **Binney Pond** — A fifteen-acre area of badly weeviled white pine was clear cut. Growth of hardwood will be encouraged since the soil type is more suitable to hardwoods and the white pine is especially badly weeviled in this section of the state.

5. **Bowditch-Runnells** — Approximately 50 cords of fuelwood resulted from the clearing of a wider right-of-way through this tract. The wood was sold to the Recreation Division.

6. **Cardigan** — Release of badly suppressed spruce was initiated on about 20 acres. Costs were high for this work, most of it being done along well-traveled roads where cleanup of slash was necessary.

7. **Connecticut Lakes** — Scattered areas of blowdown occurred in spruce-fir stands along the Connecticut Lakes Highway. Some of the larger blowdown areas were cleaned up, but a sizable volume of scattered trees was not utilized.

8. **Contoocook** — Some weeding and releasing in red pine plantations was done. This work is continuing at the present time with plans for pruning both the white and red pine plantations. This is a demonstration area.

9. **Craney Hill** — Some roadside clearing was done in preparation for establishing a forestry demonstration area. The wood was utilized for charcoal at the Fox Forest. Weeding, releasing and pruning of plantations is to be continued.

*Highway Posts from Plantation Thinning, Mast Yard State Forest*

10. **Crawford Notch** — Two salvage operations were conducted, removing all merchantable white birch on about 120 acres. An estimated 50% of the standing birch volume was not usable due to rot, initiated by dieback. Further operations to remove mature hardwoods are planned.

11. **Duncan Lake** — A clearcut of approximately 20 acres of scotch pine was started but not completed due to labor difficulties. The remainder of this wood is to be sold on the stump. The scotch pine is of very poor form and holds no future timber value other than low-grade pulpwood. The area will be replanted with red pine.

12. **Dixville Notch** — Cleanup of a few cords of blowdown spruce and fir was done.

13. **Fay** — A sale of mature and overmature softwood and hardwood stumpage was started in 1952. Approximately 1,000,000 board

feet of logs will be harvested over 65 acres. This tract contains some of the better timber found on state lands, although a large volume was blown down during the 1938 hurricane. Good reproduction of hemlock, spruce and northern hardwoods is present over the cutting area. The operation will be completed in 1953.

14. **Forest Lake** — One acre of mature white pine was clearcut, yielding some 50 M board feet indicating timber of good size and quality. Some of the volume was lost in previous wind storms. Very good reproduction is present.

15. **Fox Forest** — Operations on this experimental forest were both varied and extensive. Information on products and receipts is found on another page.

16. **Glencliff** — Operations carried on at this area were done at cost for the Glencliff Sanatorium. A management plan was made and two harvest operations were started. The harvest cut was made in white birch with an accompanying salvage of blown-down spruce and fir. One operation was completed and the other in the process of completion. The birch on this area has been affected somewhat by dieback but the quality of the wood has not been affected as yet.

17. **Hemenway** — A selective cut of hardwoods was started in 1950 but due to labor and weather difficulties the operation was not completed. A large percentage of cull in the hardwoods necessitated fitting the wood for pulpwood with a small volume of quality wood for bolts and logs. The woods inventory should be cleaned up by the winter of 1952-53.

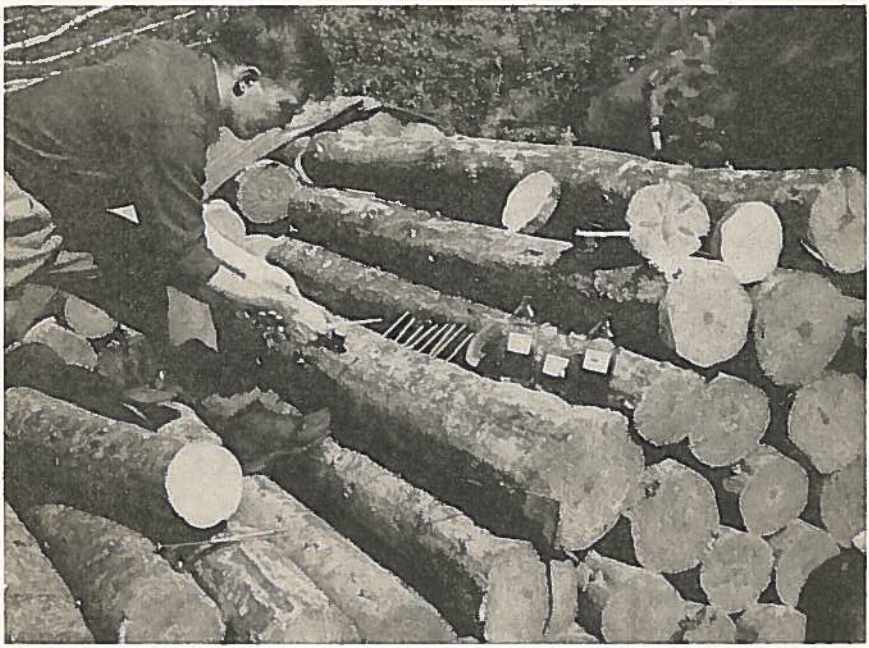
18. **Lake Francis** — This area is being operated for the Water Resources Board. Considerable blowdown in spruce and fir occurred during the fall of 1950, necessitating a change in the operating plan for the area. A long range wildlife management plan had been instituted for this area, and this will become increasingly important since much of the country near state land is being logged rather heavily. Contractual difficulties have slowed the work somewhat, but a crew employed by the state is now working the area.

19. **Industrial School** (Candia) — Cruising, marking and overall management of this area is being done at cost for the State Industrial School. A selective harvest of mature white pine is being made at the present time, and the operation should be completed by the winter of 1952-53.

20. **Mount Prospect** — A small amount of blowdown including hardwood and softwood was salvaged. The hardwood was utilized at Mount Prospect Park.

21. **Vincent** — Releasing and weeding of exceptionally fine spruce plantations were done at this area. These plantations are part of an extensive series of source of seed plantations that become of increasing value as the stands develop. Other agencies such as Harvard University and the Institute of Forest Genetics have shown much interest in these plots.

Further improvement of plantation edges is planned with a commercial operation of hardwoods, including oak, ash and basswood. This cutting will release suppressed trees at the boundaries of the plantations. Thinning of pine plantations is also contemplated.



*Testing Penetration of Wood Preservatives, Mast Yard State Forest*

22. **Woodman** — A large area of red pine, white pine, spruce and Douglas fir plantations was weeded and released during the past year. The cost per acre was considerably higher than normal due to intensive work done on the Douglas fir experimental plantation. Additional cultural work is necessary on this tract.

Volume figures and financial data are given in the accompanying tables.

Following are items of administration not chargeable to any particular operation:

1. **General Administration:** Included in this category are labor and expenses on payrolls, maps, etc., salaries of management personnel, purchase of three Chevrolet cars and other items necessary to the operation of an efficient program. $8,364.35.

2. **Eastern States Exposition:** These expenses were incurred in the preparation of exhibits at the Eastern States Exposition at Springfield, Mass. in 1951. $345.90

3. **Surveys, Inspections and Management Plans:** Boundary surveys were made in conjunction with the land acquisition and sale program. Other miscellaneous surveys were made. Several areas were examined for various reasons such as possible improvement work, timber sales, appraisals, etc. Some of these were preliminary surveys only and final cruises will be made as time permits. Preparations of management plans and costs of marking for several tracts are also included in the table.

**Prison Crew:**

A crew of about 10 men from the State Prison was used for forest improvement work, such as weeding and thinning, pruning, road clearing, etc. Initial costs were fairly high due to investment in equipment and setting up of a workshop for inclement weather operations. Woods products produced by this crew included 60 cords of pulpwood and 300 guard rail posts having a total value of approximately $1,230.00.

Cost of supplies and operations were as follows:

| | Bear Brook State Park | Mast Yard State Forest | |
|---|---|---|---|
| Costs (operation) | $176.75 | ..... | |
| Labor | 560.00 | $219.00 | |
| Overhead | 115.52 | 159.11 | |
| Supplies | 349.29 | 213.22 | |
| Total | $1,201.56 | $591.33 | $1,792.89 |

**Current Operations:**

The following operations were in progress July 1, 1952:

**Fay** — A marked stumpage sale of approximately 1,000 M board feet of softwood and hardwood logs and pulp. This sale will be completed in two years.

**Livermore Falls** — A marked stumpage sale of approximately 500 M board feet of softwood. This operation has a two-year contract.

**Forest Lake** — A marked sale of about 40 M board feet of white pine to be completed during 1952-53.

**Bear Brook** — Selective cutting of pitch pine pulpwood will continue indefinitely. Approximately 50 acres of planting will be necessary. Operations are now centered along Podunk Road, Smith Pond Road, and the so-called Hayes Farm lot.

*Pine Pulpwood Operation, Bear Brook State Park*

**Franklin Pierce** — A marked harvest cutting of white pine logs and pulpwood. The logs are being sawn into lumber for the Recreation Division.

**North Branch** — Cruising and mapping of this tract was completed.

**Future Forest Operations:**

**Hemenway** — Marking of approximately 1,500 M board feet of softwood and hardwood is being done. This sale will be made during the fall of 1952.

**Taylor** — Approximately 10 M board feet of white pine was marked and will be sawed into lumber for the Recreation Division.

**Cultural Work:**

An intensive program of forest improvement work will be accelerated with emphasis on the preparation of forest demonstration areas. This program has already been in progress but on a rather limited scale. Shortage of labor has been a serious drawback.

**Forest Administration:**

Cruising of an estimated 12,000 acres should be done during 1952-53. This will bring total acreage under working plans to about 27,000 acres. Boundary surveys and land appraisals are also being planned for the immediate future.

## Table 17

### PRODUCTS HARVESTED FROM STATE LANDS DURING BIENNIAL PERIOD 1950-52

| Tract | Area Operated (Acres) | Sawlogs (Bd. Ft.) Softwood | Sawlogs (Bd. Ft.) Hardwood | Pulpwood (Cords) Spruce and Fir | Pulpwood (Cords) Pine and Hemlock | Pulpwood (Cords) Hard-wood | Birch Bolts | Fuelwood | Inventory Products on Hand July 1, 1952 |
|---|---|---|---|---|---|---|---|---|---|
| Baker | 5 | ..... | ..... | ..... | 16.57 | ..... | ..... | ..... | ..... |
| Bear Brook | 180 | 129,811 | 926 | ..... | 778.15 | 259.5 | ..... | ..... | 86.9 cds. |
| Binney Pond | 15 | 186,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Bowditch Runnells | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 50 | ..... |
| Connecticut Lakes | 20 | ..... | ..... | 32 | ..... | ..... | ..... | ..... | ..... |
| Crawford Notch | 120 | ..... | ..... | ..... | ..... | 266.20 | 324.29 | ..... | ..... |
| Duncan Lake | 1 | ..... | ..... | ..... | 8 | ..... | ..... | ..... | ..... |
| Dixville Notch | 1 | ..... | ..... | 2.94 | ..... | ..... | ..... | ..... | ..... |
| Fay | 65 | 271,305 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Forest Lake | 1 | 13,334 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Fox | 84 | 41,212 | 12,510 | 5.2 | 118.2 | 117 | ..... | 292.8 | 252 cds., 3 m bd. ft. & misc. |
| *Glencliff | 80 | 49,754 | ..... | ..... | ..... | 336 | 405.68 | ..... | ..... |
| Hemenway | 110 | 31,608 | ..... | ..... | ..... | 52 | 19 | ..... | 8,000 bd. ft. 237 cd. |
| *Lake Francis | 100 | 106,710 | 67,250 | 1,015.71 | ..... | 8 | ..... | ..... | ..... |
| *Industrial School | 30 | 170,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Mt. Prospect | 3 | ..... | ..... | 5.38 | ..... | ..... | ..... | 10.5 | ..... |
| Totals | 817 | 999,734 | 80,685 | 1,061.23 | 920.92 | 1,038.70 | 748.97 | 353.3 | 11,000 bd. ft. & 575.9 cds. |

* Indicates lands under jurisdiction of other state institutions.

## Table 18

### EXPENDITURES FOR MANAGEMENT WORK ON STATE FORESTS AND RESERVATIONS

| Tract | Total Area (Acres) | Boundary Survey, etc. | Inspection | Cruise Management Plan and Timber Marking | Net Cost of Improvement Work | |
|---|---|---|---|---|---|---|
| | | | | | Release Cutting | Blowdown Salvage |
| Annett | 1,360 | ..... | ..... | ..... | $824.59 | ..... |
| Baker | 5 | ..... | ..... | ..... | 30.59 | ..... |
| Bear Brook | 6,849 | ..... | ..... | ..... | 215.58 | ..... |
| Belknap Mountain | 545 | ..... | $51.39 | ..... | ..... | ..... |
| Beech Hill | 23 | ..... | ..... | $15.70 | ..... | ..... |
| Binney Pond | 77 | ..... | ..... | ..... | ..... | ..... |
| Bradford Pines | 5 | $13.56 | ..... | ..... | ..... | ..... |
| Cardigan | 3,190 | ..... | ..... | ..... | 328.81 | ..... |
| Clough | 309 | ..... | 13.77 | ..... | ..... | ..... |
| Connecticut Lakes | 1,548 | ..... | ..... | ..... | ..... | 74.19 |
| Contoocook | 47 | ..... | ..... | ..... | 210.44 | ..... |
| Craney Hill | 21 | ..... | ..... | ..... | 121.43 | ..... |
| Duncan, Annie | 115 | 13.06 | ..... | ..... | ..... | ..... |
| Duncan Lake | 100 | ..... | ..... | ..... | ..... | 100.40 |
| Everett | 56 | ..... | 4.51 | ..... | ..... | ..... |
| Fay | 211 | ..... | ..... | ..... | ..... | ..... |
| Federal Hill | 1 | 11.37 | ..... | ..... | ..... | ..... |
| Fox | 1,055 | ..... | ..... | 314.07 | ..... | ..... |
| Franconia Notch | 6,232 | ..... | (67.84<br>(30.34 | ..... | ..... | ..... |
| Franklin Pierce | 13 | ..... | ..... | 56.84 | ..... | ..... |
| Glencliff | 508 | ..... | ..... | ..... | ..... | ..... |
| Glover | 10 | 6.60 | ..... | ..... | ..... | ..... |
| Hemenway | 1,958 | ..... | ..... | 819.72 | ..... | ..... |

| | | | | | | |
|---|---|---|---|---|---|---|
| Hubbard Hill | 709 | ..... | 24.55 | ..... | ..... | ..... |
| Industrial School | 60 | ..... | ..... | ..... | ..... | ..... |
| Israel | 500 | 154.31 | ..... | ..... | ..... | ..... |
| Kearsarge | 2,846 | ..... | 84.90 | ..... | ..... | ..... |
| Laconia State School | 1,837 | ..... | ..... | 627.14 | ..... | ..... |
| Lake Francis | ..... | ..... | 90.63 | ..... | ..... | ..... |
| Leighton | 75 | ..... | ..... | 72.56 | ..... | ..... |
| Litchfield | 122 | ..... | 39.70 | ..... | ..... | ..... |
| Livermore Falls | 134 | ..... | ..... | 302.90 | ..... | ..... |
| Mast Yard | 401 | ..... | ..... | 159.03 | ..... | ..... |
| Mt. Prospect | 430 | ..... | ..... | ..... | ..... | 105.52 |
| N. H. Forest Nursery | 887 | ..... | ..... | 394.29 | ..... | ..... |
| North Branch | 71 | ..... | ..... | ..... | ..... | ..... |
| Pawtuckaway (Addition) | 25 | 30.21 | ..... | ..... | ..... | ..... |
| Pillsbury | 3,034 | ..... | 26.62 | ..... | ..... | ..... |
| Pillsbury Addition | ..... | 47.94 | ..... | ..... | ..... | ..... |
| Pine River | 70 | 19.52 | ..... | ..... | ..... | ..... |
| Rhododendron | 294 | ..... | ..... | 128.89 | ..... | ..... |
| Shaker | 236 | ..... | ..... | 49.41 | ..... | ..... |
| Smith | 50 | 12.96 | ..... | ..... | ..... | ..... |
| Sunapee Mountain | 1,777 | ..... | 11.70 | ..... | ..... | ..... |
| Taylor | 12 | ..... | ..... | ..... | ..... | ..... |
| Vincent | 172 | ..... | ..... | ..... | 318.11 | ..... |
| Walker | 47 | ..... | 5.61 | ..... | ..... | ..... |
| White Lake | 603 | ..... | 14.07 | ..... | ..... | ..... |
| Woodman | 141 | ..... | ..... | ..... | 414.42 | ..... |
| Totals | | $309.53 | $465.63 | $2,940.55 | $2,463.97 | $280.11 |

## Table 19

### COST AND INCOME FROM FOREST OPERATIONS FISCAL YEARS 1951 AND 1952

| Tract | Total Cost | Gross Income | Inventory Value July 1, 1952 | Net Cost | Net Income |
|---|---|---|---|---|---|
| Annett | $824.59 | ..... | ..... | $824.59 | ..... |
| Baker | 38.88 | $8.29 | ..... | 30.59 | ..... |
| Bear Brook | 16,066.44 | 19,161.07 | $912.45 | ..... | $3,094.63 |
| Binney Pond | 176.15 | 2,650.00 | ..... | ..... | 2,473.85 |
| Bowditch Runnells | ..... | 300.00 | ..... | ..... | 300.00 |
| Cardigan | 328.81 | ..... | ..... | 328.81 | ..... |
| Connecticut Lakes | 173.19 | 99.00 | ..... | 74.19 | ..... |
| Contoocook | 210.44 | ..... | ..... | 210.44 | ..... |
| Craney Hill | 121.43 | ..... | ..... | 121.43 | ..... |
| Crawford Notch | 4,199.82 | 7,249.60 | ..... | ..... | 3,049.78 |
| Dixville Notch | 16.17 | 61.74 | ..... | ..... | 45.57 |
| Duncan Lake | 100.40 | ..... | ..... | 100.40 | ..... |
| Fay | 596.41 | 3,263.04 | ..... | ..... | 2,666.63 |
| Forest Lake | 51.84 | 200.00 | ..... | ..... | 148.16 |
| Fox | 11,677.54 | 14,427.67 | 3,621.00 | ..... | 2,750.13 |
| *Glencliff | 6,075.65 | 10,187.50 | ..... | ..... | 4,111.85 |
| Hemenway | 3,854.06 | 2,073.25 | 1,897.50 | 1,780.81 | ..... |
| *Industrial School | 140.70 | 2,593.00 | ..... | ..... | 2,452.30 |
| *Lake Francis | 1,716.39 | 4,975.12 | ..... | ..... | 3,258.73 |
| Mt. Prospect | 186.63 | 81.41 | ..... | 105.22 | ..... |
| Vincent | 318.11 | ..... | ..... | 318.11 | ..... |
| Woodman | 414.42 | ..... | ..... | 414.42 | ..... |
| Totals | $47,288.07 | $67,330.69 | $6,430.95 | $4,309.01 | $24,351.63 |

* Other state institutions.

## STATE FOREST NURSERY AND REFORESTATION

Important developments at the Forest Nursery during the past two years were the construction of an addition to the north side of the nursery barn to provide cold storage for seed and dug stock, the purchase of a track-laying tractor with wide-spaced treads to perform certain special nursery operations, and a new bed-former for shaping seed beds.

The addition to the barn is 24 x 52 feet with 8 foot posts, of cement block construction, and divided into three rooms, a room 24 x 42 feet that will be kept at 34° for holding November dug stock until the following spring; a room 10 x 16 feet that will be kept at 0° to enable the nursery to carry a supply of seed over a period of years; and a compressor room 8 x 10 feet for housing the refrigeration machinery. The 34° room will make it possible to dig a large part of the stock in the fall that is to be shipped out the following spring. This will relieve a very congested work period in the spring, the period between the time the frost is out of the nursery beds and the time the seedlings start to grow. It will also enable the nursery to supply stock for spring planting in the southern part of the state, where the planting sites are frequently free of frost before trees can be dug in the nursery, and to hold spring-dug stock for late spring and summer planting, when land owners are unable to plant at the usual time.

The tractor, an Oliver Cletrac Model H. G. 68, with 5-foot clearance between treads, operates in the paths each side of the 4-foot seed beds and performs operations requiring considerable power such as seedbed construction, root pruning and tree digging, without damage to the beds. It is also well adapted to fertilizing, applying certain types of sprays, or work where the equipment must operate over the beds.

The new "bed former" is a 1200 lb. steel sled type drag that is drawn over the seedbed area and shapes the beds by taking soil from the area that will be used for paths and using it to shape the seed beds 4 feet in width and 4 inches higher than the paths.

The nursery has given the same services to other agencies and continued under the same policies of growing and distributing stock as in previous years.

The following tables show the distribution of forest planting stock by agencies; the value of the stock distributed to each agency, the nursery output, by age, species and years, and the planting on state forest areas by species and amounts.

## Table 20

### FREE DISTRIBUTION OF PLANTING STOCK

**Fiscal Years 1950-51 and 1951-52**

**(No. of Trees)**

| | |
|---|---|
| **State Agencies** | |
| Fish & Game Department | 50 |
| State Industrial School .. | 1,500 |
| Water Resources Board . | 1,500 |
| Laconia State School ... | 10,000 |
| Total | 13,050 |
| **4-H Clubs** | |
| Carroll County ..... | 750 |
| Cheshire County ..... | 3,000 |
| Coos County ..... | 250 |
| Hillsborough County ... | 2,200 |
| Merrimack County ..... | 5,000 |
| Rockingham County .... | 18,175 |
| Strafford County ..... | 1,750 |
| Total 121 Members .. | 31,125 |
| **Cities and Towns** | |
| Ashland ..... | 1,000 |
| Contoocook ..... | 500 |
| Dummer ..... | 2,000 |
| Hollis ..... | 2,500 |
| Manchester ..... | 14,000 |
| Milford ..... | 1,500 |
| Troy ..... | 3,000 |
| Walpole ..... | 6,500 |
| Wentworth ..... | 500 |
| Winchester ..... | 12,000 |
| Total 10 Cities and Towns ..... | 43,500 |
| **Boy Scouts** | |
| 1 Troop Boy Scouts .. | 75 |
| Total ..... | 75 |
| **Agricultural High Schools and Other Schools** | |
| Alstead, Vilas High .... | 2,300 |
| Colebrook, Colebrook Aademy ... | 3,650 |
| Contoocook, Hopkinton High ..... | 7,000 |
| Conway, Kennett High.. | 1,200 |
| Derry, Pinkerton Academy .. | 2,700 |
| Dover, Dover High ..... | 2,500 |
| Hudson, Alvirne School.. | 2,600 |
| Laconia, Laconia High .. | 4,500 |
| Nashua, Quincy Street School . | 2,700 |
| Raymond, Raymond High | 11,000 |
| Rochester, Spaulding High | 5,900 |
| Tilton, Northfield High.. | 1,700 |
| Walpole, Walpole High.. | 1,000 |
| Warner, Simonds Free High ... | 2,400 |
| Weare, Weare High .... | 1,000 |
| West Lebanon, West Lebanon High .. | 1,500 |
| Total 16 Schools .... | 53,650 |
| Grand Total ..... | 141,400 |

## Table 21

### VALUE OF NURSERY STOCK PRODUCED

**Fiscal Years Ending June 30, 1951 and June 30, 1952**

| | 1951 | 1952 |
|---|---|---|
| Trees sold to private planters ..... | $3,341.88 | $4,461.23 |
| Trees given to 4-H and other juvenile clubs.. | 134.57 | 277.00 |
| Trees given to towns and cities ..... | 97.50 | 118.50 |
| Trees used on state lands ..... | 46.81 | 77.00 |
| | $3,620.76 | $4,933.73 |

## Table 22

### NURSERY OUTPUT — NUMBER OF TREES

**Fall, 1950 — Spring, 1951**

| Age of Stock | White Pine | Red Pine | White Spruce | Balsam Fir | White Ash | Total |
|---|---|---|---|---|---|---|
| 4 year seedlings ..... | ..... | ..... | 52,960 | 21,200 | ..... | 74,160 |
| 3 year seedlings ..... | 235,400 | 247,975 | 55,100 | 54,925 | ..... | 593,400 |
| 2 year seedlings ..... | ..... | ..... | ..... | ..... | 50 | 50 |
| Total ..... | 235,400 | 247,975 | 108,060 | 76,125 | 50 | 667,610 |
| **Fall, 1951 — Spring, 1952** | | | | | | |
| 4 year seedlings ..... | ..... | 44,825 | 69,350 | 2,450 | ..... | 116,625 |
| 3 year seedlings ..... | 368,900 | 314,925 | 110,650 | ..... | ..... | 794,475 |
| Total ..... | 368,900 | 359,750 | 180,000 | 2,450 | ..... | 911,100 |

## Table 23

### REFORESTATION ON STATE FORESTS

**1950-51 and 1951-52**

| Forest | Area Planted (Acres) | White Pine | Red Pine | White Spruce | Balsam Fir | Total |
|---|---|---|---|---|---|---|
| Bear Brook ..... | 1 | ..... | 1,200 | ..... | ..... | 1,200 |
| Eaton ..... | 1 | . | 1,100 | ..... | ..... | 1,100 |
| Fox ..... | 10.2 | 3,650 | 1,650 | 650 | 650 | 6,600 |
| Page's Corner ..... | 1 | ..... | 1,200 | ..... | ..... | 1,200 |
| Total ..... | 13.2 | 3,650 | 5,150 | 650 | 650 | 10,100 |

## TOWN AND CITY FORESTS

The Forestry Commission's Biennial Report of 1909-1910 announced that 5 cities and 13 towns held title to forest land and recommended that the state should furnish trees at cost to the towns from the State Forest Nursery just established. The Laws of 1911, Chapter 166, Section 23, authorized the State Forester to furnish free of charge trees for planting on land belonging to the towns and cities. An act authorizing towns and cities to purchase and manage woodlands for forestry purposes was approved on March 14, 1913. The Town of Hollis was the first to acquire a town forest under this act. The tract of 198 acres came to the town through the efforts of interested citizens. A condition was that the town was to spend $100 the first year and $50 a year for the next 10 years improving the growing timber. The State supervised planting 15,000 white pine on open fields and made plans for management. The town selectmen and many town forest committees have cared for this tract during the past years. One of the lots on the town forest was cut selectively during 1951 yielding a cash profit to the town of $962.42.

Several cities and towns were showing interest during the period of 1920-1930 in acquiring forest lands for town forests, parks and tracts protecting public water supplies. Concord, Franklin, Keene, Manchester and Rochester were among the cities establishing water supply areas and the towns of Claremont (at that time not yet a city), Hanover, Jaffrey and Littleton were doing likewise. At the same time the Forestry Commission was issuing appeals to the towns to appoint town forest committees to study the possibility of establishing town forests or if the town had already acquired land, to recommend a plan of management for the town. The State Forester and his agents attended meetings, showed pictures and stated the progress that European countries had made. Planting stock, especially white pine, as requested by the cities and towns was supplied free of cost at the nursery. The City of Manchester received the greatest number of trees and the records indicate that over 1,800,000 white and red pine were shipped to be used on the water supply areas around Massabesic Lake. The State Nursery records show that to date over 3,847,000 trees have been given by the state to the cities and towns for planting purposes. Because of the demand for trees the State Forester has from time to time sent out questionnaires to the selectmen for information about forest land held by the town. There are three means by which towns may acquire land: by purchase, usually with funds appropriated at the town meeting; by gift from individuals interested in the town; and by defaulted taxes. This last source of

town lands has troubled many towns because of the various processes which are required before the town can obtain title. Two years are necessary before the sales are completed and the former owner has two years to redeem. A table has been prepared showing certain statistics gathered over these years for study.

## Table 24

### TOWN FOREST AREA AND VALUE*

**February 1, 1953**

| Year | Number of Towns with Town Forests | Tax Default | | Purchase | | Gift | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | | Acres | Value | Acres | Value | Acres | Value | Acres | Value |
| 1926 | 54 | 471 | ..... | 3,829 | ..... | 2,711 | ..... | 7,011 | $157,757 |
| 1930 | 74 | 918 | ..... | 5,903 | ..... | 3,406 | ..... | 10,227 | 235,227 |
| 1938 | 140 | 17,523 | ..... | 6,689 | ..... | 4,625 | ..... | 28,837 | 303,252 |
| 1940 | 154 | 25,107 | $150,123 | 7,969 | $86,840 | 6,263 | $61,160 | 39,339 | 298,123 |
| 1950 | 138 | 24,292 | 126,483 | 9,296 | 85,565 | 7,082 | 78,419 | 40,670 | 290,467 |
| 1952 | 146 | 20,024 | 128,888 | 9,145 | 87,539 | 5,808 | 94,060 | 34,977 | 310,487 |

* Cities not included.

The above figures indicate that in 1926 there were 54 towns out of the 223 towns in the state that together had over 7,000 acres of land. The number increased until about 1940 when 154 towns owned over 40,000 acres. At the present the area is slowly decreasing. In 1940, tax title lands were 62% of the towns' holdings with purchases 28% and gifts 17%. The value of these lands held by the towns is likewise interesting. In 1940 tax title lands were appraised or valued at $5.98 per acre; purchases at $10.90 per acre and gifts at $9.77 per acre. Many of these purchases were for water supply areas which is indicated by the high price per acre. In 1952, tax title lands were appraised at $6.44 per acre; purchased lands at $9.57 per acre and gifts at $16.19 per acre. The rise in cost reflects the recent general rise in real estate values of all classes of land.

The study also reveals that selectmen in several towns have not available all the information about town forest lands. The town blotter contains property assessed for collection by the tax collector. Lands which were reported by selectmen in 1938 are occasionally not mentioned in the 1952 questionnaire. Fourteen towns were noted as failing to report their purchases or gifts.

The selectmen of many of these towns show keen interest in keeping the records of forest land ownership. Several towns have operated their timberlands with excellent care showing a good profit to the towns. Some towns put the receipts of operations in their general fund; others devote the receipts to special uses such as repairs to town buildings and bridges. One town has a special town agent to supervise the handling of its forest lands.

The State Forester and his agents wish that more time was available to cooperate and assist the selectmen of towns in the problem of management and operation. The acquisition and management of state lands occupy a large part of their time. It is hoped that an assistant to the State Forester can be given the assignment to work continuously with the towns. It would probably be in the best interests of a group of adjacent towns to engage a full-time forester to handle all the problems.

There are 7 cities, Concord, Claremont, Dover, Franklin, Keene, Manchester and Rochester, which have acquired over 11,000 acres of forest land valued at almost $500,000 or about $42.00 per acre. This high cost per acre is undoubtedly due to purchase of valuable lands adjacent to cities for protection of their water supply. Berlin, Laconia, Nashua, Portsmouth and Somersworth obtain their water from private sources. The state has supplied the seven cities over 2½ million trees from the State Nursery during the past 40 years.

The cities realize the necessity for protecting watersheds about their public water supply more than smaller communities and have therefore planted many more trees per acre of land owned than have the towns.

Table 25

TOTAL TOWN AND CITY FORESTS

1952

| | Number of Forest Units | Total Area (Acres) | Value | Number of Trees Supplied from State Nursery |
|---|---|---|---|---|
| Towns | 146 | 34,977 | $310,487 | 1,364,290 |
| Cities | 7 | 11,352 | 480,235 | 2,483,275 |
| Totals | 153 | 46,329 | $790,722 | 3,847,565 |

## WHITE MOUNTAIN NATIONAL FOREST

The important events of the past two years have included a revised timber management plan for the Forest, and the completion of another large timber sale. The timber management plan which is based on area control indicates an allowable cut of 7,000 acres per year, composed of about 12,000,000 board feet of sawlog material and approximately an equal amount of pulpwood material. In the recent history of the Forest it has not been possible to obtain the allowable cut. This failure to cut up to the desirable maximum is due partly to lack of manpower sufficient to handle the sales business and partly to the fact that one of the main products — hardwood pulpwood — is difficult to sell at the locations and under the methods of cutting which are required on the national forests. However, considerable progress is being made towards harvesting the old growth hardwood timber. In the fiscal year 1951 the cut was 18,898 M board feet, having a stumpage value of $154,261.00. The cut in fiscal year 1952 was 15,317 M board feet, having a stumpage value of $129,051.00.

In the fall of 1952 the Sawyer River Chance was sold to Schmidt & McCullough, Inc. of Berlin, N. H. This sale was for 31,000 cords to be cut within an 8-year period. It is estimated that 80% of the material is in hardwoods and 20% in softwoods. Approximately 17,000 cords are suitable only for pulpwood and the rest is good enough for millwood, sawlogs, and veneer. Cutting is now in progress on the area and the operator is sorting the wood into its various products as it is cut.

Recreation use on the White Mountain National Forest continues to boom. In the last biennial report it was mentioned that the Campton Pond Recreation Area had been put out on a concession; the concessionnaire making charges of 50 cents per night per party of six or less, or $3.00 per week, this money being used to maintain and service the area. The Dolly Copp Recreation Area is now being operated by the Appalachian Mountain Club on a non-profit basis. Any operating profit is put back into the area in maintenance and increased services. It has been found that the original charges to campers were insufficient to cover the cost of operation and, therefore, in 1952 the charges were increased to $1.00 per night per party of six or less, or $5.00 per week, with no charge for children under 12 years of age. This method puts these areas on a self-supporting basis and seems to be acceptable to the campers.

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## COUNTY FORESTRY PROGRAM

The foundation of a sound forestry program in New Hampshire must be intensive education of all woodland owners so that they are aware of the opportunities. Effective education frequently involves demonstrating to the forest owner the technical application of forestry on his own land. Technical assistance to farmers with the aim of showing the advantages of scientific farming to the farmer himself is characteristic of the highly successful agricultural education; similarly technical assistance to forest owners with the purpose of showing them the advantages of scientific forestry should be the cornerstone of our forestry educational program. The important objective of this program is to interest forest owners in good forest management and then persuade them to follow forest practices that produce continuous crops of wood and timber. Technical forestry assistance is one of the most effective means of getting owners started on a long-range program of forest management.

Persuasion of New Hampshire woodland owners to help themselves has developed gradually. In 1924 the federal Clarke-McNary Act enabled the federal and state governments to employ extension foresters. The Extension Forester worked with county agricultural agents in contacting woodland owners. The program was one of the first steps in getting forestry practices in the woods of the small owner.

The federal Norris-Doxey Act was passed in 1937. The state, with the cooperation of the federal government, employed foresters to give direct assistance to small woodland owners. This act was replaced by the federal Cooperative Forest Management Act effective July 1, 1951.

At the present time New Hampshire has 8 county foresters. Since the present county forestry program has been in operation — November 1, 1945 to the present — they have given on-the-ground assistance in management and marketing to more than 8,500 woodland owners and mill operators. The records show that on 2,260 woodland holdings

*County Forester Exhibit, Eastern States Exposition*

the cutting practices changed as a result of the efforts of the county foresters.

In the period of less than a decade the change in attitude by landowners toward the improved management of their forest lands has been rapid. The shrinking reserve of large timber, increased stumpage prices, and continued high demands for all types of forest products have aided the county foresters in convincing hundreds of forest owners of the importance of growing wood and timber for use now and in the future.

In 1945 the consulting forester had little or no place in the forest economy except where industrial concerns and land-holding companies were interested in timber appraisals and boundary surveys. In the short period of eight years the consulting foresters have located hundreds of woodland owners interested in buying their services. There

are large numbers of small holdings throughout the state which are badly depleted of merchantable timber. Owners of such lands believe that they are not justified in making a cash investment in forest improvement that will not yield a return for a number of decades. We are now faced with the situation where county foresters and consulting foresters are attempting to sell forestry to the same land owners. It is important that these foresters coordinate their efforts so that there may be the greatest increase in better-managed forests.

The job of the county forester is to help woodland owners help themselves. He demonstrates how to mark and tally trees for a selective cutting, and gives advice and assistance in the marketing of forest products. He hopes that on the next cut the owner will take over the job himself, or employ the services of a consulting forester. The county forester does not act as agent for the owner. As more and more owners request technical assistance in the management of their woodland, two general courses of action should be considered in meeting these requests for assistance from trained foresters. The public can employ foresters to provide a complete service to woodland owners. A charge can be made to the owners for services rendered or the help can be given at public expense.

In New Hampshire, the county forester and the consulting forester worked together on specific jobs. During the period January 1, 1952 to July 1, 1952 the eight county foresters referred 47 jobs to consulting foresters. There were instances where the county forester marked lots for cutting and the owner then retained a consulting forester to sell the marked trees. One consulting forester and the county forester are considering grouping several small lots into a management unit for marking and the joint sale of the forest products.

Marking of trees for selective cutting is one of the major jobs of a county forester. The objective of the county forester is to interest the owner to the point where he will make his own tree selection or employ the services of a consulting forester to do this marking. There are many owners who for one reason or another cannot help with the marking and will not pay to have marking done. They are not sufficiently convinced of the importance of marking trees for selective cutting.

The county forester is cooperating with consulting foresters on a new approach to forest improvement work. The Congress has authorized payments for forestry work to encourage land owners to carry out soil-building practices.

Thousands of acres of young growing pine in southern New Hampshire can be developed into merchantable stands of desirable timber if the over-topping weed trees are eliminated. Few owners will

invest time or money in such a project even though they may recognize its value. An arrangement has been worked out with the Production and Marketing Administration whereby woodland owners who sign with PMA to carry out a forest weeding project can get the weeding done by a work crew under the supervision of a consulting forester. The owner pays for less than one-third of the actual cost of the weeding. The consulting forester also has an opportunty of marketing the stumpage for the owner.

The county and consulting foresters can work together and bring about real accomplishments in getting forestry applied in the woods. The job of getting good forest management practiced on small forest holdings is a big one, and the combined efforts of both public and private foresters are important.

*Thinning in Paper Birch—*
*The State Tree*

## Table 26

### PRIVATE FOREST MANAGEMENT RESULTING FROM AID GIVEN BY COUNTY FORESTERS

| County | Woodlands on which improved practices were followed | | Area operated | | Volume of forest products harvested | | Roadside value of forest products harvested in accordance with good forest management | |
|---|---|---|---|---|---|---|---|---|
| | Number of Tracts | | Acres | | M Bd. Ft. | | | |
| | 1951-52 | 1946-52 | 1951-52 | 1946-52 | 1951-52 | 1946-52 | 1951-52 | 1946-52 |
| Hillsborough | 33 | 138 | 580 | 2,833 | 1,209 | 4,341 | $42,315 | $141,935 |
| Cheshire-Sullivan | 39 | 152 | 604 | 2,603 | 1,645 | 6,261 | 57,575 | 219,135 |
| Merrimack | 33 | 125 | 483 | 1,739 | 1,204 | 4,993 | 42,140 | 174,755 |
| Rockingham | 66 | 287 | 844 | 4,420 | 2,774 | 11,322 | 97,090 | 393,270 |
| Coos | 81 | 591 | 1,215 | 55,072 | 2,480 | 12,577 | 86,840 | 440,195 |
| Belknap-Strafford | 61 | 291 | 683 | 3,853 | 2,496 | 12,572 | 90,860 | 440,020 |
| Carroll | 27 | 287 | 272 | 4,874 | 2,521 | 23,084 | 88,235 | 807,840 |
| Grafton | 48 | 389 | 1,432 | 7,867 | 1,999 | 18,109 | 59,975 | 633,725 |
| Total | 388 | 2,260 | 6,113 | 83,261 | 16,328 | 93,259 | $565,030 | $3,250,875 |

## DISTRICT FOREST ADVISORY BOARDS

The Advisory Boards appointed by the Commission under Chapter 235, Laws of 1941, have been especially active during the biennium due to the additional duties assigned them by the Timber Tax Law of 1949 whereby they act as boards of appeal in case of disputes about tax abatement for approved cutting practices. They have also met regularly to discuss activities of the County Foresters who serve as secretaries to the respective Boards.

## DISTRICT FORESTRY ADVISORY BOARDS

**(As of January 1, 1952)**

**Belknap - Strafford:**

Horace U. Ransom, Meredith, Chairman
Richard J. Pitman, Laconia
Harold E. Flower, Barrington
Richard C. Varney, Gilmanton
Myron I. Jenness, Dover
Robert F. Bradley, Laconia, Secretary
(Resigned November 1952)

**Carroll:**

Richard W. Read, Tamworth, Chairman
Roger Williams, Center Tuftonboro
Arthur P. Gale, Jackson
Jesse L. Ambrose, No. Sandwich
Howard C. Avery, Wolfeboro
Theodore F. Breon, Conway, Secretary

**Cheshire - Sullivan:**

Maurice A. Mansell, Stoddard, Chairman
George L. Porter, R. F.D., Alstead
George H. Duncan, East Jaffrey
Clifford Stearns, Winchester
Arthur A. Davis, Claremont
William E. Dussault, Keene, Secretary

**Coos:**

Clarence S. Herr, Berlin, Chairman
Howard T. Woodward, Berlin
George D. Keysar, North Stratford
Lawrence E. Philbrook, Shelburne
Clarence Marshall, Northumberland
Robert H. K. Phipps, Lancaster, Secretary

**Grafton:**

Wayne C. Lewison, Beebe River, Chairman
Henry C. Waldo, Lincoln
Forrest Cole, Lebanon
Earle Philbrook, Littleton
Lyle Frazer, Monroe
Robert Sinclair, Woodsville, Secretary

**Hillsborough:**

Benjamin M. Rice, Peterborough, Chairman
Francis J. Lorden, Milford
A. J. Christie, Manchester
Henry H. Hildreth, Hollis
Stanley Tenney, Francestown
Robert W. Breck, Milford, Secretary

**Merrimack:**

Charles A. Bartlett, Concord, Chairman
Victor E. Phelps, Andover
Chester B. Bailey, Suncook
Frank T. Garland, Pittsfield
C. Leland Slayton, Warner
Wilbur E. Thompson, Concord, Secretary

**Rockingham:**

Arthur W. McDaniel, Nottingham, Chairman
Lewis C. Swain, Exeter
Joseph F. Culick, Fremont
John E. Ray, Londonderry
Howard M. Platts, Hampton Falls
Roger P. Sloan, Exeter, Secretary

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## THE FOREST CONSERVATION AND TAXATION ACT OF 1949

During the first two and one-half years of the operation of the new law, the proportion of operations and amount of timber cut under approved cutting practices have increased markedly. There is ever-increasing interest among land owners in maintaining their forests in good growing condition. The District Forest Advisory Boards, the County Foresters and the Commission have all cooperated with local governments when requested for advice on the administration of the law. The inducements to good forestry, chief of which is the exemption of growing wood and timber from annual taxation, have stimulated interest in forestry by wood-using industries and operators also and

investment in woodland improvement has been greatly encouraged. This has resulted in more demand for trees for reforestation and requests for advice from County Foresters. Private consulting foresters have found an increased call for their services.

The following summary tables have been prepared from information collected and collated by the State Tax Commission. These tables show the number of operations and the volume of timber cut as reported to the Tax Commission under the severance tax feature of the timber conservation law. Timber cut under this law is subject to a tax equal to 10% of its stumpage value. Where an operator follows good forest practices as approved by the District Forest Advisory Boards and the Forestry and Recreation Commission an abatement of 30% of the basic 10% of the stumpage value is allowable if the operator has complied with all the other features of the law.

## Table 27

### NEW HAMPSHIRE TIMBER TAX STATISTICS

### TOTAL OPERATIONS AND YIELD TAXES ASSESSED

| Year | Number of Operations @10% | % | @ 7% | % | Total | Yield Taxes Assessed @ 10% | % | @ 7% | % | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1950 (6 mos.) | 907 | 74 | 318 | 26 | 1,225 | $80,471 | 81.5 | $18,286 | 18.5 | $100,307 |
| 1951 | 3,503 | 81 | 854 | 19 | 4,357 | 271,807 | 76 | 87,135 | 24 | 358,942 |
| 1952 | 3,164 | 77 | 959 | 23 | 4,123 | 288,745 | 76 | 90,410 | 24 | 379,155 |
| Totals | 7,574 | 78 | 2,131 | 22 | 9,705 | $642,573 | 76.5 | $195,831 | 23.5 | $838,404 |

| Year | Sawtimber Volume Cut M. Bd. Ft. 10% | % | 7% amt. | % | Total M. bd ft. | Assessed at 10% | Pulpwood Volume Cut Cords Assessed % | @ 7% | % | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1950 (6 mos.) | Value only reported | | | | | | value only reported | | | |
| 1951 | 282,233 | 83.8 | 54,548 | 16.2 | 336,781 | $101,982 | 42.9 | $135,860 | 57.1 | $237,842 |
| 1952 | 227,508 | 74.7 | 77,059 | 25.3 | 304,567 | 68,385 | 34.6 | 129,049 | 65.4 | 197,434 |
| Totals | 509,714 | 80 | 131,607 | 20 | 641,348 | 170,367 | .... | $264,909 | .... | $435,276 |

## Table 28

### TOTAL CUT SUBJECT TO YIELD TAX

Equivalent in M. Board Feet

| Year | Assessed at 10% | % | Assessed at 7% | % | Total |
|---|---|---|---|---|---|
| 1950 (6 mos.) | Value only Reported | | | | |
| 1951 | $333,224 | 73.2 | $122,478 | 26.8 | $455,702 |
| 1952 | 261,701 | 64.9 | 141,583 | 35.1 | 403,284 |
| Totals | $594,925 | .... | $264,061 | .... | $858,986 |

## Table 29

### TAXES COLLECTED AND REIMBURSEMENT TO TOWNS

| Year | Yield Taxes Assessed | Total State Liability | Amount Due Towns |
|---|---|---|---|
| 1950 (6 mos.) | $100,307 | $447,435 | $352,334 |
| 1951 | 358,942 | 463,773 | 201,234 |
| 1952 | 379,155 | 474,190 | 204,732 |
| Totals | $838,404 | $1,385,398 | $758,300 |

## REGISTERED ARBORISTS

All persons engaged in the practice of tree surgery, pruning, spraying or dusting, including airplane spraying, or conducting similar types of work in the care of forest, shade and fruit trees are required to be registered under state law. Residents of New Hampshire may carry on such work within the town in which they reside without registration. Examinations leading to registration are conducted by an examining board consisting of the Commissioner of Agriculture, the State Entomologist and the State Forester. The following were registered in 1952:

### Registered Arborists 1952

(Address New Hampshire except as otherwise noted)

Abbott Brothers Tree Service (William F. Abbott), Wells, Maine.
Aldrich, Leon F., 356 Pond Street, Westwood, Mass.
Amalia, Karl F., Amalia, Inc., 5 Elm Street, Manchester, Mass.
Bailey, John M., 420 Elk Street, Gladwin, Michigan.
Barber Tree Service (Eugene L. Barber), Peterborough.
Bartlett, F. A. Tree Expert Company, (Wilfrid Wheeler, Jr.), 795 Memorial Drive, Cambridge, Mass.
Bouchard, Armand J., 972 Mammoth Road, Manchester.

Chase, Ernest J., 686 Court Street, Keene.
Clark, Leon H., Jr., Box 506, Meredith.
Conley Tree Surgeons, Maple Street, Middleton, Mass.
Cook, William M., Route 10, Boscawen.
Cotton, Edward H., Jr., Elm Street, Hatfield, Mass.
Cupples, David W., 400 Myrtle Street, Manchester.
Davey Tree Expert Company, Kent, Ohio.
Davis, Lillian A., Riverside Spraying Company, 145 Elliott Road, Haverhill, Mass.
Dodge Associates (Albert W. Dodge), Main Street, Wenham, Mass.
Eaton, Robert H., R. F. D. 1, Alton.
Flint, Edward O., Pleasant Street, Saxton's River, Vermont.
Flint, George W., Jr., 21 Park Street, Keene.
Franke, William A., 30 Cameron Street, Brookline, Mass.
Franklin Tree Expert Company (C. T. Caldwell), 318 Main Street, Greenfield, Mass.
Frost, H. L. & Higgins Company, (R. D. Keene and E. W. Higgins), 20 Mill Street, Arlington, Mass.
Gray, Herbert C., Jr., Lancaster.
Griffith, Richard J., 2 Myrtle Street, Stoneham, Mass.
Henderson & Herndon Tree Company, Inc., (William P. Henderson), 9 Story Avenue, Beverly, Mass.
Knox, Ralph T., Jr., 7 River Street, Windsor, Vermont.
Lawrence, B. F. Landscape Company (Benjamin F. Lawrence), 17 Garfield Street, Greenfield, Mass.
Lucas Tree Expert Company, John (R. E. Billings), P. O. Box 965, Portland, Maine.
Madden, James E., 78 West Merrimack Street, Manchester.
Marsh, Ben F., 5 Leighton Avenue, Concord.
Mayberry, Elmer F., Lancaster.
Meader, Robert W., Greenland.
Melendy, Harry F., Milford.
Monadnock Tree Service (Laurence A. Laviolette), Peterborough.
Munson - Whitaker Company (John E. Riley and Robert S. O'Shea), 9 Fellsway East, Malden, Mass.
Nehring, William H., Ridge Farm Nursery, New Durham.
Peeke, Leslie A., 67 Monroe Street, Amesbury, Mass.
Ralston, Fred & Company Tree Service (J. Cooke White), 22 Linden Street, Allston 34, Mass.
Ralston Tree Service, Inc. (Byron L. Kirby), 43 Cornwall Street, Portsmouth.
Robbins, Lester W., Amherst.
Smith, Alfred A., 166 Calef Road, Manchester.
Stalbird, Russell N., 175 Marlboro Street, Keene.

Stone, Oscar P., 2 Bonnyvale Road, West Brattleboro, Vermont.
Tierney, John, 16 Liberty Street, Manchester.
Tufts, Robert L., 20 Lincoln Street, Stoneham, Mass.
Tuttle, W. F., Wolfeboro.
Walker Tree Expert, c/o James R. Walker, 31 Grant Street, Concord.
Walter, Stillman E., Wolfeboro.
Watson, David B., R. F. D., Portsmouth (Newington).
Welchans, William H., R. F. D. 1, Warner.
Welsh, Russell H., 23 Linden Street, Exeter.
White, Toivo, 15 Summer Street, Newport.
Wholley, John W., Bradford Tree Expert Company, Epping Road, Exeter.
Willoughby, Robert J., 150 South Main Street, Concord.

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## FOREST RESEARCH

The chief activities during the two-year period consisted of remeasurement of permanent sample plots, renewed experiments with cold storage of nursery stock and continued development of methods of charcoal production.

*Weeding.* Permanent plots were remeasured. Some preliminary experiments were carried out on the use of plant hormone sprays as compared to cutting with hand tools.

*Thinning.* All plots were maintained, remeasured and rethinned where necessary.

*Origin of Seed Experiments.* Remeasurement of plots showed significant differences in growth of some origins. A new series of Douglas fir plots was established.

*Hybrid Chestnut Trials.* One new planting of hybrid chestnuts was established.

*Cold Storage of Nursery Stock.* Storage of packed nursery stock at temperatures just above freezing and of stock heeled in a cellar over winter resulted in satisfactory survival in the field.

*White Pine Weevil Survey.* Several plots were established to observe the incidence of white pine weevil injury. The first measurement in 1952 indicated that current season damage occurred on only about 10% of the trees.

*Cytospora Canker Disease of Spruce.* Observations are being made on natural red spruce showing attack by cytospora canker in order to follow the mortality from year to year.

*Chemical - Debarking of Pulpwood.* The state is cooperating with the general research project of the paper and pulp industry, directed by Syracuse University on methods of chemical debarking of standing trees. One phase of this study was carried out in 1952.

*Charcoal Production.* Experiments were continued with both steel drum and cinder block kilns, and a method perfected for lifting steel kilns by a hoist and lowering them on ready-stacked wood.

*Integrated Logging.* Forestry operations utilizing a variety of products on the same job were continued. Utilization organized on these lines is successful in making improvement cuttings where only sub-marginal amounts of any one product are to be cut per acre. Sawlogs, posts, poles, peeled and rough pulpwood of several kinds, cordwood, smelter wood and charcoal wood were cut and marketed from the same operation.

*Appraising Forest Land.* A method has been devised for determining the value of forest land based on its productivity, accessibility, surface character and other factors. In addition many surveys and statistical reports have been carried out.

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## FOREST PRODUCTS CUT IN 1950 AND 1951

Reports from sawmills and other wood - using industries were solicited during the months of January in 1951 and 1952 as required by law. Each plant was requested to report the amount of each product cut during the preceding calendar year separately by each species of wood. While the utilization standards vary from mill to mill, these reports furnish the only data at present available for estimating the annual drain resulting from commercial use on the forests of the state. No good method has yet been found for estimating the production of fuelwood. An approximate figure is obtained by estimating a cut of 10 cords annually per farm, plus some cut by wood dealers and for summer residents.

Both the sawtimber and pulpwood cut in 1950 and 1951 exceeded that of the preceding two years. The bulk of the cut of sawtimber continues to be of softwood species, chiefly white pine. The demand continues for softwood lumber, while hardwood is relatively little utilized. This is disturbing in view of forest survey findings that soft-

wood sawtimber is being cut faster than it is growing while hardwood is greatly under-utilized. The conclusion which can be substantiated by direct observation in the field is that the proportion of hardwood in the forests of New Hampshire is on the increase. This is undesirable from the standpoint of continuing industries and employment based on softwood sawtimber.

The cut of pulpwood, however, shows that as much if not more hardwood as softwood is being utilized, and this is a healthy sign that pulpwood producing areas will continue to meet the needs of industry.

Other industrial uses of wood also indicate substantial quantities of hardwood. In general only the better quality hardwood is being cut so that there is a continual accumulation of low grade and defective hardwood that constitutes the major forest problem in the state.

## Table 30

### LUMBER SAWN IN NEW HAMPSHIRE MILLS

(Thousands of Board Feet)

| | Calendar Year | | Calendar Year | |
|---|---|---|---|---|
| **Softwood** | **1950** | | **1951** | |
| Balsam Fir | 2,041 | | 1,149 | |
| Cedar | 169 | | 296 | |
| Hemlock | 45,870 | | 40,750 | |
| Larch | 5 | | 10 | |
| Pine, Red | 3,329 | | 2,336 | |
| Pine, Pitch | 856 | | 4,583 | |
| Pine, White | 216,889 | | 247,732 | |
| Spruce | 14,721 | | 13,420 | |
| Other Softwood | ..... | | 45 | |
| Totals | | 283,880 | | 310,321 |
| **Hardwood** | | | | |
| Ash | 1,085 | | 1,255 | |
| Aspen | 11 | | 5 | |
| Basswood | 148 | | 380 | |
| Beech | 2,670 | | 3,705 | |
| Birch | 10,977 | | 12,239 | |
| Elm | 69 | | 369 | |
| Maple | 5,029 | | 7,546 | |
| Oak | 6,270 | | 7,515 | |
| Other Hardwood | 23 | | 997 | |
| Totals | | 26,282 | | 34,011 |
| Totals All Species | | 310,162 | | 344,332 |
| Number of Mills Reporting | | 552 | | 558 |

## Table 31

### PULPWOOD CUT IN NEW HAMPSHIRE (CORDS)

| | Total Cut | | Exports | | Imports | |
|---|---|---|---|---|---|---|
| | 1950 | 1951 | 1950 | 1951 | 1950 | 1951 |
| Spruce and Fir | 103,701 | 137,145 | 14,220 | 51,820 | 129,777 | |
| Hemlock | 30 | 10,964 | 30 | 370 | .... | Not |
| Pine | .... | 12,807 | .... | .... | .... | Reported |
| Mixed Hardwood | 80,832 | 139,016 | 3,200 | 4,582 | 55,406 | |
| Aspen | 21 | 1,991 | 21 | 77 | .... | |
| Totals | 184,584 | 299,932 | 17,471 | 56,849 | 185,183 | |

Number of Mills Reporting, 1950: 11; 1951: 12.

## Table 32

### WOOD CONSUMED BY NEW HAMPSHIRE WOOD-USING INDUSTRIES (exclusive of lumber and pulpwood) Equivalent in Thousand Board Feet

| Product | 1950 | 1951 |
|---|---|---|
| Boxes and Shooks | 803 | 6,758 |
| Cooperage | 1,000 | 6,886 |
| Excelsior | 500 | 1,732 |
| Posts, Poles and Piling | 337 | Not Reported |
| Turnery Products | 2,427 | 10,992 |
| Veneer | 10,342 | 13,119 |
| Miscellaneous | 260 | ..... |
| Totals | 15,669 | 39,487 |

## REVISION OF LAWS 1950-51

Changes and additions to laws affecting the various activities supervised by the Commission or affecting directly or indirectly these activities are summarized below. These include Public Acts and Joint Resolutions of both the Special Session of 1950 and the Legislature of 1951.

### I. Special Session of 1950.

### CHAPTER 1

### An Act Relative to Water Pollution

Amends the classification of Class B-1 waters suitable for recreational purposes.

## CHAPTER 5

### An Act Providing for a Reorganization of State Government

### PART 12

### Council on Resources and Development

(Chapter 249-A) Establishment of a Council including a representative of the Forestry and Recreation Commission.

Section 9-11. Shore and Beach Preservation and Development Commission abolished and duties and funds transferred to Forestry and Recreation Commission.

Section 12-15. Aerial Tramway Commission abolished and duties and funds transferred to Forestry and Recreation Commission.

Section 16. Forestry and Recreation Commission to consult with White Mountain Region Association.

Section 17-19. Forestry and Recreation Commission made custodian of the Hannah Dustin Monument, Franklin Pierce Homestead, Daniel Webster Birthplace and grounds connected with each and unexpended appropriations transferred to Forestry and Recreation Commission.

### PART 24

### State Insurance

Section 4-5. Aerial tramways at Cannon Mt. and Mt. Sunapee to be covered by insurance as provided in former acts.

## CHAPTER 14

### Joint Resolution Making Appropriation for Expenses in Connection with Forest Fires

Appropriated $8,934.71 to reimburse fire departments of North Conway, and Conway for services in connection with 1947 fires in Maine.

**II. Legislature of 1951.**

## CHAPTER 4

### An Act Relating to the Appropriation for Timber Tax Reimbursement Fund

Creation of reimbursement fund of $360,000 by authorizing a bond issue. Carrying charges to be met partially by $25,000 annually from Forest Improvement and Recreational Fund.

## CHAPTER 12

### An Act Relating to Forest Conservation and Taxation

Amendment to 1949 law providing for copies of reports to be sent to State Tax Commission for report of cut to be filed 15 days following completion of operation and changes in the details of distribution of the reimbursement fund to towns.

## CHAPTER 13

### An Act Relative to Leasing of Privileges and Concessions on State Forests and Reservations

All contracts for periods exceeding two years or for an annual rental of more than $100 to be approved by the Governor and Council.

## CHAPTER 70

### An Act Relating to the Method in Which Town Fire Bills Shall be Paid

Fire warden to render reports on fire expenses. Provisions for reimbursing for assistance rendered other towns.

## CHAPTER 87

### An Act Relative to the Registration of Wood Processing Mills

Planing and other processing plants and farm mills, if located in or near woodland, to be registered by Forestry and Recreation Commission.

## CHAPTER 98

### An Act Relative to the Purchase of Insurance for the Forestry and Recreation Commission Building at Franconia Notch, N. H.

Director of Recreation empowered to protect merchandise purchased for resale at Franconia Notch.

## CHAPTER 212

### An Act Relative to Payment of Expenses of Forest Fires, Kindling Fires and Penalties for Violations of Fire Laws

Amended law requires towns to stand expenses of fires originating from town dumps, requires permits for fires in town dumps. Makes disposal of inflammable waste material on or near highways a violation. Increases distance required for the disposal of slash near highways and boundary lines. Makes continuing offense for neglect to remove slash.

## CHAPTER 216

**An Act Providing for the Continuation of Reimbursement to Towns and Cities as Provided by Chapter 79-A Revised Laws**

Continuation of timber tax reimbursement to towns for 1951 and 1952 and authorization of bond issue of $300,000 therefor.

## CHAPTER 219

**An Act Authorizing the Transfer of Endicott Rock State Park to the City of Laconia**

Park to be conveyed to City of Laconia for use for recreational purposes and proceeds used for acquisition and development of a recreation area on Lake Winnipesaukee.

## CHAPTER 240

**An Act Relative to Activities of the Forestry and Recreation Commission in Connection with Transfer of Functions Thereto by the Reorganization Act**

Establishment of State Recreational Fund to receive receipts from state parks and for expenses of maintenance and development.

## CHAPTER 255

**An Act Making Appropriations for the Expenses of the State of New Hampshire for the Year Ending June 30, 1952**

Provided appropriations for Forestry Division and Recreation Division for 1952.

## CHAPTER 256

**An Act Making Appropriations for Expenses of the State of the New Hampshire for the Year Ending June 30, 1953**

Provided appropriations for Forestry Division and Recreation Division for 1953.

## CHAPTER 265

**Joint Resolution in Favor of the Town of Auburn**

Reimburse Town of Auburn for payments of $1,223.13 for injury to Raymond Case while working on a fire.

## CHAPTER 270

### Joint Resolution for Inclusion of Forest Management and Soil Conservation Practices in all Flood Control Plans Carried out by the Federal Government in the State of New Hampshire in Coordination with State Authorities

Federal authorities urged to give consideration to forest management and other conservation practices in plans for flood control.

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## FORESTRY DIVISION APPROPRIATIONS

Appropriations authorized by the Legislature for the Forestry Division for the biennial period ending June 30, 1952 are given below. Detailed financial statements of all funds, revenues and appropriations may be found in the annual reports of the State Comptroller and the State Treasurer.

## Table 33

### FORESTRY AND RECREATION COMMISSION
### FORESTRY DIVISION
**July 1, 1950 to June 30, 1951**

| | Appropriation | Expenditure | Reserved for Bills Payable | Balance Available |
|---|---|---|---|---|
| Administration | $33,223.22 | $32,420.71 | $802.51 | |
| Nursery | 12,871.85 | | | |
| Transfer | 71.62 | 12,943.47 | | |
| Reforestation | 3,073.44 | | | |
| Transfer | —71.62 | 3,001.82 | | |
| District Fire Supervision | 12,041.20 | 12,041.20 | | |
| Lookout Stations | 34,453.74 | | | |
| Transfer | —97.63 | 34,200.68 | 155.43 | |
| Training Conferences | 4,800.00 | 3,080.86 | 1,719.14 | |
| Prevention of Fires | 11,555.50 | 9,985.16 | 1,570.34 | |
| Forest Fire Bills to Towns | 28,636.00 | 26,981.96 | 18,636.82 | |
| Transfer | 8,048.07 | | | |
| Added Appropriation | 8,934.71 | | | |
| White Pine Blister Rust Control | 12,621.41 | 11,202.89 | 1,318.74 | |
| Northeastern Interstate Forest Commission | 500.00 | | | |
| Transfer | 97.63 | 597.63 | | |
| Federal Norris - Doxey Cooperative Program | 11,314.00 | 12,314.00 | | |
| Transfer | 1,000.00 | | | |
| Old Year Reserve | 8,123.43 | 7,823.74 | | |
| | $191,196.57 | $166,594.12 | $24,202.98 | |

**July 1, 1951 to June 30, 1952**

| | Appropriation | Expenditure | Reserved for Bills Payable | Balance Available |
|---|---|---|---|---|
| Administration | $35,095.00 | $34,785.50 | $94.10 | |
| Nursery | 17,364.19 | 24,087.85 | 237.00 | $3,906.41 |
| Federal Grant—C. M. 4 | 10,867.07 | | | |
| Reforestation | 3,749.00 | 3,212.74 | | |
| District Fire Supervision | 26,495.71 | 87,873.07 | 1,814.23 | 981.72 |
| Federal Grant—C. M. 2 | 64,173.31 | | | |
| Lookout Stations | 33,169.41 | | | |
| Transfer | 3,302.01 | 36,471.42 | | |
| Training Conferences | 5,000.00 | 1,778.72 | 3,221.28 | |
| Prevention of Fires | 17,425.00 | | | |
| Transfer | 180.00 | 13,836.43 | 3,555.98 | |
| Forest Fire Bills to Towns | 2,000.00 | 282.22 | 1,717.78 | |
| White Pine Blister Rust | 12,390.00 | 12,312.46 | 75.87 | |
| Northeastern Forest Fire Compact | 692.00 | 692.00 | | |
| Federal Norris - Doxey Cooperative Program | 14,500.00 | 14,500.00 | | |
| Old Year Reserve | 24,202.98 | 14,439.55 | | |
| | $270,605.68 | $244,271.96 | $10,716.24 | $4,888.13 |

*Skidding Logs* Photo by Frank H. Hill

# RECREATION DIVISION

## DIRECTOR'S INTRODUCTION

Notable changes in the operation of our Recreation Division have come about during the past four years. Most of these resulted from a legislative act, effective July 1, 1950, reorganizing our State governmental departments.

Under reorganization, the Public Works and Highways Department acts as the professional agency from the several State departments, providing engineering, architectural and contracting services. This procedure changed the previous practice whereby the Recreation Division had provided these services within its own staff. Four of the five men constituting the Design, Development and Maintenance Group of the Recreation Division were transferred to the Public Works agency. However, there was left with the Recreation Division the responsibility for design and layout and the problem of annual and normal maintenance of the State Park system. To carry on this work and coordinate the planning with Public Works, the position of Maintenance Engineer was created.

The scope of operations was also enlarged by transfers of administration and by several acquisitions. Crawford Notch State Park, Mt. Sunapee State Park, and the Cannon Mountain Aerial Tramway in Franconia Notch, all came under the responsibility of the Forestry and Recreation Commission. Also transferred to the Commission were the functions of the Shore and Beach Preservation and Development Commission; viz, to make studies and subsequent recommendations to the legislature concerning the erosion problems of the coast; to regulate harbor navigation at Hampton, Rye, and Little harbors; to appoint harbor masters and establish regulations for the use of these three harbors.

Among major acquisitions were 603 additional acres at White Lake State Park, where a completely equipped new campground was made in 1952; and 521 acres comprising the top of Mt. Kearsarge. Silver Lake Park, with its buildings, was purchased in 1949; but, as funds were not available for its operation, it was leased to a private operator. Rye Harbor State Park, with some 160 acres, also was transferred to the Recreation Division from the Adjutant General's Department.

Upon freeing the General Sullivan Bridge from tolls, the State Highway Department was unable to maintain from its funds the picnic development located on the north end of this bridge. The Governor and Council transferred this area, together with other state land at the abutments of this bridge (twelve acres, more or less, in all) to the Forestry and Recreation Commission for development and administration, and in addition two small parcels at the westerly abutment of the General Scammell Bridge. The legislature had authorized capital improvements to the extent of $72,521 for recreational developments on these parcels. Governor Adams set up an advisory committee on this matter and plans were developed accordingly. Contracts were let for developing an overlook parking area and a wayside picnic area at the Scammell Bridge site, and a picnic area and boat landing at the Sullivan Bridge site opposite the old highway picnic area. Work on these was started in 1951.

Three historic sites, previously under different State agencies, became a responsibility under reorganization. They are the Franklin Pierce Homestead at Hillsboro, the Daniel Webster Memorial at Franklin, and the Hannah Duston monument at Penacook. Two of these have a high potential as tourist attractions and can also serve a worthy purpose in interpreting State history. During the 1950 season, a "Webster Day" was celebrated at the memorial. At the Franklin Pierce Homestead, necessary repairs have been made to the barn, conveniences installed in it with a view to making it useful for gatherings of historical and educational groups, and exhibits of historical significance.

Publicity and promotion became a prime consideration with the added elements to the State Park system. The new Mt. Sunapee State Park, the Tramway and Franconia Notch were each promoted by special advertising programs. Booklets, folders, and posters were used to promote particular parks or special features such as concerts, horse shows, etc. Special displays were used to report frequent snow conditions to skiers within and outside the state.

A change in operation of vending stands on State areas was originated in 1949 and became fully effective in 1950. Several advantages were gained when the combined purchasing and sale of refreshments and souvenirs was set up in the several parks. A purchasing agent within the Division, called the Merchandiser, is responsible for the selection, purchasing, selling, and recording for all vending stands. This method achieves better selection, control, and lower prices.

Meetings of the administrative and operational staff have repeatedly been held to promote greater efficiency and higher morale. To such meetings have come representatives of the State Park systems in other states, and personnel of the National Park Service. Several

State departments have cooperated in providing staff members to advise regarding the legal and practical aspects of enforcing rules and regulations; matters of public relations; and a mutual exchange of services and information among the several State departments.

Many diverse factors influence the use, operations, and income from the State Parks. Foremost is the weather. Generally favorable summer weather has sustained increasing park patronage yearly. Epidemics, however, and closure of parks because of forest fire conditions had an adverse effect and thus eliminated considerable revenue.

Wintertime weather conditions were entirely adverse to our operations for both 1949 and 1950. The lack of usual snowfall at the Cannon Mountain Tramway and at Mt. Sunapee State Park made them frequently inoperable. A marked change in patronage and income came about with excellent snow conditions during the winter 1951-1952.

Whereas in most states the State Park systems provide services to their own citizens, in New Hampshire the use of the State Parks is largely by out-of-state visitors. But interest by our own citizens has grown rapidly in the past few years. Local organized groups used the parks increasingly. Many of the State Park beaches are used regularly by organized groups for classes in water safety and swimming, sponsored by the local Red Cross chapters. Schools, churches, and fraternal clubs appear to be sponsoring many family and children's outings. Special rates and services will, we hope, encourage more local use.

Continually growing are the numbers of groups brought to many of the State Parks for hiking, swimming, picnicking, etc., by hotels and inns. More frequent references to State Park facilities are being noted in the announcements of hotels and cabins as a service to their guests. Many of these resort operators are requesting State Park informational folders to inform their guests of the wide variety of local opportunities they offer. Thus state-operated parks are of increasing economic benefit to the communities.

Our State Park system now comprises 35 areas, of varying types and sizes; and the attendance records indicate that our constant maintenance and improvements may contribute to their increasing popularity. The number of patrons who visited all areas during the calendar year 1952 was 1,940,602—an increase of 271,357 over the previous year.

By serving the dual aspects of economic benefit and public service, we hope the integrated State Park system will promote greater economies in operation, better business for private operators, and more recreation for all who use the parks.

## SHORE AND BEACH PRESERVATION AND DEVELOPMENT

After functions of the Shore and Beach Preservation and Development Commission were transferred to the Forestry and Recreation Commission by the Reorganization Act of 1950, a series of meetings was held during the winter of 1950-51 with Seacoast Region interests regarding coastal problems. The matters directly concerning the Forestry and Recreation Commission were coastal erosion, harbor navigation, and harbor regulations.

On June 23, 1950, the State entered into contract with the Army Engineers for further studies of the Hampton Beach erosion problem. Though approved by the Chief of Engineers in November, 1950; work was deferred awaiting allotment of funds but carried out during the summer of 1952.

### Harbor Navigation

Three harbors are involved: Hampton, Rye, and Little harbors.

**Rye Harbor:** On November 24, 1950, request was made to the Army Engineers for study of Rye harbor, as it was too small to meet the public demand for its use. There were also problems of erosion and accretion within the harbor. On December 6 the Army Engineers' office replied that if such a study were authorized work could not commence for two or three years. Subsequently, the services of Public Works and Highways were enlisted and a long-range plan for harbor improvements, protection, and services was developed.

**Hampton Harbor:** Although three Federal examinations of Hampton River had resulted in reports unfavorable to any improvement of the shoal conditions, the Chief of Engineers on July 5, 1949, authorized another preliminary examination. In March, 1950, the Hampton town meeting requested immediate dredging of a safe channel and anchorage in Hampton harbor and other improvements. These local interests were advised that work on preliminary study would be commenced in 1951 if sufficient funds were available. To date no plans have developed.

**Little Harbor:** As this was a defense area and under Federal control, no project for its study was undertaken.

### Harbor Regulations

Pursuant to that portion of the section of the law which indicates the Forestry and Recreation Commission shall appoint harbor masters, appointment of the following was made for the calendar year 1951:

Hampton Harbor, Charles Moody; Rye Harbor, Ben Saunders; Little Harbor, Jack Sweetser.

Problems brought about by extreme inadequacy of Hampton and Rye Harbors led to legal action to enforce reasonable regulations for their use. Meanwhile, data is being gathered to indicate the economic benefits which would accrue from harbor improvements that plans for bringing them about may be hastened.

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## MERCHANDISING

The Merchandising office was organized in 1950 as an operating unit within the Recreation Division, in order to facilitate purchasing of re-sale merchandise, to effect savings through centralized controls, and to bring about better retailing procedures in selling souvenirs, gifts, and foodstuffs to the vacationing public. An office and central stockroom and staff of eight was established in Franconia Notch.

The two and a half years of operation, from July 1, 1950, show these results:

Gross income during the summer months has increased from $313,000 in 1950, to $418,000 in 1952, and the winter business has shown a proportionate rise from $26,000 to $36,000.

While the summer income increased from $361,000 in 1951 to $418,000 in 1952, the cost of goods sold for the same period increased only $12,000. This 5% reduction in the operating margin applied to our anticipated income of close to $500,000 will result in a fiscal year saving of $25,000, an amount sufficient to cover the payroll of this office for a year.

The number and variety of items offered for sale has nearly doubled from an estimated 3,000 in 1950, to over 5,000 in 1952. The number of vendors from which merchandise has been purchased has increased from approximately 100 in 1950, to nearly 250 in 1952. The number of purchase orders issued has increased from 367 in 1950, to an estimated 550 in the current year.

Also, it has been possible to encourage many small operators throughout the State of New Hampshire to produce merchandise which is attractive to the traveling public. This program, non-existent two years ago, leads us to hope that we might be able to purchase 10% of our needs from New Hampshire enterprise.

In pricing merchandise and foodstuffs we endeavor to be "in line" with private operations in the neighborhood. We are governed by

state health standards as the minimum in purchasing food items. Working with manufacturers, we try to develop quality and representative items so that those who purchase will also remember their visit to New Hampshire.

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## CRAWFORD NOTCH STATE PARK

Crawford Notch State Park, previously administered by the Forestry Division and leased to a private operator, was transferred to the Recreation Division early in 1950. The Commission approved a proposal that the facilities for sale of refreshments and souvenirs at Willey House Site, and the operation of a newly created campground and other recreational possibilities, be a direct operation of the Recreation Division.

This necessitated many changes, including removal of a number of sleeping cabins used by the lessee but not permitted by law as a State operation. On the old cabin sites picnicking accommodations were developed in a most attractive setting and proved immediately popular with the public.

The diesel operating plant was in need of immediate overhauling and the electrical wiring system was badly in need of repair and replacement. New counters and signs, built by the maintenance crew at Bear Brook, were set up. A stock room was built, the kitchen was revamped, and new equipment added.

At Dry River, in the south end of the Notch, a 20-site camping area was constructed and completely equipped with roads, water, fireplaces, tables, and toilets.

The operation was officially opened on May 28, 1950, for the season which ran some five months. In order to utilize more completely the existing area and to hold the interest of patrons in the Notch for a longer period of time, a native New Hampshire wildlife exhibit was set up on the far side of the pond across from the Willey House Site. This proved to be a popular attraction. Paths around the pond were cleared and improved and two bridges at the north end were rebuilt to complete a circuit of this area. Much re-landscaping also was carried on along this pond and around the souvenir shop.

Ox cart rides for children proved very popular when introduced during the 1952 season. The new camping area at Dry River showed a use of 1,280 camper days during this first summer. In 1952 this had increased to 1,980. The violent windstorm of November, 1950, caused damage at the Willey House area which necessitated extensive repairs. A new parking area was built there.

The growing popularity of this park since the Recreation Division assumed control is shown by the fact that the total attendance in 1951 was 384,950; during 1952 it rose to 438,150. Plans are now being developed to set a pattern of long-range improvements and extension of recreation in this notch.

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## FRANCONIA NOTCH STATE RESERVATION

During 1949 and through June 30, 1950, this Reservation was operated as two units. The Aerial Tramway Commission operated the Tramway as a summer and wintertime service. The Forestry and Recreation Commission operated The Flume, Lafayette Campground, and Profile Shop for summertime services. Coordination was brought about by engaging a Notch Director to take over the Forestry and Recreation Commission's functions.

Under the 1950 Reorganization Act, the Tramway Commission was abolished and, as of July 1, 1950, the Forestry and Recreation Commission, through the Recreation Division, assumed its responsibilities in addition to all state recreational functions in the Notch.

The late Roland E. Peabody, an original sponsor and later Managing Director of the Tramway, served the Forestry and Recreation Commission in the administration of the combined operations. Upon his passing in the spring of 1950, his son, Roger A. Peabody, has been Managing Director, carrying out the administration and operations in the Notch for the Division. Through this combining of operating units, it was possible to initiate steps for the more efficient utilization of staff and equipment, toward a combined administration of the Notch facilities and operations on a year-round basis. It is expected that with integration of this area into the State Park system, general benefits will accrue from sharing of experience, personnel, merchandising, and equipment, effecting greater economies and efficiencies.

Physical improvments were made by additional picnicking facilities at The Flume and improvement of its parking areas; mechanization of Flume trail maintenance; and enlargement and extensions to the building used by the Merchandising office.

Plans were developed for a bathing beach at Echo Lake, extension of ski facilities on Cannon Mountain and the Basin picnic area. However, financing was not available to carry these out.

Past maintenance and operation of the Tramway has brought nothing but praise from the American Steel and Wire Company, which erected it in 1937. A continuous and intricate pattern of inspection and maintenance has been carried out. Replacement of cables and wear-

ing parts has been attended to meticulously and the structure and equipment is basically "as good as new." Periodical examinations are made by the original contractors as well as the Westinghouse Company and the University of New Hampshire. A point of interest is an estimate of cost of the replacement of this mechanism made by the original erecting company, which found it to be in 1952 approximately double its original cost. Both safe and continuous operation has been achieved since its construction.

In addition to the Tramway, there was also originally developed an Alpine Ski Lift extending from near the summit a distance of 2,000 feet; a rope tow; and an extensive pattern of excellent ski trails. This development has given New Hampshire a strong appeal with skiers. However, there were some serious drawbacks to be overcome, such as the continuous line of skiers waiting for Tram cars during the winter season; the inadequacy of the present ski trail system to suit the large mass of novice skiers; the need for more capacity at the Tramway parking area; and the congestion within the Valley Building. Attention was focused on these and other factors adverse to efficient operations.

Through legislative capital funds to provide betterments in the State Park system, the Alpine Lift was extended nearly two hundred feet at its lower section. This provided a much better "take off" area and general circulation of skiers.

At the Base Building, a separate by-pass entrance was provided for skiers going to the Tram cars. This afforded greater ease and speed of Tram operation. New and improved trail signs were appreciated by skiers. A re-alignment of the rope tow on the practice slope provided greater speed, safety, and easier "take off." Considerable experimenting in snow treatment proved successful for the better maintenance of trails and included several innovations developed by the Ski Patrol and maintenance crew. Mechanization of maintenance was accomplished by utilizing a heavy freighter model sno-cat, rollers, "magic carpet," and other devices.

Emphasis upon public safety on the trails was rewarded by national recognition in the form of a Safety Award from the Eastern Division of the National Ski Patrol for 1950-51.

Minor changeovers in the parking areas and parking plan as well as a new approach to the Valley Station provided greater capacity and easier access. Improved entrance signs, use of flags, lighting, and snow sculpture provided a more pleasant scene calculated to enhance patronage. Snow sculpture was carried out by volunteers from the membership of the Dartmouth College Outing Club.

Pursuant to recommendations made by the Governor's ski advisory committee, plans have been developed through consultation with this committee and by Public Works and Highways personnel for considerable extension and different types of ski trails and up-ski devices on an undeveloped portion of the mountain.

Here, as at Mt. Sunapee, the difference between good and poor snow conditions is reflected in gross income rising from approximately $29,000 in 1950 (a poor season), to approximately $52,000 in 1951 (a moderately good season), to about $75,000 each for 1952 and 1953, more favorable snow seasons.

Camping at Lafayette Campground has grown rapidly over the years and operating losses have been cut to show a net gain in income. Since this is a trend at all of the parks, it would indicate that camping is rapidly growing more popular as a form of vacation for family groups.

There were increases also in admissions sold at the Flume gate during the 1949 and 1952 seasons. Some 70% of these visitors also paid for bus transportation to the Boulder Cabin. The two buses used for this purpose required replacement of motors and other structural changes in them for longer and safer service.

Structural reinforcement and re-roofing of the famous Covered Bridge was required during this period. Mechanization of Flume trail maintenance was carried through with moderate success. It is felt that this scenic area may soon need some added feature to hold its place in public esteem. Surveys will be carried out to ascertain feasibility of opening to wider public use the very scenic area of The Gorge.

Under the Reorganization Act, plans for improvements and operations in this Notch, as well as the other State Parks in the White Mountains Region, became a concern of the Directors of this Region Association. The Forestry and Recreation Commission confers with them in all matters to do with present and long-range plans that can be developed for the greater public services this Notch can provide.

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## BEAR BROOK STATE PARK

Several new services were experimented with to make this park more useful to New Hampshire residents. Most hopeful of these were experiments to provide saddle horses and skating. Both of these brought increased patronage during the first summer of the biennium.

By utilizing fire trails, hiking trails, and old wood lots, an interesting pattern of trail rides was available. A show ring was built and an informal horse show was held. For the winter program, the old CCC

barracks and mess hall were utilized, and an adjacent area was flooded and lighted.

While both these services were popular in a degree, they should be considered experimental and their continuance will depend upon significant interest and use.

Use of the park increased along with the general trend in all other state parks. This may have been somewhat stimulated by twenty new picnic sites installed in an area near the bathhouse.

The popularity of archery as a family type of recreation also increased use of this park. Through the efforts of the New Hampshire Bowmen, the roving archery range was continuously improved and extended and received growing use. It became the site of several state and inter-state archery meets and has been acclaimed by all who have used it as an excellent course.

This park is a service area to the State Park system which is made more valuable by buildings for storage. A 120-foot section of CCC barracks from an old Warner camp and a 60-foot garage from the old Haverhill CCC camp were disassembled and re-erected as adjuncts to the Supply Depot. This developed the Supply Depot capacity and permitted purchases in larger quantity and with greater economy.

During the winter season of the biennium, the park maintenance crew produced 324 picnic tables, 222 signs, 24 boats, and 25 Adirondack chairs for later distribution at various parks. All of the 132 buildings in the park were re-stained and painted and kept up with minor repairs throughout.

The forest improvement and cutting program of the Forestry Division made possible the purchase and storage of construction material used by the maintenance division in its program for the system. This material as well as the Supply Depot items were kept under strict inventory control with recorded charge-offs to parks and projects.

Under the Division's capital improvement program and through utilization of the prison crew, a tent campground with some 24 sites, a water and sewerage system, and beach was developed on Shingle Pond.

By changes in the law and through popular request, the park is divided for the taking of deer during the season. In approximately one-half the area, legal guns may be used, and in the other half only bow and arrow hunting is allowed. Demarcation of these areas, enforcement of regulations, and a check-in system for the safety of hunters has been worked out through the cooperation of the Fish and Game Department and the active assistance of the bowmen themselves.

By mutual agreement between the Forestry and Recreation Commission and the State Prison and with the approval of the Governor and Council, a prison crew has been made available to carry out projects for the Recreation Division. Based at this park, the crew has performed a variety of work and the experiment in all ways has proven successful. Work problems range from the cleaning and polishing of Division vehicles in storage during the winter season, to building maintenance and landscape projects. The prison provides a security officer with its men; transportation is shared between the agencies; and a project foreman is provided by the Division. The Division is charged on a per diem basis per man at an amount calculated to cover extra overhead expenses incurred by the prison. A project is set up in advance for year-round utilization of this manpower. A great measure of the success of this program is shared alike by the agencies and the men themselves.

Some of the larger projects accomplished at Bear Brook by this valued program were — Cutting and grading at site of Spring Brook Trout Pool, (pool built later by Fish and Game Department); planting of two thousand multiflora roses; extensive brushing and trail cutting all over the area, especially around the Spruce Pond Camp.

During 1952 the prison crew did a great deal of work on the rehabilitation of the old CCC Headquarters Building; carried out all the work on the new Bear Brook campground project, except the carpentry work on the buildings; and from September 15 to December 15 the crew cut ski trails for the snow bowl development at Mt. Sunapee.

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## MT. SUNAPEE STATE PARK

Mt. Sunapee State Park came to the Forestry and Recreation Commission to administer in November, 1949, after construction by the Highway Department as provided by law. The original funds shrank from inflationary factors by the time of construction, thus all facilities other than the chairlift were cut below full scale or eliminated. Organization of personnel was set up on the basis of a permanent staff of 13 to cover all phases of operation: office, food and souvenir sales, operation and maintenance of chairlift and tows, and maintenance of grounds. Operating periods were established from May 30 to October 20 for the summer season and from December 15 to April 10 for the winter season. During these two periods, the permanent staff was augmented by seasonal workers and part-time helpers.

In developing the promotion program, the slogan, "The Family Recreation Center," was adopted. An advertising campaign was

launched in local, state, and metropolitan newspapers showing what was available for every member of the family group. It produced hundreds of requests for information.

Construction projects have been carried out with some $12,000 of funds remaining in the original allotment from a legislative capital appropriation of 1949. These include development of picnic areas at the base and the top of the mountain; erection of a building covering the drive machinery for the chairlift; and general landscaping.

A new beach area and parking lot were built on the lake by filling in swamp land. The popularity of this area was such that by 1953 it was necessary to double the size of the parking area.

By utilizing full-time personnel during the off season, existent ski facilities were improved, new trails constructed and 22 miles of hiking trails developed. The upper safety system of the aerial chairlift has been entirely re-designed and the cable replaced.

For the winter season, great emphasis was placed on the careful maintenance of ski trails and slopes for maximum safety and for use with a minimum of snow cover. A sno-cat was purchased to mechanize ski trail maintenance, and equipment devised by park personnel for this purpose has been widely adopted by other ski areas in New England. Popularity of skiing at this park has doubtless been enhanced by these efforts, but this caused extremely crowded conditions over weekends, indicating that added ski facilities, if developed, would be useful and profitable.

Extra activities played an important role in aiding the appeal of the chairlift. One major innovation was the holding of mountain-top clambakes each week throughout the summer. The novelty of this feature, as well as the value, resulted in nationwide publicity and great public interest. In the second summer, the number of persons attending the bakes accounted for nearly a third of the total summer business.

Another attraction which proved very popular was the exhibition trout pool adjacent to the base terminal. This pool was stocked with rainbow and brook trout, and visitors enjoyed watching and feeding them.

Pops Concerts with orchestras and artists have become a regular feature of the park. Though attendance started off moderately, these weekly concerts now bring between three and four hundred people to the park on Sunday evenings through the summer. The layout plan of the area around the main building lends itself well to this purpose and provides a most attractive setting for these occasions.

Horse shows have been an annual feature when once a year the

Dartmouth - Lake Sunapee Horse Show is held through the efforts of local people on a voluntary basis. By use of the prison crew and the park employees, a horse show ring of standard size was constructed at the base of the ski slope. This general area turned over to this purpose lends itself well to this use.

Operations of this park during the winter season have been characterized by three poor snow years out of the four. Just what good snow conditions have meant to this park is reflected by the increased gross income of approximately $64,000 in 1952 over an average for the other three poor snow years of approximately $35,000. Local business appears to have been affected in about the same degree, indicating the close tie-in between this public function and private business nearby. Skiers overcrowd the park on "good skiing" weekends and holidays. Attention is being turned toward stimulating more during-the-week patronage. Considerable improvement to Route 103 has greatly facilitated access to the park, which is particularly important to the winter business. An excellent ski instruction school has been operated at this park and this, together with a high-grade of trail maintenance, has made it popular with skiers.

Betterment of this park and its services has met with increasing favorable public acceptance and has become a growing stimulation to local business.

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## MAINTENANCE AND DEVELOPMENT OF ALL AREAS

During the biennium continuing progress was made in the rehabilitation and development of State Parks. The 1947 Legislative Capital Improvement Program initiated in the previous biennium was carried along until the expiration of funds on July 1, 1950.

The Reorganization Act, effective July 1, 1950, established a Public Works agency within the framework of the Highway Department. To staff this new Department, four of the five men constituting the Design, Development and Maintenance Group were transferred there from the Recreation Division. The completion of State Park construction plans already in progress now became a responsibility of Public Works. To coordinate the planning with Public Works and to carry on the design, development and maintenance functions in the Recreation Division, the position of Recreation Maintenance Engineer was created.

A brief summary of major work projects performed on the parks from either capital or maintenance funds follows:

**Bear Brook State Park** — The rotted wooden tower and tank were removed and a steel water tower was erected at Spruce Pond Camp and a 12,000 gallon cypress water tank mounted thereon. A 20 by 120 foot section of CCC barracks was transported from Warner and erected beside the Supply Depot building for storage of supplies. A 25 by 60 foot CCC garage from the Haverhill camp was erected in the rear of the Supply Depot building for lumber storage. A concrete floor was added to the Group Use shelter, and the Camp III cabin was completely rebuilt for living quarters. All 132 buildings in the park were re-stained and painted. A 20 by 40 foot coal and wood shed was erected. Major repairs were made to the bathhouse and reinforced concrete slab poured to replace the leaky tile roof. Twenty new picnic sites were built in the area northwest of the bathhouse; complete with tables, fireplaces, and 750 feet of new water lines to service four outlets in the area. All the roads and driveways around the Supply Depot and the shops in Camp III were rebuilt and tarred to eliminate the mud problem.

At Bear Hill and Spruce Pond camps, the docks were rebuilt. The old CCC Headquarters Building was completely rebuilt for use as a group lodge. The CCC Library Building was given new foundations and sills as the first step in converting this old structure to a Recreation Hall.

The Shingle Pond public camping area was built with thirty-five sites, water and sewage systems, toilet and laundry building, and supervisor's quarters.

The Automotive Repair Shop at the Administration Group was converted to a mess and dining hall for the prison crew. A new wing was added to house toilet and wash facilities.

The Bathhouse was converted to winter use as shelter for skating on the pond and lights were installed for night skating.

**Chesterfield Gorge Wayside Area** — Work on this area initiated in the previous biennium was completed. A half mile of trail and four foot bridges were built; eight log picnic tables, six fireplaces, dry toilets, and signs were added to complete equipment of the area.

**Crawford Notch State Park** — In 1949 the Willey House parking area was rebuilt and oil treated; a boulder guard rail was installed around the parking area, and one of the old sections was loamed and seeded. At Dry River, in the south end of the Notch, a 20-site camping area was constructed and completely equipped with roads, water, fireplaces, tables, and toilets. Considerable vista cutting was carried out to improve the view at points of interest in the Notch.

In 1950, with the acquisition of the Willey House site, much improvement work was done here. This is detailed in the separate Crawford Notch section.

In 1951, the sheathing on the main dam was repaired; all foot bridges were widened and replanked; and extensive repairs were made to the Willey House area to correct damage resulting from the storm of November, 1950.

A new parking area was built south of the main building in 1952. The sewage disposal system for the main cabins was dug up and rebuilt. Also during this year, 25,000 board feet of Ponderosa Pine was salvaged from a wrecked railroad boxcar below Dismal Pool.

**Endicott Rock State Park** — In order to add to this park, work was coordinated with the Army Engineers' project to dredge the Weirs channel. A 150 foot granite grout jetty was built to retain sand pumped behind it, resulting in a 60 by 150 foot sand beach at the swimming area. The parking area was regraded, and asphalt sidewalk was added. The bathhouse was stained and painted and the Endicott Rock monument was refinished.

By legislative act in 1951, this park was sold by the State to the City of Laconia for $9,000.

**Echo Lake State Park** (North Conway) — Electricity was extended from the main road to the pump house and a new electric water pump provided in 1952. A new float was installed at the swimming area, and a dressing building erected.

**Franconia Notch State Reservation** —

Tramway: The base station was altered to allow skiers access to the loading platform without storing or carrying skis in the lobby. The Alpine Lift tension terminal was completely rebuilt and the lift line extended 185 feet to a better site. Extensive improvements were made to the ski trails and all trails, including the rim trail, were marked by new signs. The upper tow at the practice slope was relocated.

The Summit Observation Tower was completely rebuilt, using native Spruce treated by Osmosalts. The main lobby of the Base Station was repainted, as was the ski room, ski shop, and entire basement and lobby of the Mountain Station.

Using a new John Deere bulldozer purchased in 1952, trees were removed from the area in front of the Base Station and a wide central wall was built from the parking lot to the entrance. The lower parking area was regraded to facilitate plowing in the winter.

A new transformer base was constructed south of the Valley Station and the old station moved to the new site to eliminate an eyesore and permit landscaping of the area.

The main pulling cables on the Tramway were replaced under supervision provided by American Wire and Steel Company. This is a five to six year replacement.

Profile Area: The parking area was resurfaced. A new bridge was built. Interior alterations were made and roof and porch repairs caried out at the store, and new telephone line added.

The Ranger Cabin was reshingled and the porch repaired.

A water line was extended from the Profile Store line to supply the Arts and Crafts Shop.

Lafayette Area: The Lodge was treated with preservative stains, and considerable work was done to replace porch joists, planking, and railings.

The buildings at Lonesome Lake were completely rebuilt.

Three new camp sites were added and the toilet buildings were painted.

The Flume: Extensive planting and landscaping was carried out at the Flume. A new entrance shelter with turnstiles was erected, and the bus loading and turnaround area was regraded and 300 feet of new fencing erected. A reinforced concrete bulkhead was added to the Merchandising Headquarters. All the parking areas were resurfaced.

During 1951 the covered bridge was reshingled. The water line to the Merchandising Unit was dug up and lowered to permit winter use. A new public information building was erected. A tractor road was built to the Pool, and all trails were widened.

Basin Area: The foot bridges and railings were rebuilt.

**Hampton Beach State Park** — Construction of the new Hampton Toll Bridge resulted in a project completely relocating the park entrance. A contact station was built, signs erected, drives built and surfaced; curbing, landscaping, and planting were added to complete the project. The road surfaces at the central parking area were restored, and 50 park benches were built for use at the central beach. One hundred and fifty feet of boardwalk leading from the bathhouse to the beach was rebuilt, and considerable renovation of the bathhouse interior was carried out.

In 1951, the main vending counter was extended to full length, and a new counter built for the center of the lobby. Entrance signs and fences were repainted.

In 1952, rusted metal partitions in the men's wing were removed and roof supports rebuilt. Sixteen rusted metal doors were replaced with new wood ones; the storm sewer was flushed and a sand trap rebuilt; interior of the building was painted throughout; and the entire sea wall railing was scraped and repainted. Twenty oak benches were made for use at the central beach. Concrete window sills that had deteriorated over the years were replaced by new vibrated concrete sills made for us at the State Prison.

**Kingston State Park** — The entrance road was oil treated. A new water pump was installed. A new well was dug at the supervisor's residence. The main sewage system was reconditioned, and a new park entrance sign was erected. In 1951, the vending stand was enlarged and rebuilt. During 1952, the inner parking area was rebuilt and enlarged; twelve picnic sites were added; and the bathing beach which had eroded badly was rebuilt with sand from our pit.

**Monadnock State Park** — Work on the picnic area started in 1948 was completed. Chlorinated water lines were carried to the new camping area. A 20 by 35 foot salvaged CCC building from Warner was converted into a winterized residence for the supervisor with cellar, water, sewerage, furnace, and electricity. The park toilet buildings were enlarged and new fixtures added. One of the old shelters was converted into a vending stand. Nearly a mile of right-of-way was cleared to bring power into the park.

A new hiking trail was cut up the mountain. The former Forest Fire Lookout tower on the summit was rebuilt for use as a vending stand. Considerable clean-up was done to remedy damages resulting from the November, 1950, windstorm. A new large sign was built for the entrance road.

**Mt. Sunapee State Park** — A new beach area some 600 feet long was built in a swamp beside Lake Sunapee. Available funds permitted construction of the entrance road, dredging of the beach from the bottom by dragline, and partial filling of four acres in the swamp for parking. Temporary dressing and toilet buildings were erected, a well driven, and power brought into the area.

At the mountain area, the base terrain was graded, loamed and planted. A 40-unit picnic area was added west of the main building, along with a children's play area. A group use area was started east of the open slope and a large fireplace erected. A large shelter was built to cover the base engine room and lower terminus of the lift. A toilet building complete with water and sewerage systems was added to the

top area. The upper picnic area was refined and graded. An observation deck was erected on top of the upper shelter building.

Projects carried out during the spring and fall of 1951 included installation of 25 new noses attaching chairs to lift cable; construction of 12-foot deck around three sides of Mountain Station; construction of walk to Mountain Station; construction of horse show ring; new ticket office at main building. Rocks were blasted on the Lynx and Hanson-Chase by-pass trails; new backs for lift chairs were constructed; all lift chairs and hangers were painted; cable on chairlift was replaced; new motor was installed in the Junior Tow; snow grading equipment was developed; T-bar country was studied and mapped.

During the spring of 1952, ladders were welded to all lift towers; all steel work on the chairlift was painted; interior of bathhouses painted; rubbish pit and incinerator constructed in lower parking area; new railing installed around chairlift upper terminal; entire safety system on chairlift redesigned; automatic lubricating system for lower bullwheel was constructed; new poles and wiring installed around horse show ring; beach parking area enlarged; and considerable enlargement and alteration work was done to improve the capacity and efficiency of the main building.

**Moose Brook State Park** — The campground bridge was rebuilt and a new entrance sign erected.

**Toll Gate State Park** — A 12-unit picnic ground was constructed on the flat above the summit parking area. Vistas were cut here and along the mountain road. A general clean-up of dead trees improved the new picnic spot. An artesian well was drilled at the base, and pump house constructed.

**Rhododendron State Park** — All the buildings were stained and painted. Water was extended to the picnic area and the cottage sewage system rebuilt. The barn sills were replaced.

**Rye Harbor State Park** — The caretaker's house was repaired, painted, and altered to provide vending and toilet facilities. Water was extended into the area, and 14 picnic sites provided. The area was partially regraded, and a sign installed at the entrance.

The caretaker's house, partially destroyed by the fire in August, 1951, was rebuilt with added toilet and vending facilities. Cost of this was reimbursed from the Governor's emergency funds.

A clambake fireplace was constructed, and entrance to the park was landscaped with flowers, shrubs, and gates.

**Wadleigh State Park** — A new water pump was installed in the pump house. Considerable improvement cutting and thinning was carried out. Extensive cleanup after the November, 1950, windstorm was required, and trees were salvaged for lumber.

**Wellington State Park** — A completely equipped vending building was erected in the fall of 1949. The water system was rebuilt with new pumps, tanks and lines. A new pump house was added to the toilet building, and a new power line brought into the park and extended to the pump house at Hornet's Cove. The picnic area was enlarged and a dozen new sites added. Extensive storm salvage work was carried out on the islands, and an Adirondack shelter was erected on Cliff Island.

**White Lake State Park** — New toilets were installed in the bathhouse, and the sewage disposal field for the old campground toilet building was rebuilt. A shelter building was moved from the hill to the campground playfield. The supervisor's cottage was enlarged and converted into year-round living quarters. An ice house was built, and all roads in the old campground area were gravelled.

During 1952 campground unit No. 2 was completed, including toilet building, roads, camp sites with tables and fireplaces; water systems and pump house. New rustic playground equipment was built and installed. One hundred ice boxes were built and installed in the campground. The day-use parking area was doubled in size.

**Winslow Site State Park** — An artesian well was drilled and electric water pump provided.

**Annett Wayside** — A complete wayside picnic area of 20 sites was constructed in 1950 on the site of the old CCC camp.

**Daniel Webster Birthplace** — The main house was insulated, painted, and the heating system repaired.

**Franklin Pierce Homestead** — The old barn was salvaged and remodeled for public use with water and toilets provided. A sewage disposal system was added. Colonial type signs were built for better marking on the new highway.

**Intervale Ski Slope** — The superstructure of the suspension bridge was rebuilt in 1950.

**Other Plans** — In cooperation with the Public Works Department, finished plans were drafted for the completion of the Sunapee Beach area, the development of a swimming area at Echo Lake in Franconia Notch, and a master plan for Silver Lake Beach in Hollis. In

addition, field work was completed for further design at White Lake, Daniel Webster Memorial, Echo Lake in North Conway, and the Profile and Basin area in Franconia Notch. Topography for planning purposes, land acquisition and construction layout and supervision was provided by the Division on a variety of areas.

The maintenance crew in winter operations at Bear Brook built the following equipment: 324 picnic tables, 222 small signs, 19 large signs, and 12 toilets.