State of New Hampshire

BIENNIAL REPORT

of the

Forestry and Recreation Commission

1947 - 1948

Paper or canoe birch — the State Tree of New Hampshire.

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, 1948. This contains 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.

As use of the state forests, reservations and recreational areas increased during the post-war period of prosperity and desire for more and more people to travel, these years have called for an expansion of facilities and developments aimed at meeting the demand. Services to private forest owners have also risen greatly, and the disastrous fire season of 1947 has placed severe strains on the forest fire protective organization. In spite of the problems and difficulties encountered, the period has been characterized by an endeavor to satisfy public needs for our varied services.

W. ROBINSON BROWN,
HARRY K. ROGERS,
OWEN JOHNSON,
RANDALL E. SPALDING,
CHARLES E. GREENMAN,
Forestry and Recreation Commission.

JOHN H. FOSTER, *State Forester*

RUSSELL B. TOBEY, *Director of Recreation*

IN MEMORIAM

ELPHEGE J. COUTURE
1903-1949

The Forestry and Recreation Commission regrets to record the passing on January 28, 1949 of Mr. E. J. Couture, who has rendered outstanding service to the state for 30 years as administrative assistant in charge of forest fire prevention and control. Not only did he carry on the exacting forest fire details of the office, but by attendance at meetings of the County Forest Fire Wardens Associations and otherwise, he maintained a personal contact with town fire wardens, and other members of the fire organization throughout the state. His friendship was esteemed by them all. His unselfish devotion to the work of the Commission was without equal, and his long experience and familiarity with all aspects of forest fire administration make his loss irreparable.

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REPORT

of the

Forestry Division

FOREST FIRE CONTROL

Review of Fire Conditions—1946-1947

THE hot clear weather which ended the fiscal year 1945-1946 continued into July, 1946, culminating in a series of fires throughout the state by mid-July. Most of these were kept small. Fires in the Air Force Bombing Range in New Boston resulting from the use of practice rockets burned a considerable area, necessitating the use of troops from Grenier Field to hold the fires in the bounds of the range. Other large fires included Wakefield (55 acres), Laconia (40 acres) and Sanbornton (60 acres). Rain on July 21st ended the dry period and only a few fires occurred during the balance of that season. One of these was a 30-acre fire in Deerfield on October 17, 1946.

The winter of 1946-47 was open and mild with snow melting early in March. However, damp weather kept down the fires until April 10th. Then hot, dry westerly winds dried the pine, hardwood and grassland areas in the southern part of the state. Three fires occurred in Nashua totalling 254 acres and a series of fires took place in Pelham and Hudson with evidence indicating roadside incendiarism. A 4-inch snowfall on April 20th ended the period with a brief return to dry conditions in mid-May. On May 11-12th a hot, dry, southwest wind blew fires out of control in grass and slash lands in southern New Hampshire with a 640-acre slash fire in Chesterfield, a 20-acre slash fire in Richmond and Swanzey and a 30-acre fire in Hudson. Fires starting along the railroad in Pittsfield burned 212 acres threatening several sets of farm buildings. Cooler and damp weather then prevailed until the latter part of June. Rainfall exceeded the normal by 1.84 inches for that month. Temperatures rose sharply the last week in June and continued through July with frequent thunderstorms and generally humid conditions. Seven thunderstorms were observed on 15 days during the month with an exceptionally prolonged one on July 6th which produced 1.19 inches of rainfall. August was hot and humid but with only one rainy day on the 16th. Maximum temperature records of long standing were broken on the 14th, 24th and 26th and the month closed with a deficiency of 2.36 inches of rainfall. An unusual number of lightning fires were reported in July, while the influx of tourists, campers and berry-pickers resulted in a comparatively large number of fires from smoking and camp fires. Fires burned slowly however and these were kept small.

September was a quiet month in regard to fires. The hot weather continued until mid-month; then it became exceptionally cool. New minimum temperature records were established on the 27th, 28th and 29th with readings at Concord of 22°, 21°, and 25° respectively.

heroic measures. The same was true of a 500-acre fire in Newton which crossed over into Massachusetts. At Newbury the lines were held until early evening when fire broke out south along the ridge. Nearly 7,500 acres burned over in New Hampshire on that day. Governor Dale strengthened the woods closure by recommending the closing of little-used town roads and instituting town patrols.

LARGER FIRES OF OCTOBER, 1947

Location	Date Discovered	Cause	Acres Burned	Damage	Cost
Peterborough	October 7	Smoking	12	$60	$706.00
Dalton	" 12	Smoking	12	200	491.70
Salem	" 13	Smoking	10	300	43.85
Winchester	" 13	Smoking	100	500	2,074.14
Wentworth	" 13	Camp fire	40	200	11,900.26
Salem	" 14	Burning brush	40	250	362.84
Barnstead	" 14	Smoking	70	260	1,184.43
Hudson	" 14	Smoking	53	160	2,343.66
Newbury-Goshen	" 21	Lightning	2,125	8,350	54,028.11
Goshen	" 21	Smoking	150	610	2,217.24
Hampstead-Atkinson	" 21	Tractor	400	3,100	6,830.08
Pelham	" 21	Smoking	35	175	1,210.45
Allenstown	" 21	Railroad	9	40	1,348.69
Wakefield	" 21	Smoking	700	20,550	21,039.37
Farmington-Rochester	" 21	Railroad	7,333	34,100	35,767.68
Madison-Freedom	" 21	Smoking	375	3,290	7,076.00
Sandwich	" 21	Lightning	80	800	12,778.69
Plymouth	" 22	Smoking	40	400	3,917.88
Strafford	" 22	Smoking	50	500	2,383.10
Freedom-Effingham	" 23	Smoking	1,225	161,200	23,064.00
Salem-Atkinson	" 23	Smoking	1,518	11,500	6,575.63
Newton	" 23	Smoking	600	3,400	3,512.11
Franconia	" 23	Smoking	35	350	1,335.50
Fitzwilliam-Troy	" 23	Smoking	150	2,510	4,199.70
Peterborough-Sharon	" 26	Incendiary	15	124	3,034.08
Barrington	" 28	Smoking	65	120	458.19

The National Guard was alerted and mobilized to help out in the fire areas with communications, fire fighting, and controlling traffic. The number of new fires immediately dropped and by the week's end all fires were brought under control and held until the rains came on October 29th. The woods closure was lifted from Coos County October 31st and after 2.89 inches of rain fell on November 8th the rest of the state woods were opened on November 9th.

The 1948 Season

The year 1947 ended with -4.57 inches accumulated departure from normal precipitation. The winter of 1947-1948 had a total of 87.9 inches of snow which in precipitation amounted to only 6.19 inches of rain; this resulted in further increasing the existing deficit by 2.84 inches. The snow held on until early April, then melted very quickly. Streamflow dropped rapidly and dry conditions prevailed throughout the state, especially in the north central part.

On March 31st a fire in Easton burned 35 acres. This was followed on April 5th by fires burning 25 acres in Milan and 45 acres in Nashua. Such fires in the northern area so early in the spring are unprecedented. On April 24th, 150 acres burned before a brisk wind in Wakefield and on the 26th Lisbon had a 75-acre fire. Sixty acres burned on Fall Mountain in Walpole. In early May, fires in Lebanon and Rumney each burned 20 acres. There were many small fires during this period in the southern part of the state.

The most unusual fire and the largest in Coos County for many years started from a fishermen's camp fire northeast of Berlin on June 4th. This fire burned over 931 acres in Berlin and Milan and proved very stubborn and difficult to control in spite of generally wet weather prevailing. The reason can be traced to the accumulated deficiency of soil moisture. An excess of rainfall in June resulted in few fires that month.

NUMBER OF FIRES BY MONTHS

(Exclusive of Railroad Fires)

Fiscal Year Ending June 30th

Month	1946-47	1947-48
July	90	28
August	8	44
September	12	27
October	13	214
November	6	11
December	12	3
January	0	0
February	1	0
March	39	30
April	112	126
May	96	43
June	14	12
Totals	403	538

Wakefield - Newfields fire approaching farm buildings that were afterwards consumed October 21, 1947.

FIRE RECORD FOR FISCAL YEARS 1947 AND 1948

(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 Fighting Per Fire
Belknap	1947	23	217	9.4	$122.00	$5.30	$2,586.67	$112.46
	1948	35	155	4.2	501.00	14.31	4,408.08	125.94
Carroll	1947	26	76	2.9	571.00	21.96	2,996.86	115.26
	1948	64	2,523	39.4	190,638.00	2,978.71	71,365.13	1,115.08
Cheshire	1947	45	1,055	23.4	4,384.00	97.42	4,406.73	97.93
	1948	65	419	6.4	3,352.00	51.53	10,565.62	162.55
Coos	1947	17	34	2.0	179.00	10.52	412.98	24.29
	1948	46	1,052	22.8	7,628.00	165.82	11,943.02	259.63
Grafton	1947	21	48	2.2	716.00	34.09	739.76	35.23
	1948	53	275	5.1	3,298.00	62.22	22,844.78	431.03
Hillsborough	1947	100	556	5.5	2,265.00	22.65	2,973.08	29.73
	1948	86	255	2.9	789.00	9.17	10,044.54	116.80
Merrimack	1947	55	106	1.9	219.00	3.98	1,524.79	27.72
	1948	67	2,225	34.9	10,901.00	147.77	56,588.86	844.61
Rockingham	1947	81	184	2.2	789.00	9.74	1,657.75	20.47
	1948	78	2,698	34.5	19,757.00	253.29	22,144.50	283.90
Strafford	1947	21	94	4.4	406.00	19.33	382.97	18.23
	1948	25	179	5.1	4,813.00	192.52	3,714.02	148.56
Sullivan	1947	14	12	.8	947.00	67.64	544.31	38.88
	1948	19	297	15.6	3,296.00	173.47	7,995.50	420.81
State Totals	1947	403	2,382	5.9	$10,598.00	$26.29	$18,225.90	$45.22
	1948	538	10,078	18.7	$244,973.00	$455.34	$221,614.05	$411.92

FOREST FIRE RECORD FOR THIRTY-NINE YEARS

(Exclusive of Railroad Fires)

Year	No. Fires	Area Burned Acres	Average Area Burned Per Fire Acres	Damage	Average Damage Per Fire
1910	272	9,038	33.2	$40,000.00	$147.06
1911	462	30,958	67.0	175,000.00	378.79
1912	344	8,474	24.6	62,000.00	180.23
1913	609	14,507	23.8	100,000.00	164.20
1914	315	8,119	25.8	53,000.00	168.25
1915	792	29,480	37.2	174,567.00	220.41
1916	128	6,630	51.8	40,075.00	313.09
1917	197	1,680	8.5	18,205.00	92.41
1918	357	8,693	24.3	94,468.00	264.61
1919	308	3,502	11.4	41,287.00	134.05
1920	138	1,996	14.4	17,681.00	128.12
1921	276	7,172	26.0	59,503.00	215.59
1922	295	9,484	32.1	94,917.00	321.75
1923	199	2,333	11.7	27,786.00	139.63
1924	330	5,351	16.2	83,347.00	252.57
1925	486	8,368	17.2	97,508.00	200.62
1926	295	8,181	27.7	115,614.00	391.91
1927	367	9,420	25.7	75,762.00	206.44
1928	271	4,714	17.4	27,090.00	99.96
1929	192	1,661	8.7	9,188.00	47.85
1930	765	18,750	24.5	93,191.00	121.82
1931	363	4,882	13.4	38,994.00	107.42
1932	485	5,080	10.5	39,760.00	81.98
1933	542	7,485	13.8	55,524.00	102.44
1934	370	2,920	7.9	10,043.00	27.14
1935	488	2,667	5.5	15,122.00	30.98
1936	387	2,011	5.2	12,548.00	32.42
1937	433	2,906	6.7	13,451.00	31.06
1938	488	4,400	9.0	20,524.00	42.06
1939	410	5,080	12.4	32,307.00	78.80
1940	691	2,069	3.0	23,827.00	34.48
1941	699	36,533	52.3	211,255.00	302.22
1942	538	4,928	9.2	24,851.00	46.19
1943	307	1,235	4.0	23,972.00	78.08
1944	496	3,422	6.9	26,213.00	52.85
1945	319	1,116	3.5	4,799.00	10.59
1946	402	2,989	7.4	106,517.00	264.97
1947	403	2,382	5.9	10,598.00	26.29
1948	538	10,078	18.7	244,973.00	455.34
39 years total	15,757	300,694		$2,415,467.00	
Annual Average	404	7,710	19.0	$61,935.05	$153.29

RAILROAD FIRE RECORD FOR FISCAL YEARS 1947 AND 1948

Year	No. of Fires	Total Area Burned Acres	Average Area Per Fire Acres	Total Damage	Average Damage Per Fire
1947	56	294	5.2	$1,689.00	$30.16
1948	82	7,457	90.9	$259,378.00	$3,163.14

COMBINED FOREST FIRE RECORD FOR FISCAL YEARS 1947 AND 1948
ALL AGENCIES REPORTING

Year		Town	Railroad	White Mountain National Forest	Total
			Number of Fires		
1947		401	56	2	459
1948		538	82	0	620
	Total	939	138	2	1,079
			Area Burned (Acres)		
1947		2,382	294	2	2,678
1948		10,078	7,457	0	17,535
	Total	12,460	7,751	2	20,213
			Damage		
1947		$10,587.00	$1,689.00	$11.00	$12,287.00
1948		$244,973.00	$259,377.00	0.00	$504,350.00
	Total	**$255,560.00**	**$261,066.00**	**$11.00**	**$516,637.00**

Burned area in Wakefield - Newfields fire. 150 cords of wood were burned on this site.

State-Owned Fire Equipment

In order to keep the state-owned portable fire pumps and hose strategically placed about the state in first class order, it was necessary to purchase three new Type Y Pacific Marine Power pumps and 13,000 feet of 1½" rubber-lined hose. Three new pump heads were purchased for repairs and five pump heads and two motors were overhauled. Hose bags for linen hose were purchased to replace those lost during the 1947 fires. A new pump kit was placed at the Tram-

way in Franconia Notch and another with the District Chief Assistant in Rochester. The New Hampshire Timberland Owner's Association turned over their pump to the state and this is now being maintained as a complete pump unit at Groveton. Eighteen additional surplus Signal Corps field telephones and 8 miles of double field wire were purchased to aid in communication on fires. Some of these phones are also in use as test sets for our lookout telephone lines. State-owned fire tools were used extensively during the fall of 1947 and since that time fire fighting tools and equipment have been purchased to maintain the kits at full strength. Two new war surplus 14′ x 14′ wall tents were purchased and have already had service as headquarters on one fire.

Six new vehicles were purchased to replace those inherited from the CCC. These include one station wagon, one panel sedan, and four pickup trucks. In the fall of 1948 two new station wagons replaced veteran station wagons each of which had over 170,000 miles of service. At Bear Brook State Park a ten-stall garage was constructed of salvaged CCC camp lumber to house vehicular equipment formerly stored in the National Guard garages in Concord. Two stalls of this building form a workshop suitable for indoor repairs of equipment or for instruction. The whole building is wired for electric lights and power tools.

In order to provide permanent town maps to replace present maps as they become worn out, it is now the practice to mount these on a metal sheet. The drafting and preparation of these maps involves many hours of a draftman's time and it is hoped that the new method will eventually result in great economy.

Lookout Station Improvements and Maintenance

The comfort of the lookout watchman's living quarters has been improved at a number of stations. At Warner Hill, Belknap Mt., Jeremy Hill and Federal Hill the interior of the cabin has been insulated and drop insulated ceilings installed, thus making the cabin cooler in summer and warmer when heat is necessary. Electric lights already installed at Warner Hill have been brought to Jeremy Hill and Federal Hill. The installation of electricity at the lookouts is also in anticipation of providing two-way radio for direct communication. A new tower cabin was constructed at Bear Hill incorporating these new improvements. Lookout cabins are also being improved by the addition of screened porches. An auxiliary camp was constructed at Magalloway to provide additional storage facilities and shelter for the watchman near the west end of the Pittsburg telephone line. Besides the usual maintenance jobs about the stations, considerable expense was incurred by repairs to the Crotched Mt. and

Monadnock Mt. lookouts damaged by vandalism. The stone lookout cabin on Monadnock is located at the summit far above timberline and extensive damage has been caused repeatedly by breaking up doors, windows and shutters for firewood.

Twelve pairs of binoculars were purchased and several others rebuilt. Six new wall maps of improved design were made and installed to provide precise cross checking when used with the more accurate Osborne Fire Finder, a new model of which was installed at Croydon Mt. lookout. To facilitate repairs on steel lookout towers, a portable generator was purchased to run a power drill. This can also furnish emergency flood lights. The grounded telephone line from Magalloway Mt. to Hell Gate, Dartmouth College Grant, was rebuilt and has given a much needed outlet to the east side of that section.

Andover town crew fighting pulpwood fire on Kearsarge Mountain August 11, 1948.

TOTAL NUMBER OF FOREST FIRES, AREA AND DAMAGE BY CAUSES
For Fiscal Years 1947 and 1948

Causes	Percent Total No. of Fires	Percent Total Area Burned	Percent Total Damage
Railroads	13.0	38.0	50.5
Smokers	39.3	32.9	41.9
Burning Brush	20.3	3.0	1.4
Miscellaneous	10.0	.9	1.2
Lumbering	3.1	3.4	1.0
Incendiary	4.0	.4	.1
Lightning	3.3	11.4	2.0
Camp Fires	3.0	8.0	1.6
Unknown	4.0	2.0	.3
Total	100.0	100.0	100.0

FIRE LOOKOUT STATION STATISTICS

Name of Station	Number of Smokes Discovered		Number of Fires Reported		Number of Visitors Registered	
	1947	1948	1947	1948	1947	1948
Bear Hill	35	(2)	32	(2)	580	(2)
Belknap Mt.	162	71	83	32	1,657	1,539
Blue Job Mt.	80	61	43	34	816	855
Cardigan Mt.	40	18	38	18	2,383	2,870
Craney Hill	175	160	26	44	303	348
Crotched Mt.	(1)	(2)	(1)	(2)	(1)	(2)
Croydon Mt.	24	82	22	62	6	23
Deer Mt.	4	8	0	2	101	89
Federal Hill	71	82	66	67	642	352
Great Hill	27	15	11	10	603	245
Green Mt.	33	18	17	8	1,122	903
Hyland Hill	68	35	48	30	227	164
Jeremy Hill	169	105	94	43	569	927
Kearsarge Mt.	167	115	86	79	7,832	8,656
Magalloway Mt.	4	20	2	5	4	395
Milan Hill	465	35	315	35	7,477	794
So. Pack Monadnock Mt. (Miller Park)	77	27	18	6	5,178	4,458
Monadnock Mt.	(1)	(3)	(1)	(3)	(1)	7,233
Oak Hill	254	185	89	51	173	193
Pawtuckaway Mt.	85	77	19	30	2,167	1,901
Pitcher Mt.	10	35	1	4	763	758
Prospect Mt.	46	95	0	0	4,316	4,749
Red Hill	298	185	52	40	1,205	1,060
Rock Rimmon Hill	255	154	53	94	673	433
Sam's Hill	(1)	(2)	(1)	(2)	(1)	(2)
Signal Mt.	157	17	157	17	419	63
Smarts Mt.	(1)	(2)	(1)	(2)	(1)	(2)
Stratham Hill	100	55	39	23	1,558	1,682
Sugar Loaf Mt.	(4)	1	(4)	0	(4)	5
Uncanoonuc Mt.	157	161	56	60	1,124	3,076
Warner Hill	224	110	98	50	297	167
Totals	2,927	1,927	1,464	844	38,195	43,938

(1) Not Operated in 1947
(2) Not Operated in 1948
(3) No Record
(4) Operated June, July and one week in November, 1947.

Sawmill Operations

The number of sawmills registered in 1947 was the highest recorded during the 23 years since registration was required by law. This includes mills of all kinds located where their operation may produce a fire hazard. The number decreased somewhat in 1948. The decrease may be due to location in non-hazardous situations, or to the mill being idle. There is a tendency for some mills to locate in stationary settings and truck in logs. On the other hand strictly portable mills move from one setting to another more frequently as the timber lots operated become smaller and more scattered. It is this latter class of mills that create the most serious fire hazard.

REGISTRATION OF SAWMILLS*

Calendar Year	Number of Mills Registered			Number of Permits Issued		
	Steam	Gas & Other	Total	Steam	Gas & Other	Total
1947	24	395	419	7	616	623
1948	19	370	389	11	550	561
24-Year Av.	80	162	242	100	291	391

For complete tabulation since July 1, 1925 see 1945-46 Biennial Report, Page 30.

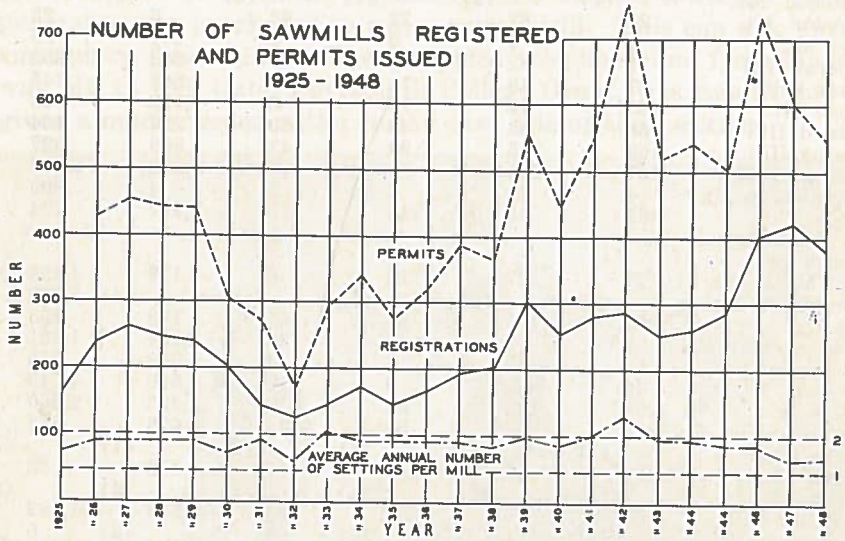


Chart showing numbers of sawmills registered, and average annual number of settings per mill.

Administration

The use of airplanes for scouting fires has increased. In October, 1947, they rendered much valuable aid on a local basis. In the winter of 1947-1948 agreements were worked out with the Civil Air Patrol for future aerial reconnaisance, patrol and scouting of fires. Tentative plans were made for the intercommunication of all organizations using radio in the event of widespread fires or other disaster. During 1948 all wardens and deputies were supplied with a distinctive aluminum and green identification plate for their cars. Their use will identify fire personnel and facilitate travel in the fire areas.

After two years of study the form of town fire plan was revised. The condensed and simplified form is intended to give on a single sheet all the town fire information which would be of value to wardens, deputies, district overhead dispatchers and District Chiefs.

Radio Communication

As of March 1, 1949 the Federal Communications Commission has assigned 153.11 and 153.35 megacycles for fixed station and mobile operation to the New Hampshire Forestry and Recreation Commission. It has been suggested that one frequency of 153.35 megacycles be used as fixed station and mobile work. This is to be shared with municipal fire departments, thus making intercommunication possible between these departments and forestry field men and lookout towers.

Frequency modulation equipment, greatly improved since the end of the war, has been demonstrated by tests to function well in New Hampshire, and the Commission has decided to procure this type of equipment when present difficulties can be overcome. Electric current is already available to five of our lookout stations and can be connected to nine more. This will make possible the use of standard A. C. power sets in these stations and obviate the need for battery-charging devices.

Fire headquarters camp on Wentworth fire.

Mr. Leroy Mansfield has been very active in trying to enlarge radio service along these lines. Our limited facilities were kept in active use during the October, 1947 fire period. Their use then demonstrated how useful this type of communication can be and also the need for a state-wide coverage using frequencies exclusively reserved for the forest fire service.

The cities and towns now using the same frequency as the forest fire service are: Manchester, Concord, Nashua, Franklin, Boscawen, Canterbury, Loudon, Hampton Beach and Wolfeboro. Portsmouth is

on one of the F. M. frequencies assigned to the forest fire service and Tilton and Northfield expect to come in on F. M. Largely through the efforts of the New England Section of the International Municipal Signal Association, the fire departments in the smaller communities have had certain frequencies made available to them. The Laconia Fire Department is operating on one of these. Fire departments using radio in cooperation with their own local police are Keene, Claremont, Rochester and Berlin. In the long range view of this situation it seems best for those departments which work together to be on the same frequency but that the forest fire services should use two frequencies of their own. A system of stations tuned to each other's frequencies at key points would allow intercommunication between these groups.

Fire Training

Considerable progress has been made in training for forest fire fighting during this biennium. The field training meetings started in the spring of 1946 and were completed in the fall of that year. Aside from two training meetings in the White Mountain area in the spring, little actual training was done in 1947. The interest aroused by the intensive sessions of 1946 held over into the spring of 1947. In the fall it was so dry that it was inadvisable to take the overhead fire personnel away from many towns at one time.

The fires of October, 1947, showed up the weakness as well as the strength of the New Hampshire organization. One of the weaknesses was lack of reserve-trained supervisory personnel to help on prolonged and difficult fires. This need had been recognized by the department and by the Federation of Forest Fire Wardens Associations, but difficulties in selection and training of personnel had hitherto proved too great an obstacle. However in 1948, ten men were selected in each district and on March 16-18th the first state-wide, state-sponsored, fire training school was held at the old CCC Camp in the Bear Brook Reservation. Over 100 men received two days of intensive training in fire organization, equipment operation, radio and scouting and were given much information on the latest methods of fire fighting and types of equipment available. These men are listed as special deputy wardens and are at the service of the town wardens through a call to the District Chief or his dispatcher. The service that can be rendered by these men has already been demonstrated in the field. Their future value depends on continued training and the working out of administrative details.

In January, 1948 plans for a series of warden training meetings were formulated and during the following months 37 meetings were held throughout the state. These were held in the evening and took

the form of instruction conferences. Wardens and deputies participated in the development of the various subjects under discussion. The theme of these meetings was organization: especially warden and crew-boss organization. Most interest was shown in those parts of the state affected by the October, 1947 fires.

Four field meetings stressing organization on large fires were held. Problems were carried out with the use of telephone, radio, and messenger communication. Attendance at training meetings by wardens and deputies is voluntary, those attending being paid for their time and expenses.

The training of high school students in fire suppression has been limited to those districts where district fire assistants can give time to this work.

Burned area in Marlow 5 years after the fire.

Legislative Proposals for Forest Fire Control

When the present law providing for clearance of slash 100 feet from portable sawmills was enacted, most mills were steam-powered. At present, however, most portable mills are gasoline or diesel-powered and with the hazard thus reduced it is proposed to reduce this clearance requirement on such mills to 60 feet with, however, the provision that the sawdust pile or shaving pile at all mills where these remain a hazard long after the mill has gone, be separated at all times by 25 feet from any slash, mill waste or the mill itself. It is also suggested that incinerators be classed with steam mills in requiring a 100-foot clear area in all directions.

It is also proposed that since the inspector of a mill is the authorized agent of the State Forester, he be empowered to cancel the permit when he finds violations that warrant this action. This action would often result in immediate correction of the violation and save time for both the operator and the inspector. To lessen the hazards of logging slash to property and human life and to facilitate the control of woods fires along highways, it is recommended that such slash be removed to a distance of 100 feet from an occupied house and 60 feet from the nearest edge of the travelled part of a highway. The Commission also should have the power to require the removal of slash from lumber camps when these are deemed an unusual hazard.

To strengthen and clarify the law requiring the felling of trees away from boundaries, it is recommended that slash be removed a distance of 25 feet from boundaries at the time of cutting.

In order to clarify and facilitate the paying of fire bills, Section 26, Chapter 233 of the Revised Laws should be amended outlining the procedure by which fire bills shall be paid. To make a more equitable apportionment of the expenses of fighting forest fires by municipalities as referred to in Section 24 of the same chapter, it is desirable to change the words "Total assessed" to "equalized" where they refer to valuation of the municipality.

At present the complete closure of the woods as provided under Section 37 of Chapter 233 of the Revised Laws is the only closure permitted. This prohibits many normal activities in woodland which, if smoking or open fires were forbidden, could still continue. By empowering the Governor and Council to prohibit smoking in or near woodland or the kindling of any open fire during periods of protracted drought or extreme dryness, much of the desired prevention will be accomplished without a complete woods closure.

Forest Fire Prevention

Presenting forest fire information is a continuing process. Exhibits were displayed at the various fairs throughout the state in the fall of 1946. In the spring of 1947 a series of panels carrying a fire prevention message and an exhibit were displayed at the Farm Labor Saving Fairs which travelled the state in February and March. Again in the fall the same panels with a new display of equipment carried the message to the fair-goers at seven of the state's fairs.

In cooperation with the national program for forest fire prevention sponsored by the U. S. Forest Service, thousands of posters, bookmarks and blotters have been distributed about the state to schools and in public places by the District Fire Chiefs. Teachers have been asked to bring this matter before their classes especially in the spring

and fall. An illustrated story-book on fire prevention entitled "Gabby and the Forest Fires" was distributed to every grade schoolroom in the state. Four motion pictures on fire prevention were acquired by the department and among others are being shown to schools, clubs, and many other organized groups. Posters and warning letters are sent out to mill operators at times of high hazard, enlisting their cooperation. Wardens placed hundreds of outdoor posters as well as aided in the distribution of seasonal posters and fire prevention literature. When the woods were closed in October, 1947, the wardens posted ban notices in their towns, closed off back roads, and inaugurated patrols which in many cases caught fires at their start. Radio recordings on fire prevention were distributed to all stations in the state and numerous radio talks were made during times of critical fire hazard.

Forest fire display panel shown at County fairs 1948.

On October 14, 1947 the department participated in the Governor's Conference on Fire Prevention called as part of the national effort to cut down the tremendous loss of property and lives in this country.

The continued inspection of sawmills and woods operations to enforce the slash disposal requirements, and procurement of fire fighting equipment has greatly lessened fire danger from this source. Enforcement of the requirement to have a permit for all outdoor waste disposal fires and the prosecution of violators of this law has done much to prevent fires. This and the law forbidding the disposal of lighted material in or near woodlands needs much wider and general publicity if they are to become wholly effective. Some of our most destructive fires are from carelessness in this regard.

A fire prevention message was printed on an orange-colored card together with a resume of the fire laws and who to call in case of fire. These were designed for inside use and wardens have posted them by the hundreds in camps, cottages, and summer homes to acquaint the seasonal visitor to New Hampshire's woodlands with our fire laws and the precautions necessary to prevent forest fires.

A special fire prevention panel was displayed at eight fairs during the fall of 1948 for a total of 22 days. In addition fire prevention was stressed at three other fairs for a total of 14 days.

WHITE PINE BLISTER RUST CONTROL

INTRODUCTION

NEW Hampshire, by reason of its geographic location, terrain and soil, has always been primarily a forest state. Its rocky hill and mountain sides, and the more level, but sandy plains, have proven to be better suited, on the whole, for timber production than for agricultural crops. According to the best available information 83.9 percent of the land area of this state is in some form of forest growth. Of the total forest area, statistics indicate that white pine constitutes nearly 30 percent.

In those early days, some 300 years ago, when the colonial settlers pushed northward from the Bay State Colony and the Portsmouth shores, white pine not only provided a plentiful supply of building material, but also produced much revenue from the sale of logs and lumber in the export trade, and furnished spars for the shipping of those days. On down through more than three centuries white pine has contributed, as has no other tree, to the advancement and financial welfare of this state. Following the decline of agriculture, which is said to have attained its peak around 1860, white pine has repeatedly taken over sites formerly given to agriculture. An early report—(1885)—of the New Hampshire Forestry Commission stressed this fact:

> "Springing up as it does on so many worn-out and abandoned farms, white pine has made industry and wealth possible to many parts of the state which otherwise would have been wholly deserted."

Today white pine still maintains its rank among the trees of our forests, for it supplies over 70 percent of the annual lumber production of this state. From returns made to the State Forester during a ten-year period ending with 1947, the total cut of white pine was 2,548,480,000 board feet. While the yearly cut has fluctuated, the average annual production has amounted to over 254 million feet.

The tremendous exploitation of white pine during this decade has brought about a situation which makes the control of the blister rust disease more imperative than ever before. Based on the total production of this species during the period of 1938 to 1947 inclusive, the combined areas cut over amount to around 500,000 acres. Although this pine, prior to its cutting had received protection from the rust, the logging operations brought about a disturbance of the soil, resulting in a re-occurrence of wild currant and gooseberry bushes. Inspection of a large percentage of these cutover lands indicated an excellent re-seeding to white pine; unfortunately, however, infection

studies on over 500 of these areas have revealed the presence of the rust, with killing of these young trees already taking place. In the interests of a future crop of white pine, it is vitally important that all such young growth be given speedy protection by the destruction of existing currant and gooseberry bushes.

Cooperative Control of Blister Rust

Control of this disease in New Hampshire has long been of a cooperative nature; towns, cities, individuals, the state and federal governments all working together. Of the total funds expended for control work the State of New Hampshire has put up 14.23 percent; towns, cities and individual pine owners 22.23 percent, and the federal government 63.54 percent.

Town Cooperation—1947

From returns made to the State Forester by the boards of selectmen following town meeting, it developed that 71 towns appropriated $21,750. Subsequent action by the cities of Concord and Keene increased the total of local funds to $23,550. Of the total number of towns cooperating in blister rust control this year, 53 percent voted $400. each. Unexpended appropriations from eight towns, held over from 1946, were made available by these towns.

The supply of labor, while showing some improvement over that of the previous year, was not too abundant. The scale of wages offered by private industry was considerably higher than that allowed state and federal agencies. Furthermore, in blister rust control work crews are paid when actually employed, and therefore, due to inclement weather in much of May and June, the labor turnover was considerable. While every effort was made to employ local men in the towns cooperating with the state, labor shortage often made it necessary to use crews made up from labor obtained in nearby communities. Scarcity of private transportation was also a factor which influenced the sources of labor, although this problem was solved in some instances by the use of federal-loaned trucks. Contrary to quite general opinion, blister rust control work is far from being an easy job. A crew of five men work in line formation, the distance between each man varying from six to eight feet, with the average crew-strip being about 30-40 feet in width. These strips are run straight across an area, irrespective of ground conditions or cover. Such work calls for men of good physique and eye-sight.

On the concluding pages of this report will be found a summary of accomplishments in control work for the two calendar years. At the conclusion of each season a report of work, including a financial

statement of expenditures, is prepared by the State Forester's office, and mailed to the board of selectmen of each town wherein blister rust control was performed.

Application of Sec. 9, Chapter 238: Revised Laws

Under the authority of this section of the public laws, and with the approval of the Governor and Council, the State Forester may require blister rust control measures in such towns as have failed to appropriate funds for this purpose, and where the presence of currant and gooseberry bushes constitutes a menace to the white pines. While, as a whole, the support given by New Hampshire towns and cities as well as private white pine owners, has been splendid and an example of cooperative effort between a state and its political subdivisions, there have been some towns in which control work has lagged. Therefore, authority to apply this section of the state statutes was requested by the State Forester, and on July 8, 1947, granted by the Governor and Council in 22 towns. In no case did expenditures, on the part of the town, exceed the legal limitation of $400.

Federal Cooperation—1947

Allocations for blister rust control from the federal government are made on a fiscal year basis, but since the seasonal period for eradication work comprises portions of two fiscal years, the amount of such aid for the calendar year of 1947 will include that for six months each of the fiscal years 1947 and 1948. The total federal expenditures amounted to $55,751.98. Of this sum $43,511.50 was expended for the wages of local labor; the balance representing purchase of trucks used in transporting crews, the operation and maintenance of trucks and in miscellaneous purchases of field equipment. Federal aid during 1947 amounted to nearly 1-1/3 times the combined total of state and town expenditures for the same year.

Mapping of White Pine and Control Areas—1947

Detailed surveys of white pine areas and the necessary protective zones prior to the eradication of currant and gooseberry bushes is an important and necessary part of the whole program of controlling the blister rust disease. In addition to giving information as to the location, extent and character of white pine areas, such maps indicate drainages, walls and fences, (the most likely sites for wild currant and gooseberry bushes) and also show woods-roads and trails which enable large areas of forest land to be easily sub-divided, and facilitate getting in, out and around such lands. Apart from their intended use in rust control, these detailed maps have been used by many New Hampshire towns in the construction of town maps for property

records and other purposes. A large proportion of the cost of these surveys has been paid for from the annual federal allotment previously mentioned. Mapping is confined principally to the fall, winter and early spring months preceding the next control season. During the calendar year 1947 a total of 166,600 acres was detail-mapped; the average daily coverage being slightly in excess of 118 acres. Since this accomplishment includes all field work and drafting, the actual area mapped per eight-hour day is considerably in excess of the foregoing figure. This large coverage has been made possible through the use of aerial photographs and new techniques in mapping practices.

Thinning in white pine. Only by repeated checking can such stands of our most important tree be grown to maturity without serious loss from blister rust.

Town Cooperation—1948

At their annual meeting in March, 83 towns appropriated a total of $27,434. Action subsequently taken by the cities of Claremont, Concord, Franklin and Keene increased these blister rust funds by $2,300., thus making a total of 87 towns and cities, with appropriations aggregating $29,734. Of all the towns and cities voting funds for this work, over 60 percent made available $400. each. The cities of Claremont and Concord raised $500. and $1,000. respectively.

The labor situation, as applied to blister rust employment, showed a considerable improvement over that of the previous year. Whereas in 1947 industry had absorbed a large proportion of the men returning from the armed services and at rates higher than public agencies could offer, those released thereafter were principally enrollees who had had no previous steady employment, and therefore were open to any type of work available. Moreover, increases in the hourly rates of pay had been allowed by both state and federal government. On the whole, far more labor and a higher caliber of men were available in 1948 than for some years previous. As has been the practice for many years, local labor was obtained principally through application to the boards of selectmen and other town officials.

Application of Sec. 9, Chapter 238: Revised Laws

On May 4, 1948, the Governor and Council approved the application of this section of the state blister rust law in 31 towns. Control work was subsequently conducted in these towns, and state or federal funds were provided so as to permit additional control work. The accomplishments in these towns will be found in the biennial summary appearing at the conclusion of this report. Individual reports of the control measures, and cost, were sent to the boards of selectmen in all of such towns.

Federal Cooperation—1948

Federal aid during this calendar year was considerably less than in previous periods due to a reduction of the Bureau of Entomology and Plant Quarantine funds by the Congress. Nevertheless, wages paid for actual control work amounted to an average of about 50 cents to the dollar for each dollar appropriated by towns, and therefore, as a result of this federal allocation it was possible to extend control work in many towns considerably beyond that possible through local and state monies. The use of federal trucks for crew transportation; their operative costs and maintenance, the purchase of equipment, etc., together with the wages above-mentioned totaled $31,675.70.

Mapping of White Pine and Control Areas—1948

This program was continued during the fall, winter and early spring months with the result that 106,782 acres of control area were detail-mapped. The use of aerial photographs was greatly extended and assisted materially in the increase of acreage mapped daily; the average being slightly in excess of 123 acres per eight-hour day. Since this figure includes both office and field work necessary for a completed map, the actual daily accomplishment in mapped area was much higher.

Reduction of State and Town Control Areas—1947 and 1948

The policy governing blister rust control calls for the destruction of all ribes—(currant and gooseberry bushes)—within white pine woodland, and for a sufficient distance around such areas. With the continuous change in the character of the forest, either through the activities of man, or the processes of nature, changes occur in the relative numbers of various species of trees. Because of this fact, the control area in a town will fluctuate according to these influences. As a result of the detail-mapping, previously explained, and more intensive scouting, it has often been possible to reduce the total acreage in which control work is needed. There is scarcely a town within the state control area that has not had a considerable acreage removed from control work. As an illustration, the average land area per town of the 226 towns and cities which make up the state control area is 21,911 acres. Based on the present acreage of the state control area, the average *town control area* is but 12,901 acres. Thus, in the 226 towns and cities there is a total of 2,036,267 acres which have been eliminated from control measures since they do not contain sufficient white pine to warrant the cost of control.

At the beginning of 1947, the total control area was 3,027,483 acres. During that calendar year, through detail-mapping and scouting, a reduction of 70,762 acres was effected. By the end of 1948, through similar activities, a further decrease was brought about which amounted to 42,541 acres. However, in some towns, due to a heavy re-seeding of white pine upon abandoned or cutover lands, it was necessary to increase slightly the town control area. The control area of the state stands at present at 2,915,640 acres. A further reduction is anticipated, but the shrinkage is not likely to be as great as in former years.

BIENNIAL SUMMARY — BLISTER RUST CONTROL

Town, State and Federal Programs

1947 and 1948

	First Working		Second & Other Workings	
All Programs	Acres Covered	No. Ribes* Destroyed	Acres Covered	No. Ribes* Destroyed
1947	26,049	202,424	82,101	364,035
1948	33,218	279,873	125,406	484,292
Totals	59,267	482,297	207,507	848,327

* Ribes, botanical name for currant and gooseberries.

SUMMARY OF MAPPING PROGRAM

Year	Acres Initially Mapped	Acres Re-Mapped	Total Acres (Calendar Year)
1947	153,344	13,256	166,600
1948	84,221	22,561	106,782
Totals	237,565	35,817	273,382

SUMMARY OF ALL CONTROL WORK

(As of December 31, 1948)

Total State Control Area (226 towns and cities) ..... 2,915,640 acres

Class of Work	Accomplishments	Acres	% of Total
Acreage Worked	(Once	2,778,415	95.29
	(Twice	1,055,557	36.20
	(Three Times	109,839	3.76
Acreage Detail-Mapped		1,578,873 acres	
Placed on Maintenance*		570,904 acres	
Total number of ribes destroyed		71,380,789	

* Note: Requiring no immediate attention in continuing control.

FOREST INSECTS

Pales Weevil. This insect breeds in the bark of pine stumps, tops and other slash left after cutting. It injures and kills seedlings of conifers growing near the slash by eating the bark, often completely girdling the tree, or consuming the bark all the way to the tip of the tree. A native insect known for many years to cause damage on cut-over land, little attention has been paid to it. Following the forest fires in Carroll and Strafford Counties in 1947, its role in damaging trees planted on the burned lands was the subject of much speculation. It was predicted that the insects would be attracted by the pitch exuding from dying pines. In order to determine the degree of such damage, trees planted in 13 localities in the spring of 1948 have been observed during the first season. In addition, surveys were made of recent cuttings in 35 areas to determine the post-logging damage on cut-over, but not burned land; 2,652 planted seedlings were tallied in the first instance and 1,010 natural seedlings on cuttings in the latter.

Results of the experimental plantings showed that weevil damage to trees planted beneath fire-killed pine timber, while present, was relatively slight (10%-12%) while where the burned timber had been salvaged, injury was much more severe, less however than on unburned cut-over land. A surprising amount of the damage took place during the first spring and early summer. The average loss on all plots was 31% killed plus 13% injured. Experiments with dipping

seedlings before planting with DDT and hexachlorbenzene were inconclusive. All plantings on unburned cut-over land resulted in 50% to over 90% loss. Natural seedlings appeared to be less heavily damaged on cut-over land than planted ones; 20% to 60% injury was found on year-old cuttings, the average being 12% killed plus 35% injured. These observations confirm earlier studies and lead to the conclusion that planting on pine lands should be delayed certainly until the second spring and preferably the third following cutting or fire.

White Pine Weevil. No forest insect causes more financial loss, nor receives less attention as to control measures than this native perennial pest of our open pasture pines, plantations and natural regeneration. It has partially ruined every white pine plantation set out in New Hampshire, and rendered the use of Norway spruce nearly hopeless. It also attacks native red spruce and occasionally other conifers. It is obvious to anyone who examines second growth pine timber, especially in southern New Hampshire, that the weevil is responsible for its prevailing poor quality. While some good results have been secured by spraying the buds in early spring, and more recently by airplane spraying with DDT, such measures will never be employed on a wide enough scale, uniformly, or repeated with sufficient regularity by all adjacent owners to result in general lowering of the weevil population. What is needed is a long-time, well-financed program of biological control by means of parasites and predators, coupled with education of owners in proper silvicultural control.

Spruce Budworm. Only one of these insects was discovered in New Hampshire in 1948 despite the most thorough and painstaking search by state and federal entomologists. Seven budworms were collected at 3 locations in 1947 and 5 in 1946. All of these were in northern Coos County where the nature of the forest type makes serious defoliation unlikely. None-the-less apprehension is felt by timberland owners at the growing intensity of the area of infestation in northern Maine during the past two years. The heavy outbreak in the Adirondacks has quite noticeably declined; meanwhile vast damage continues to occur in Canada. The present situation therefore indicates that vigilance is needed, and that every effort be made to build up resistant-type stands by heavy cutting of mature and over-mature fir, and to avoid the formation of pure fir stands. Many owners in New Hampshire have already availed themselves of the cooperative offers of the U. S. Forest Service to mark substantial areas for cutting in a manner to increase resistance of the stand to budworm attack. Permanent sample plots in various parts of the state, established in 1946 in cooperation with the County Foresters were all re-examined during each season without finding evidence of budworm.

Birch Dieback. Dieback and deterioration of mature birch is widespread north of the White Mountains but there has been no apparent increase in intensity during the past season, and the southward spread seems to have slowed up during 1948 compared to 1947. The precise role of the bronzed birch borer in relation to this destruction of birch stands continues to be the subject of intensive research by federal, state and Canadian specialists. That an insect or insects are important is suggested by the striking reduction in dieback after DDT spraying at Salem, Maine in 1948. Observation points set up across the northern part of the state in 1947 show improved conditions of birch in 1948.

Beech Scale/Nectria. This composite affliction of beech appears still to be confined to parts of Carroll County.

Gypsy and Browntail Moths. Both these defoliators of hardwood forests in southern New Hampshire were at an extremely low point in population during the last two years, and during 1948 there was a negligible amount of complete defoliation and only occasional trees showing moderate defoliation.

Forest tent caterpillars were present in moderate numbers, and the fall webworm has persisted in the southeastern part of the state. Many other forest insects are locally obnoxious, such as spruce gall aphid, pine sawflies, pine spittle bug, fir bark louse, etc.

PUBLIC FORESTS

STATE FORESTS AND RECREATIONAL AREAS

THE state now has title to 53,820 acres devoted to forestry and recreational purposes, divided into 133 tracts and located in 101 towns. The following table indicates the forest and recreational areas and certain rights-of-way which were acquired during the years 1947 and 1948. During the biennium 3,243.4 acres were acquired; 37 acres of the Black Mt. Reservation in Haverhill were sold; recent surveys of the Rhododendron Grove in Fitzwilliam and the Taylor tract in Concord gave new areas making a decrease of 38 acres; correction of earlier estimates shows a decrease of 4 acres or a net increase of 3,201.4 acres. The last biennium reported 50,619 acres making the present state area 53,820.4 acres:

ACQUISITIONS 1947-1948

Acquired by State Name	Location (Town)	Acreage	Year	How Acquired	Cost
Franconia Notch Addition	Lincoln	913	1947	Gift	
N. H. Forest Nursery Addition	Salisbury	337	1947	Purchase	$700.00
Joseph D. Eaton	E. Kingston	36	1947	Gift	
Abby B. Cushman	Bethlehem	26	1947	Gift	
Curtis H. Page	Gilmanton	7	1947	Will	
Oak Hill Lookout	Loudon	2	1947	Condemnation	625.00
Federal Hill Lookout	Milford	1	1947	Purchase	100.00
Fox Forest Addition	Hillsboro	33	1947	Purchase	450.00
Fox Forest	Hillsboro	Right-of-way	1947	Purchase	50.00
Fox Forest Addition	Hillsboro	10	1948	Purchase	500.00
Gay Addition	Jaffrey	71	1948	Gift	
Rye Harbor	Rye	160	1948	Transfer	
Bowditch-Runnells Addition	Tamworth	2	1948	Gift	
Mt. Sunapee State Park	Newbury	1,645	1948	Act of Legislature	
Curtis H. Page Additions	Gilmanton	.28	1948	Gifts	
Wadleigh Park Addition	Sutton	.1	1948	Gift	
Forest Lake Addition	Whitefield	.02	1948	Exchange	
Black Mt.	Haverhill	———	1948	Purchase	252.00
Humphrey's Ledge	Bartlett	Right-of-way	1948	Gift	
Blue Job Lookout	Strafford	Right-of-way	1948	Purchase	100.00
Blue Job Lookout	Farmington	Right-of-way	1948	Purchase	25.00
	Total Acquired	3,243.4			$2,802.00
Conveyed by State					
Black Mt.	Haverhill	37	1948	Conveyed by State	
Change in Acreage					
Rhododendron Grove	Fitzwilliam	6	1948	Decrease	
Taylor	Concord	5	1948	Increase	
		4		Decrease	
	Total Decrease	42			
	Net Addition		3,201.4		
	Last Reported		50,619		
	Present Acreage		53,820.4	(133 Tracts located in 101 Towns)	

Franconia Notch Addition

An agreement was made in 1927 between the State of New Hampshire and the Society for the Protection of N. H. Forests when both agencies were in the process of acquiring Franconia Notch, that the Society should deed the Flume property to the state in 20 years. This valuable property of over 900 acres including the Flume Gorge was successfully managed by the Society during that period when many necessary and desirable improvements were made. On October 3, 1947, a notable dedication was held in Franconia Notch at the north end of Echo Lake when a bronze tablet mounted on a granite boulder was unveiled in memory of Philip W. Ayres, Forester for the Society, who so successfully planned the raising of funds for acquiring the Flume, now under the supervision of the Forestry and Recreation Commission. On this occasion the Governor accepted a deed to the Flume property.

Mt. Sunapee State Park

The Legislature of 1941 passed an Act and appropriated $375,000.00 for an aerial tramway on Mt. Sunapee in the Town of Newbury. Due mostly to the inability to procure steel during the last war, activity was confined to surveys, until 1946. The N. H. Highway Commissioner was designated as the officer of the state to locate and acquire lands for this purpose. A total of 1,645 acres of forest land on the northern slopes of Mt. Sunapee was condemned by the state in March, 1948. When the condemnation papers were filed in the Merrimack County Court, the state took title; in this manner the acquisition was started during the last biennium. It is expected that the Highway Commissioner will transfer the deeds to those lands to the Forestry and Recreation Commission at some future time.

Joseph D. Eaton State Forest

Mrs. Adelaide F. Stevens of Salisbury, Mass., offered as a gift to the state a tract of 36 acres of forest land in the Town of East Kingston, N. H. Mrs. Stevens requested the Forestry and Recreation Commission to operate the lot and remove the merchantable timber 10 inches and over in diameter. The timber was estimated to amount to 250 M board feet of excellent pine. The period of operation was to cover two years from the date of transfer. She also requested that two-thirds of the net profits be returned to her or her heirs within 90 days after the completion of the woods operation. These unusual requests were approved by the Forestry and Recreation Commission and the Governor and Council and Mrs. Stevens has now received her share of the net profits. This tract of woodland has been held in the family for more than a hundred years, and contains about three acres of old field pine planted many years ago with seedlings from a nursery in Hamburg, Germany.

Rye Harbor State Forest

The state acquired in 1936 a tract of forest and marsh shore land of 154 acres adjacent to Rye Harbor, Rye, N. H., for military purposes for the N. H. National Guard. The woodlands comprised 71 acres and the remainder of the area consisted of salt marsh and shore front on the harbor. Six acres had already been acquired by defaulted taxes, making the total 160 acres. During the last war, a portion of the harbor was dredged and the mud pumped inland to fill portions of the marsh for a possible airplane field. A point of land on the neck, so-called, was used for military purposes. The Adjutant General's office notified the Governor and Council that his department had no further use for the area, and suggested that it be turned over to the Forestry and Recreation Commission. At the Governor's request, a study of the forest area was made by agents of the commission to ascertain the condition of the woodlands. About 190 M board feet of pine was estimated on the lot which included also areas of valuable young growth. It was noticed that forest improvement was badly needed in certain areas and the cutting of some of the larger pine timber was suggested. On October 3, 1948 the Governor and Council voted that the state property at Rye Harbor with the adjacent woodlands be placed under the supervision of the Forestry and Recreation Commission. The original deeds necessary to purchase the property have now been transferred from the Adjutant General's office.

N. H. Forest Nursery Additions

A tract of 337 acres of woodland in Salisbury was purchased from Charles A. Johnson of Franklin, N. H., for $700.00; the grantor reserving all pine stumpage 8 inches and over in diameter. This area adjoins a portion of the State Nursery and is on the old Boscawen-Salisbury road. The Selectmen of Salisbury conveyed to the state any rights which the town might have acquired in this lot by a tax sale of Charles Shaw of Salisbury dated February 4, 1926.

Abby B. Cushman Plantation

A white pine plantation of 4,000 trees was established 22 years ago by Mr. Herbert Cushman on his summer estate in Bethlehem, N. H. The original trees were purchased from the State Nursery and the plantation was pruned and maintained by Mr. Csuhman during his lifetime. His widow, Abby B. Cushman deeded this tract with an additional acreage as a gift making the total area about 26 acres.

Curtis H. Page Grove

A woodlot of 7 acres in Gilmanton was willed to the state by the late Prof. Curtis H. Page, formerly of Dartmouth College, but recently living in the town of Gilmanton. The Governor and Council

accepted the provision of his will on January 14, 1947. This tract is located on the southerly side of the new highway leading from Gilmanton to the Iron Works, and adjacent to the old Quaker Cemetery. Two small areas adjoining were later conveyed to the state as a gift which provides a right-of-way across the lot. One was deeded by Richard F. and George B. Varney of Gilmanton, and the other by William C. Clarke, Jr., of Cornwall Bridge, Conn.

Gay Addition

The Calvin Cummings estate of Troy, N. H., deeded as a gift 71 acres of forest land to the state. This conveyance was in accordance with the wish of the late Calvin Cummings that his woodlot should be an addition to the Gay tract, on the western slope of Mt. Monadnock. Portions of this lot have recently been cut over but there remain some excellent stands of young trees.

Fox Forest Addition

Thirty-three acres of woodland was purchased from Walter E. Gay of Hillsboro in November, 1947 for $450.00. This tract of land on Monroe Hill includes some valuable stands of hemlock, spruce and pine and areas of young trees. A right-of-way to the main highway was included.

In October, 1948, an adjoining area of 10 acres was purchased from Roland R. Davison for $200.00 and from Walter E. Gay for $300.00, who held a mortgage on the property. This lot contains about 25 M board feet of timber, a gravel bank, spring of water and an open field suitable for a public camp ground.

A right-of-way was obtained from Elgin and Joy K. Sherk of Lisbon, N. H., which crossed their land to other land owned by the state. This deed was dated September, 1947, and the consideration was $50.00. The Fox Trust Fund was used to purchase the above tracts.

Oak Hill Lookout

Special efforts have lately been made to equip certain key lookout stations with power to operate radio for forest fire control. Oak Hill in Loudon, the nearest lookout to Concord, was selected as one of these stations. Two acres on the south peak were condemned by the state in May, 1947, since the owners could not agree on a price. A right-of-way from the main highway and a spring of water were also included. No court action was required as the state finally agreed to make certain road changes and erect necessary fencing. The cost of this purchase was $625.00; the owners were Hiram E. and John O. Cate of Loudon.

Federal Hill Lookout

Another lookout station to be used for radio operation is Federal Hill in Milford. This station has been operated by the state since 1912 and has been under a lease agreement with the owners. One acre was purchased for $100.00 from Albert F. Caron of Milford on which are located the tower and cabin.

Wadleigh Park Addition

A small tract of open land was acquired as a gift from Richard Smiley of Plymouth, Mass., and his sister, Esther S. Avery of Sutton, N. H., for the purpose of erecting a new dam on the north side of the outlet of Kezar Lake in Sutton. The state owns the land on the south of the outlet which is Wadleigh State Park.

Forest Lake State Park

Mr. Hilton A. Newell of Whitefield conveyed to the state in 1933 a small plot of land for a dam site at the outlet of Forest Lake. Since a portion of the lot was within a few feet of his summer home and garden, an exchange of land was made, Mr. Newell giving the state a strip along the east side of the lot and the state in turn conveying to Mr. Newell an almost equal area adjoining his home. The state gained in acreage, about 1,800 square feet.

Bowditch-Runnells Addition

Mrs. Robert Jenks of New York City and Mrs. Albert Jackson of Philadelphia, conveyed to the state as a gift 2 acres of woodland adjacent to the Bowditch-Runnells State Forest in Tamworth, N. H. This lot lies between the state highway to Conway and the Chocorua River and was believed to have been included in the original gift when the Bowditch-Runnells State Forest was first established.

Special Rights-of-Way

Mr. Severo Mallet-Prevost of Bartlett, N. H., and New York City gave a right-of-way over a portion of his summer home property from the old Bartlett road around Humphrey's Ledge. This right-of-way is the present trail now used by the public to reach the ledge.

Mr. Howard R. Milliken of South Lancaster, Mass., sold a 50-foot right-of-way to the state which crossed his farm in Strafford, N. H., for $100.00.

Mrs. Theodosia Irving of Lynn, Mass., likewise conveyed a similar right-of-way on her land in Farmington, N. H., for $25.00. The last two mentioned rights-of-way are for a power line to Blue Job Lookout station for radio fire control.

Black Mt. State Reservation

The state has recently received offers to sell the southerly portion of the Black Mt. Reservation in Haverhill with the buildings for rec-

reational purposes. These buildings are located for the most part on the West One-Half of Lot 1 in the 9th Range, and being a leased lot, the Town of Haverhill has always held an interest in the annual rent. Before a sale by the state could be considered it was necessary for the town to release to the state any interest it might have due to back rentals. The town voted in favor at its town meeting held in March, 1948, and gave authority to the Selectmen to quitclaim to the state not only its interest in Lot 1, but also leased lots 7 and 10 in the same range. The Selectmen made the conveyance in August, 1948, to the state for $252.00 which included back rentals since the state acquired the lands in 1920.

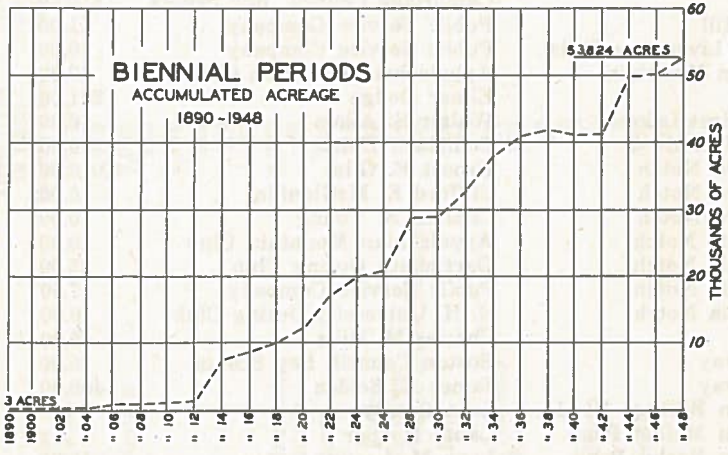


Chart showing progress of acquisition of state forests.

On October 2, 1947, the Governor and Council gave the Forestry and Recreation Commission authority to sell at public or private sale a tract of land with the buildings on what is known as the old Transient Camp Site in Haverhill, N. H. Invitations for bids were later sent out to parties known to be interested and the notice of sale advertised in newspapers. After due consideration for the best interests of the state, a sale of 37 acres of land and buildings was made to Mr. Leon Smith of Rye, N. Y., for $5,000.00. The date of the deed was December 21, 1948. The state reserved the right-of-way on the property and the maintenance and use of the telephone and power lines to Black Mt. Lookout Station.

Utilization of State Forest Lands by Lease

1947-1948

Leases and special use permits for various concessions and privileges have been issued annually by the State Forester on areas under the supervision of the Forestry Division. These permits are mostly under $100.00 consideration; the Willey House Site in Crawford Notch has been leased for a five-year period for the largest amount ($3,010.00). The 1948 season is the last under the present lease.

UTILIZATION OF STATE LANDS BY LEASE

1947-1948

Tract	Lessee	Amount 1947	Amount 1948
Annett	Cambridge Council, Boy Scouts	$10.00	$10.00
Beech Hill	Public Service Company	21.00	....
Blair & Livermore Falls	Public Service Company	10.00	10.00
Cardigan Mountain	Appalachian Mountain Club	10.00	10.00
Casalis	Elmer Dodge	231.00	238.00
Connecticut Lakes	Walter S. Aiken	10.00	10.00
Cotton Island	Comstock Heirs	10.00	....
Crawford Notch	Ernest E. Gile	3,010.00	3,010.00
Crawford Notch	Clifford E. McGlauflin	10.00	10.00
Crawford Notch	Charles E. Young	10.00	10.00
Franconia Notch	Appalachian Mountain Club	10.00	10.00
Franconia Notch	Dartmouth Outing Club	25.00	25.00
Franconia Notch	Public Service Company	7.50	67.50
Franconia Notch	N. H. University Outing Club	10.00	10.00
Haven	Charles M. Mills	5.00	5.00
Hemenway	Boston Council, Boy Scouts	25.00	25.00
Hemenway	James K. Selden	400.00	400.00
Island in Billings Pond	Lora Cressy	....	10.00
Island in Mellon Pond	Laura Hooper	....	10.00
Island in Rocky Pond	Lena M. Leavitt	10.00	10.00
Island in Rocky Pond	Ledger J. Christian	10.00	10.00
Mt. Prospect	Lawrence W. Moody	10.00	....
Mt. Prospect	Arthur Sherman	10.00	....
Pillsbury	Mrs. Blanche Annan	25.00	25.00
Pillsbury	Leo Clark	125.00	125.00
Pillsbury	New Hampshire Bowmen	10.00	10.00
Russell-Abbott	Public Service Company	269.52	9.52
Scribner-Fellows	Public Service Company	7.50	7.50
Sky Pond	N. H. Electric Cooperative	2.00	2.00
Smarts Mountain	Dartmouth Outing Club	....	1.00
Stockdale	Charles H. Nelson	240.00	240.00
Sugar Hill	Lawrence A. McKinley, Jr.	....	1.00
Taylor	Edward Offhaus	25.00	....
Waldron	Town of Northwood	1.00	1.00
Wantastiquet	Central Vermont Public Service Corp.	2.00	2.00
Kearsarge Mt. CCC Camp	Warner Young People's Group	25.00	....
Totals		$4,586.52	$4,314.52

AREA OF STATE FORESTS AND PARKS INDEXED BY TOWNS (MARCH 1, 1949)

Town or City	Total State Land Area in Town (Acres)	Name of Reservation	Total Area in Each Reservation (Acres)	Area of Each Reservation Within Town (Acres)	Other Towns in Which Reservation Lies
Acworth	203	Honey Brook	975	203	Lempster, Marlow
Alexandria	872	Cardigan Mountain	3,090	649	Orange
		Welton Falls	223	223	
Allenstown	4,501	Bear Brook	6,849	4,501	Candia, Deerfield, Hooksett
Alton	214	Alton Bay	214	214	
Amherst	81	Hodgman	18	18	
		Ponemah	63	63	
Andover	288	Kearsarge Mountain	2,325	212	Salisbury, Wilmot, Warner
		Ragged Mountain	76	76	
Ashland	44	Scribner-Fellows	140	44	New Hampton
Bartlett	745	Merriman	515	515	
		Humphrey's Ledge	36	36	
		Intervale Ski Slope	13	13	
		Cathedral & White Horse Ledges	205	181	Conway
Bethlehem	86	Strawberry Hill	60	60	
		Cushman	26	26	
Boscawen	586	State Forest Nursery	887	435	Salisbury
		Merrimack River	151	151	
Bristol	172	Sugar Hill	67	67	
		Cliff Isle	6	6	
		Wellington Beach	97	97	
		Belle Isle	2	2	
Campton	246	Livermore Falls	134	134	
		Blair	112	112	
Canaan	174	Mascoma	174	174	
Candia	290	Bear Brook	6,849	290	Allenstown, Deerfield, Hooksett
Canterbury	278	Ayers	50	42	Northfield
		Shakers	236	236	
Charlestown	925	Hubbard Hill	709	709	
		Connecticut River	216	216	

AREA OF STATE FORESTS AND PARKS INDEXED BY TOWNS (MARCH 1, 1949)

Town or City	Total State Land Area in Town (Acres)	Name of Reservation	Total Area in Each Reservation (Acres)	Area of Each Reservation Within Town (Acres)	Other Towns in Which Reservation Lies
Chesterfield	539	Chesterfield Gorge	15	15	
		Pierce's Island	5	5	
		Wantastiquet Mountain	907	519	Hinsdale
Concord	125	Taylor	12	12	
		Walker	47	47	
		Allen	25	25	
		Mast Yard	400	41	Hopkinton
Conway	1,043	Conway Common Lands	930	930	
		Cathedral & White Horse Ledges	205	24	Bartlett
		Echo Lake	89	89	
Dalton	420	Forest Lake	420	420	
Danbury	17	Cardigan Camp	17	17	
Deerfield	1,902	Woodman	141	88	Northwood
		Bear Brook	6,849	1,693	Candia, Hooksett, Allenstown
		Pawtuckaway	1,288	121	Nottingham
Deering	137	Vincent	172	137	Henniker, Weare
Derry	2	Warner Hill	2	2	
Dixville	137	Dixville Notch	137	137	
Dover	23	Bellamy Park	23	23	
Dublin	75	Leighton	75	75	
Dunbarton	56	Everett	56	56	
East Kingston	36	Eaton	36	36	
Eaton	1	Hatch Grove	1	1	
Effingham	15	Green Mountain	15	15	
Farmington	99	Blue Job	99	99	
Fitzwilliam	302	Grant	8	8	
		Rhododendron Grove	294	294	
Franconia	2,892	Franconia Notch	6,232	2,892	Lincoln
Gilford	545	Belknap Mountain	545	545	

Gilmanton	49	Meadow Pond	42	42	
		Page	7	7	
Gilsum	95	Pot Holes and Bear's Den	95	95	
Gorham	755	Moose Brook Park	755	755	
Goshen	426	Pillsbury	3,034	407	Washington
		Pillsbury Camp	19	19	
Greenville	4	Russell	25	4	Mason
Groton	547	Province Road	546	546	
		Sculptured Rocks	1	1	
Hampton	50	Hampton Beach	50	50	
Hart's Location	5,925	Crawford Notch	5,950	5,925	Livermore
Haverhill	629	Black Mountain	629	629	
Henniker	54	Ames	15	15	
		Vincent	172	8	Deering, Weare
		Craney Hill	31	31	
Hillsboro	565	Fox	565	565	
Hinsdale	388	Wantastiquet Mountain	907	388	Chesterfield
Hooksett	373	Stockdale	66	8	Manchester
		Bear Brook	6,849	365	Allenstown, Candia, Deerfield
Hopkinton	406	Mast Yard	400	359	Concord
		Contoocook	47	47	
Jaffrey	915	Annett	1,307	1	Rindge, Sharon
		Monadnock	699	699	
		Gay	120	120	
		Haven	95	95	
Keene	23	Beech Hill	23	23	
Kingston	102	Kingston Lake	44	44	
		Rock Rimmon	47	47	
		Kingston Dam	11	11	
Laconia	3	Endicott Rock	3	3	
Lancaster	430	Mt. Prospect	430	430	
Lempster	366	Dodge Brook	222	222	
		Honey Brook	975	144	Acworth, Marlow
Lincoln	3,482	Fay	211	142	Woodstock
		Franconia Notch	6,232	3,340	Franconia
Litchfield	122	Litchfield	122	122	

AREA OF STATE FORESTS AND PARKS INDEXED BY TOWNS (MARCH 1, 1949)

Town or City	Total State Land Area in Town (Acres)	Name of Reservation	Total Area in Each Reservation (Acres)	Area of Each Reservation Within Town (Acres)	Other Towns in Which Reservation Lies
Livermore	25	Crawford Notch	5,950	25	Hart's Location
Loudon	52	Oak Hill	2	2	
		Soucook	50	50	
Lyndeboro	14	Curtiss Dogwood Reservation	14	14	
Madison	11	Madison Boulder	11	11	
Manchester	58	Stockdale	66	58	Hooksett
Marlow	628	Honey Brook	975	628	Acworth, Lempster
Mason	421	Russell	25	21	Greenville
		Kimball	25	25	
		Russell-Abbott	808	375	Wilton
Milan	127	Milan Hill	127	127	
Milford	1	Federal Hill	1	1	
Newbury	1,645	Mt. Sunapee State Park	1,645	1,645	
New Hampton	215	Scribner-Fellows	140	96	Ashland
		Sky Pond	119	119	
New Ipswich	97	Marshall	20	20	
		Binney Pond	77	77	
Northfield	8	Ayers	50	8	Canterbury
Northwood	54	Waldron	1	1	
		Woodman	141	53	Deerfield
Nottingham	1,187	Stevens	4	4	
		Nottingham	16	16	
		Pawtuckaway	1,288	1,167	Deerfield
Orange	2,441	Cardigan Mountain	3,090	2,441	Alexandria
Ossipee	112	Duncan Lake	100	100	
		Lord	12	12	
Pelham	63	Jeremy Hill	63	63	
Pembroke	7	Glover	7	7	

Peterborough	338	Casalis	247	247	
		Miller Park	83	79	Temple
		Peterborough Pool	12	12	
Piermont	143	Sentinel Mountain	143	143	
Pittsburg	1,548	Connecticut Lakes	1,548	1,548	
Randolph	3	Randolph Springs	3	3	
Rindge	1,116	Annett	1,307	1,116	Sharon, Jaffrey
Rochester	20	Salmon Falls	20	20	
Rumney	5	Baker	5	5	
Rye	160	Rye Harbor	160	160	
Salisbury	835	State Forest Nursery	887	452	Boscawen
		Kearsarge Mountain	2,325	375	Andover, Wilmot, Warner
		Kearsarge Mountain Camp	21	8	Warner
Sharon	190	Annett	1,307	190	Rindge, Jaffrey
Shelburne	202	Lead Mine	202	202	
South Hampton	52	Powow River	52	52	
Stoddard	76	North Branch	71	71	
		Pitcher Mountain	5	5	
Sutton	86	Wadleigh Park	52	52	
		Shadow Hill	34	34	
Tamworth	2,272	Hemenway	1,958	1,958	
		White Lake	258	258	
		Bowditch-Runnells	56	56	
Temple	4	Miller Park	83	4	Peterborough
Warner	1,636	Carroll	29	29	
		Davisville	32	32	
		Harriman-Chandler	395	395	
		Kearsarge Mountain	2,325	1,150	Andover, Salisbury, Wilmot
		Kearsarge Mountain Camp	21	13	Salisbury
		Toll Gate	17	17	
Washington	2,627	Pillsbury	3,034	2,627	Goshen
Weare	336	Clough	309	309	
		Vincent	172	27	Deering, Henniker
Wentworth	3	Plummer's Ledge	3	3	

AREA OF STATE FORESTS AND PARKS INDEXED BY TOWNS (MARCH 1, 1949)

Town or City	Total State Land Area in Town (Acres)	Name of Reservation	Total Area in Each Reservation (Acres)	Area of Each Reservation Within Town (Acres)	Other Towns in Which Reservation Lies
Westmoreland	20	Hyland Hill	20	20	
Wilmot	588	Kearsarge Mountain	2,325	588	Salisbury, Andover, Warner
Wilton	433	Russell-Abbott	808	433	Mason
Wolfeboro	112	Gov. Wentworth Farm	96	96	
		Wentworth Beach	16	16	
Woodstock	69	Fay	211	69	Lincoln
Total	53,820			53,820	
133 Tracts					
101 Towns					

STATE FOREST OPERATIONS

Connecticut Lakes

The work of the caretaker during dry periods consisted of full time patrol, while at other times a daily patrol of the road was maintained with several hours of the day spent on other work. Such work consisted of releasing 20 acres of spruce and fir, reblazing and painting one mile of boundary line and assisting in the marking and salvaging of 706,096 board feet of hardwood stumpage which sold for $4,948.75.

Caretaker and labor expenses amounted to $1,760.14. Supplies and maintenance charges including a half-ton pick-up truck exchange totaled $1,312.13. Camping was permitted in the picnic area at Moose Falls for the first time in 1948, and a lady assistant caretaker was employed in order that the area might be supervised at all times. Receipts from campers totaled $126.15.

Crawford Notch

General supervision was given all public use areas and buildings during 1947 and 1948 with special emphasis on patrol during dry periods. All partitions in the public use buildings were insulated. The Allen Spring Camp was repaired for use of official personnel, trails maintained, and many new signs for the guidance of the public were made and erected. Caretaker salaries and labor assistance amounted to $1,154.81. Supplies and miscellaneous material costs were $363.06.

Income for the two years from leases amounted to $6,060.00 while collections and permits for public services totaled $1,149.13.

Forest Nursery

Cutting operations during the winter of 1947 produced 94,133 board feet of pine that sold for $25.00 per M roadside. This operation was principally selective cutting with some strip cutting that gave a stumpage figure of $7.60 per M board feet.

During the winter of 1948 six and one-half acres of thirty-one year old Scotch pine of inferior type was cut into four foot excelsior wood. This area was cut since it appeared doubtful if the trees would ever make logs. Each tree yielded only two or three four-foot sticks, and the whole area only fifty-three cords at a cost of $11.50 per cord roadside. A selective cutting of good quality pine yielded 30,556 board feet which sold for $28.00 per M roadside. This yielded a stumpage of $11.20 per M board feet.

Pillsbury Reservation

Dual supervision of Pillsbury Reservation continued with the Fish and Game Department sharing one-half of the caretaker's salary and the reservation continuing as a "Game Refuge" for another five-year period. Caretaker and labor expense amounted to $2,313.98 while supplies and maintenance cost $121.87. Income from leases and camping permits amounted to $414.15 and a timber sale of 208,089 board feet of hardwood stumpage sold for $2,507.78.

Fox State Forest

Harvesting of forest products continued during both seasons, favored by the brisk demand for wood and timber of all kinds. The major operation in 1946-47 was a selective cutting in 15 acres of middle-aged white pine. Over 150 M board feet pine and hemlock were logged and sold on bids. In addition, 152 cords of fuelwood, pulpwood, and veneer bolts were cut. Wood cut during the previous year was included in the sales. During 1947-48, a small area of over-mature hemlock and some adjoining pine was clearcut and another area cut selectively, the 98 M board feet resulting being sold on the skids. About 13 M board feet red oak downed by the hurricane on another lot was salvaged and 8 M board feet hemlock was sold on the stump and cut selectively by a careful thinning. Over 177 cords fuelwood, pulpwood and fence posts were cut. Over 100 Christmas trees were sold. The income and expenses were as follows:

C. A. FOX TRUST FUND FOREST OPERATIONS

Fiscal Year	Income	Expenses	Net
1946-47	$3,997.37 (1)	$4,019.97	$ -22.60
1947-48	4,848.85	3,479.17 (2)	1,369.68

(1) Includes sale of some products cut in 1945-46.
(2) Includes production costs of some material sold in 1948-49.

POTENTIAL GROWTH OF NEW HAMPSHIRE FORESTS

IT is recognized that the present production of wood each year is much less than it should be because of the low volume per acre. Under even very rough forest management the amount of board feet or cords grown each year on an acre can be greatly increased. It has been estimated that annual growth in spruce-fir sawtimber stands can be increased 4 times, northern hardwood stands 2½ times, white pine nearly 4 times and oak 5 times the present average increment of these stands. Annual growth of all wood in cords can be increased about 50%.

Forest Improvement and Recreational Fund

Fiscal Operations July 1, 1946 to June 30, 1948

FORESTRY DIVISION

Name of Area	Income	Expenditures	Balance
Balance July 1, 1946			$14,125.20
Annett State Forest	$20.00		$20.00
Bear Brook State Park		$781.26	—781.26
Beech Hill State Forest	21.00		21.00
Black Mountain State Forest		272.01	—272.01
Blair State Forest	10.00		10.00
Boardman Farm	5,100.00	129.23	4,970.77
Cardigan State Reservation	10.00		10.00
Cardigan Mountain CCC Camp		139.28	—139.28
Casalis State Forest	441.00	28.31	412.69
Connecticut Lakes State Park	2,652.45	1,023.17	1,629.28
Crawford Notch State Reservation	7,727.86	9,990.91	—2,263.05
Curtis Dogwood Reservation		30.33	—30.33
Eaton (Joseph D.) State Forest	100.00	111.36	—11.36
Echo Lake State Park	912.03	927.32	—15.29
Franconia Notch State Reservation	174.93	2,522.33	—2,347.40
Governor Wentworth Farm	2,000.00	5.40	1,994.60
Harriman-Chandler State Forest	371.87	854.85	—482.98
Haven State Forest	10.00		10.00
Hemenway State Reservation	850.00	173.68	676.32
Kearsarge Mountain CCC Camp	25.00	71.11	—46.11
Livermore Falls State Forest	10.00		10.00
Lord Pines State Forest		15.53	—15.53
Merrimack River State Forest		123.54	—123.54
Pillsbury State Reservation	2,408.62	914.77	1,493.85
Russell State Forest	201.60		201.60
Russell-Abbott State Forest	68.32		68.32
Scribner-Fellows State Forest	15.00		15.00
Shaker State Forest		19.41	—19.41
State Forest Nursery	4,873.70	3,783.28	1,090.42
Stockdale State Forest	480.00	99.44	380.56
Taylor Tract	30.00	7.25	22.75
Vincent State Forest		17.75	—17.75
Warner CCC Camp	2,696.00	240.00	2,456.00
Weeks Memorial, John A.	160.00	63.74	96.26
Woodman State Forest	1.00	142.76	—141.76
Other areas (17)	91.00	37.07	53.93
Administration		2,143.91	—2,143.91
Total	$31,461.38	$24,669.00	$6,792.38
Balance June 30, 1948			$20,917.58

FOREST MANAGEMENT PROGRAM

THE state forests represent a potential source of future income from timber. At present most of these tracts consist of cut-over land, young plantations, and understocked young timber that have great promise for future forest products, but are difficult to operate profitably at present. On the other hand if improvement cuttings, thinnings, and other cultural operations are not applied immediately there will be a loss of growth because of stagnation, and the valuable crop trees will die out or be greatly retarded, and the attainment of merchantable timber crops postponed. Fortunately it is possible with energetic marketing work to find ways of improving young stands at a profit, or at minimum expense. Such work will be quickly repaid in more rapid growth.

In order to carry out such work to a greater extent on state forests, Mr. John Bork, a graduate forester who has specialized in management, was employed in January, 1948. The objectives included establishment of demonstrations of good forest practices as well as increased production of forest products from state forests. A good beginning has already been made.

Bear Brook State Park with a total area of 6,849 acres was designated the starting point for this program and by June, 1948, a forest inventory and revised type map had been compiled. The management plan resulting from the compilation of these data indicates that 6,143 acres of the park area are suitable and available for timber production. Present stocking is below normal and an average annual growth of approximately 1,000M board feet is anticipated over the next ten-year period. The twenty-year work program covered by the management plan calls for the annual harvesting of 200M board feet exclusive of thinnings and treatment of approximately 307 acres per year. Toward this end work was begun in June, 1948 and by January 1, 1949 the following operations had been completed:

Nature of Work	Area Covered (acres)	Products	Volume	Direct Operating Costs	Sale Price or Value	Net Difference
Strip cutting	22	WP logs	177M bd. ft.	$3,857.00	$5,984.54	$2,127.54
Selective cutting	1	RP piling	5.5M bd. ft.	71.48	155.68	84.20
Thinning	4	RP posts	1,412 posts	557.25	464.52	-92.73
Release cutting	*	Fuelwood	96 cords	1,213.00	890.50	-322.50
Weeding	90	.....	.....	814.00	.....	-814.00
Total	117	.....	.....	$6,512.73	$7,495.24	$982.51

* Same area as strip cutting.

Two very successful thinning operations in 25-year-old red pine plantations were carried out, one at the Taylor Tract in Concord and the other at Bear Brook State Park. Other state forests will be brought under more intensive management as rapidly as conditions permit.

TOWN FORESTS

THE Forestry and Recreation Commission has often had difficulty in obtaining satisfactory information about cutting operations on town forests. The selectmen of towns are not required by law to report the handling of town forests and questionnaires to secure these facts cannot be sent out each year. Many towns have forest lands where no cutting is possible for many years due to the hurricane of 1938. Other towns have valuable young stands that require weeding and improvement cutting, but no supervision for this work is available. Certain towns have made notable progress in handling their forest lands during the past few years and it is hoped that a complete record can be obtained for future use.

Northwood

This town has kept since the earliest days the Parsonage and School lots and has harvested several crops of wood and timber. The State Nursery has supplied the town thousands of trees for planting on these lots. The School lot was last cut over in 1918 when a good profit was realized from the sale of timber. During the past year, an agreement was made with a local lumberman to cut about 400 M board feet of pine from the Parsonage lot and about 125 M board feet from the School lot. The timber is not to be cut until the summer of 1949, but the town has already received $3,000.00 for the Parsonage and $800.00 for the School timber. The $3,000.00 has been divided among the four churches in the town. The Selectmen have also started a recreational project on the shores of Lucas Pond which borders on the School lot. Thirty-three camp lots have been laid out and rented on long-term leases. The rentals have produced $2,700.00 for the town schools and taxes on recently built summer camps now return $500.00 annually. It is expected that within a few years about $1,000.00 will be collected in taxes. The Rockingham County forester has assisted the Selectmen on timber operations and agents of the State Planning and Development Commission on recreational developments.

Manchester

The City of Manchester depended entirely upon springs and wells for its water supply until 1870. No hydrant system existed. In 1872 the city decided to acquire land about Lake Massabesic for its supply and appointed a Board of Water Commissioners for this purpose. The city department began its reforestation program in 1913 by setting out 41,000 white pine under the direction of the State Forester, Mr. E. C. Hirst. Since that date, the record shows 1,780,000 trees, mostly from the State Nursery were sold to Manchester at the cost of growing

the trees. In 1933, forestry work was initiated with type-mapping the whole forest area, obtaining an estimate of the volume and tree growth and starting improvement cuttings. Mr. A. J. Christie, a professionally trained forester, was appointed in 1937 to manage the entire property. Records of all operations are now kept on a card index, all lands have been surveyed and cruised. The 1938 hurricane blowdown timber has been cleaned up and new markets found for products removed in these operations. A forest fire lookout tower has been built that fully cooperates with the state fire lookout system. A forest fire truck fully equipped is ready for use and miles of cross roads have been built through the forest. Forest fires have burned only 10 acres during the past 10 years. Work has been carried on against blister rust, white pine weevil and gypsy moth. The present area is 5,300 acres in Manchester and the towns of Hooksett, Candia and Auburn. An estimate of the volume over five inches in diameter shows over 11,000 M board feet. The Water Works has acquired a sawmill which handles all logs from the woods operation and also does custom sawing for farmers in nearby communities. The annual cut is about 500 M board feet of which the city uses 10 M board feet, the balance being sold on bids.

During the past year, 332 cords of rough pulpwood and 50 cords of peeled pulpwood were sold. These activities kept about 10-12 permanent men employed. The city has an excellent opportunity to demonstrate the successful operation of this forest under a definite management plan drawn up by a well qualified forester. Other cities in the state should if possible follow the example of the City of Manchester.

Hopkinton Town Forest after an improvement cutting.

Lempster

Lempster voted at its town meeting in March, 1945, to establish a town forest of 700 acres on the easterly shores of Long Pond, and also voted to raise $250.00 to improve an old road leading to the tract. At the meeting in 1946, citizens voted to continue the present town forest committee until 1948 when one member of the board would be elected each year. The problems and work of the committee had increased to such an extent that in 1947 Mr. Richard B. Diehl, the chairman, designated a special assignment to each member such as construction foreman, financial secretary, business manager and secretary, the chairman checking on boundary survey, cruising, and type mapping. That same year the committee sold 185 M board feet of hardwoods and 6 M board feet of spruce on the 700 acre lot, realizing $2,523.00 for the town. In addition Christmas trees valued at $35.00 were sold. The previous balance in the town forest fund was $248.00, making the total amount available $2,804.00 on January 1, 1948. Improvements were made on the two-mile road to the town forest on Long Pond on which materials, hire of heavy equipment and labor came to $1,700.00 leaving a balance in the town forest fund of $1,104.00. This is a fine beginning for a town which had several thousand acres of tax-defaulted forest land several years ago, and felt little responsibility in solving its land difficulties. The town land on the shore of Long Pond has been surveyed and camp sites are now being laid out. The problem confronting the committee is to decide on the size and layout of these lots and whether to sell or lease and how to determine the rental price. Other matters under consideration are fire prevention, roadside clean-up, control of campers and layout of public areas on the beach. This town forest committee has made such excellent progress that other towns having similar problems in regard to town-owned lands should consult Lempster for advice. The town still has many other tax-defaulted forest lands which must be located and examined to determine whether the committee should recommend sale or retention by the town.

Warner and Weare

The Society for the Protection of New Hampshire Forests made a grant of funds to the New England Forestry Foundation for the special study of the forest conditions on the town forests of Warner and Weare. Both of these towns have a town forest committee. Warner appropriated $400.00 to supplement this study for a plan of management and operation. The volume of timber on the whole forest was greater than anticipated, but widely scattered, making efficient operation difficult. It is expected that cutting will begin in the spring of 1949.

The Town of Weare has about 100 M board feet marked for cutting on its town forest, and operations are due to begin in 1949. State and county foresters have cooperated to assist the town in the plan of management. A tidy sum should be realized by the town.

WHITE MOUNTAIN NATIONAL FOREST

U. S. FOREST SERVICE

THE lower purchasing power of the dollar has left its impression on the Forest during the past biennium. An increased demand for use of the various Forest resources, coupled with fewer personnel and less to work with made it necessary to stop and analyze current methods of meeting management objectives. With higher wage scales and material costs, a budget which would have been adequate in 1940 failed to meet use pressures rising in 1946 and 1947 unless work methods were stripped of all nonproductive details.

The timber sale program, which continues at the rate of about 12 to 15 million board feet annually, has undergone much streamlining. The conventional method of marking the trees to be cut, then waiting until they are cut and yarded before scaling, has been replaced by tree measurement which combines marking and scaling in one operation; thereby allowing better planning and less lost time due to bad weather and irregular scaling. Other changes which allow increased efficiency without lowered silvicultural standards have been made.

Although recreation use has increased steadily since VJ Day, considerable savings in operation and maintenance have been effected by replacing chemical toilets with pit type, garbage cans with garbage pits, log barriers with boulders, rustic-type tables with plank-type, and other similar simplifications. Users of larger recreation areas like Dolly Copp and Campton Pond are advised that no one will be assigned to give continuous supervision to these areas. Matters involving the inability of individual campers to get along with each other must be settled by the campers themselves at a camp meeting held in a democratic manner. This self-government has proved successful. At the present time, ways and means of converting the recreation areas to a self-sustaining basis through concessions or nominal use charges are being investigated.

The fire control system has been somewhat revised and, on the basis of well-calculated risks, a number of the less effective towers have

been abandoned. Here again, the possibility of further savings is being investigated by exploring the possibilities of substituting aerial detection for the expensive and cumbersome tower system.

In the aggregate, savings from various short cuts have done much to keep the physical plant in shape while, at the same time, furnishing the minimum essential services necessary to keep a multiple-purpose forest operating.

STATE FOREST NURSERY

THE same policies of distributing forest planting stock and the same type of operations have been carried on at the State Forest Nursery during 1947 and 1948 as in previous years. Forest planting stock of the more important native timber producing species has been grown and distributed at less than cost to individuals, and white and red pine given free to all state, county and municipal agencies in unlimited amounts, and to boys and girls educational groups in limited amounts. Prices for trees sold and free trees include all costs F.O.B. Gerrish, N. H.

Nine cities and towns planted 29,500 free trees as follows: Manchester, 8,000; Hanover, 7,000; Dunbarton, 5,500; Goffstown, 5,000; Dummer, 2,000; Dover 1,000 and Wolfeboro, 1,000. Educational groups of boys and girls between the ages of nine and twenty-one received 61,925 trees. One hundred and thirteen 4-H Club members planted 34,950 trees in nine counties as follows: Rockingham, 13,475; Belknap, 5,750; Merrimack, 4,250; Cheshire, 4,000; Strafford, 2,500; Grafton, 2,000; Hillsborough, 1,475; Coos, 1,250 and Carroll, 250. Twelve Smith-Hughes or Agricultural High Schools received 26,975 trees as follows: Vilas High, Alstead, 5,500; Hopkinton High, Contoocook, 4,000; Tilton-Northfield High, Tilton, 4,000; Henniker High, Henniker, 3,000; Laconia High, Laconia, 3,100; Quincy Street School, Nashua, 2,075; New Boston High, New Boston, 1,400; Simonds High, Warner, 1,100; Hollis High, Hollis, 1,000; Orford High, Orford, 1,000; Quimby High, Sandwich, 500 and Walpole High, Walpole, 300.

Loss of red pine seedlings due to *Lophodermium pinastri,* a fungus disease, that first appeared in the nursery in 1945, continued in decreasing amounts through the spring of 1948. Spraying in 1947 with double strength Bordeaux mixture, applied with rented equipment,

indicated that a reasonably satisfactory control of the disease could be maintained under favorable weather conditions. To make equipment continuously available, a 150-gallon Bean power sprayer was purchased in the spring of 1948 and four applications of spray made. This appeared to effect a satisfactory control as all beds appeared to be in good condition until snow fell.

A 20 x 20 foot portable storage building was moved from the Danbury CCC Camp area to the nursery upper level and a 24 x 60 foot portable garage was also moved from the Haverhill CCC Camp area to the same location, for much needed storage space and working quarters.

Since Sovasol No. 5, a Socony Vacuum Oil Company product, has proved effective in weeding carrots, it has been tried in many forest nurseries to control weeds. In the summer of 1947 different strength solutions of this product were tried on small plots of different seedlings. Results seemed to indicate that a full strength spray was needed to kill small weeds and retard grass, also, that a full strength spray would burn second-year needles of all seedlings and, also one-year balsam fir and white spruce seedlings. Accordingly, a full strength spray of Sovasol No. 5 was used in the summer of 1948 on a block of 250 one-year white and red pine seed beds. Five gallons of spray were used at each application, or one gallon to 2,400 square feet. Weed growth was confined for the most part to three separate periods during the growing season, when the weeds would soon overrun the seedlings. During each of these periods three applications of spray were applied a week apart. This did not eliminate all hand weeding, but it did kill a large percentage of the small weeds, retard the growth of the rest and reduce the labor of hand weeding.

Storage facilities were furnished the blister rust service and fire fighting equipment and tools were received in wholesale amounts, stored, painted or branded and reshipped in small shipments to many cities and towns throughout the state. A total of 6,259 tools and pieces of equipment were received and 8,094 shipped out. The cost price of the tools shipped out was $32,591.34.

About an acre of the nursery area was allotted the State Highway Department for trees and shrubs used in their roadside beautification program. Two acres of woodland adjacent to the nursery area on the upper level were cleared, stumps removed and levelled for additional nursery area.

A five-horse power Rototiller was purchased for cultivating paths and fitting small sections of the nursery for seed bed and transplant use. This equipment replaced a smaller three and one-half horse power tractor that was found inadequate for the work to be done.

NURSERY OUTPUT — NUMBER OF TREES

Fall, 1946 — Spring, 1947

Age of Stock	White Pine	Red Pine	White Spruce	Balsam Fir	White Ash	Total
5-year transplants	500					500
4-year transplants	80,502	65,372	55,900	8,300		210,074
3-year root-pruned seedlings	67,250	45,825	33,804	1,300	5,425	153,604
Totals	148,252	111,197	89,704	9,600	5,425	364,178

Fall, 1947 — Spring, 1948

4-year transplants	18,137	71,985	3,175	21,875		115,172
3-year root-pruned seedlings	96,795	116,672	22,005	13,190	2,250	250,912
Totals	114,932	188,657	25,180	35,065	2,250	366,084

PLANTING ON STATE LAND BY TRACT, NUMBER AND SPECIES

Tract	Acres Covered	White Pine	Red Pine	White Spruce	Balsam Fir	White Ash	Total
Connecticut Lakes	10			200	6,250		6,450
Fox Forest	5*	450			200		650
Litchfield	11	1,000	5,000				6,000
Merrimack River	5		2,000				2,000
Nursery	28	2,000	16,550				18,550
Governor Wentworth	6	200	2,700			150	3,050
	65	3,650	26,250	200	6,450	150	36,700

* Includes 4,475 European Larch, 500 Northern White Cedar, 125 Douglas Fir, 100 Chestnut and 50 Norway Spruce not furnished by the State Forest Nursery.

VALUE OF NURSERY STOCK PRODUCED

Years Ending June 30, 1947 and June 30, 1948

	1947	1948
Trees sold to private planters	$2,006.63	$2,038.60
Trees given to 4-H and other juvenile clubs	245.85	56.30
Trees given to towns	142.25	8.26
Trees used on state lands		73.71
Trees for experimental planting on burned area		15.25
	$2,394.73	$2,192.12

COUNTY FORESTRY PROGRAM

FOREST MANAGEMENT AND MARKETING ASSISTANCE

THE forestry program of assistance to New Hampshire woodland owners was accelerated November 1, 1945, as a result of a memorandum of understanding between the State Forestry and Recreation Commission and the University of New Hampshire Agricultural Extension Service. The program has the support and cooperation of the U. S. Forest Service. There are now eight county foresters covering the state, working out from the County Extension Offices.

The names and addresses of the county foresters and the territory covered by them are listed as follows:

Name	Address	Tel.		County
Bissell, Lewis P.	County Extension Office	Woodsville	241	Grafton
Bradley, Robert F.		Laconia	1341	Belknap and Strafford
Breck, Robert W.	"	Milford	45	Hillsborough
Breon, Theodore F.	"	Conway	168R2	Carroll
Dussault, William E.	"	Keene	930	Cheshire and Sullivan
Phipps, Robert H. K.	"	Lancaster	445	Coos
Sloan, Roger P.	"	Exeter	2741	Rockingham
Thompson, Wilbur E.	"	Concord	288	Merrimack

An outstanding feature of the New Hampshire forestry program of assistance to woodland owners is the fact that the people in the counties have a direct interest in it, and help finance the program as they do for county agricultural agent work, 4-H work, and home economics work. In preparing yearly plans of work, the county foresters have the advice of county forestry committees whose members are interested in farm woodland management.

The question might be asked, "what has been accomplished since November 1, 1945?" when the program was started. The efforts of the county foresters have been directed at establishing a large number of result demonstrations. Besides helping woodland owners in the management of their growing timber, the county foresters also assist owners in the marketing of their forest products.

In a period of three years, the county foresters have influenced 665 woodland owners to carry out recommended cutting practices in their woods when harvesting forest products. With the cooperation of these owners, the county foresters marked trees for cutting, totaling 4,899,000 board feet of logs and 6,766 cords of pulp and fuelwood. They have given woodland management and marketing assistance to 2,000 woodland owners and have made 1,455 contacts with sawmill operators and buyers of forest products.

Each fall the county foresters obtain forest products market information which is published in the annual forest market report. The report gives the names and addresses of the buyers of forest products, the kinds, sizes, and terms of purchase of forest products bought by each buyer. The cost of lumbering, pulpwood, and cordwood operations are listed. Woodland owners find the information in the annual market reports valuable when they have forest products to sell.

For three years the New Hampshire pulp industry has cooperated with the Forestry and Recreation Commission and the University of New Hampshire Agricultural Extension Service in sponsoring a Forestry Pulpwood Contest in the northern New Hampshire counties. The objective of the contest is the continuous production of forest products. Sixty-two contestants entered the contest during the winter cutting season of 1948-1949. The county foresters in the northern counties are available to help the contestants start their cutting in accordance with recommended cutting practices.

With a well-organized county forestry program aimed at getting woodland owners to practice good woodland management, it was feasible for the Trees for New Hampshire Committee to launch on October 1, 1948 an intensive publicity program of good forest management directed at all woodland owners. The Trees for New Hampshire Committee distributed 40,000 booklets "Cash Crops from New Hampshire Woodlands," 100 film strips, supplemented with a film strip booklet, and a two-minute motion picture film which have carried the message that forest management pays dividends. As a result of this intensive publicity program, more than 500 woodland owners who own approximately 66,000 acres of woodland, have requested assistance. During November, 1948, the county foresters held 35 woodland demonstration meetings on selected areas of the 665 woodland owners who

are managing their woodlands in accordance with the recommendations of the county foresters. Woodland owners who became interested in the management of their woodland as a result of the Trees for New Hampshire publicity program were urged to attend one of the meetings to see what is involved in making a selective cutting, and to meet the county forester. The meetings were well attended, and the Trees for New Hampshire program has been a means of interesting a large number of woodland owners in starting a program of good forest management on their lands. Through these meetings, the general public has also become better informed about the importance of the forest problem to the general economy of the state.

Selective cutting in white pine.

Over 320 maple syrup producers attended meetings held during the early spring of 1948, and obtained up-to-date information on the production of quality maple products. With the launching of the Trees for New Hampshire program, October 1, 1948, the county foresters have had increased requests for talks and motion pictures on forestry at service clubs, granges, schools, and before other gather-

ings. The schools and many adult organizations are making good use of the forestry film strip, which is supplemented by the film strip booklet. The campaign by radio and press has been intensified in getting the subject of forestry before the public. The pulpwood industry in cooperation with the State Extension Services, and State Forestry Departments of the three northern New England states prepared and showed a forestry exhibit covering the subject of forestry management at the 1948 fall fairs. The exhibit was serviced by the county foresters.

The value of the county forestry program is apparent by the assistance rendered to individual woodland owners. The following example is used to demonstrate how the county foresters have assisted woodland owners in New Hampshire in the better management of their woodlands.

A farmer in the town of Lee was offered $3500 for his 50-acre stand of 600 MBF of white pine and hemlock. Upon contacting the county forester he became convinced of the value of selective cutting. As a result, the forester, assisted by the farmer, marked about 292 MBF of timber and 20 cords of wood for a selective cutting. A written contract was suggested and the farmer advised of market conditions. As a final result, he received approximately $3000 from a portable mill operator for his marked trees. The very poor quality trees were cut, leaving standing a thrifty growing stand of timber of various ages. The farmer has since thinned some of the growth that was not cut. The material has been manufactured into shingles. He has fenced the cattle out of his woodland upon advice of the county forester. He plans to handle future cuttings with his own labor. Needless to say, this woodland owner appreciates the assistance given him by the county forester. Many neighboring woodland owners have visited his woodlot.

The county foresters have located many woodland owners who have been managing their woodlands for years and in every case the records show that it pays to grow timber as a crop. An outstanding example of good forest management over the years is the case of Ralph I. Peabody, a 73-year old farmer who lives in the town of Shelburne. Mr. Peabody has been managing his 95-acre woodlot for 32 years. Year after year, he selects the trees to cut, and sells the products from his woods for lumber and pulp use; besides he cuts his own fuelwood from poor quality hardwood. Today, he has better and more trees on his woodlot than grew there thirty-two years ago. Each year he gets a good income from his 95-acre woodlot.

Mr. Peabody's gross income from his 1947-1948 winter's work in his woods was as follows:

RECEIPTS

Spruce pulp, 2 cords	$30.00
Hardwood pulp, 5 cords	61.25
Hemlock pulp, 18 cords	216.00
Hemlock-pine logs, 6 M feet	161.00
Firewood, 4 cords	56.00
	$524.25

EXPENSES

275.5 man hours, own labor @ $1.00 per hour	$275.50
Hired labor	19.40
Yarding with horse	50.00
	$344.90

The amounts and sources of funds that support the county forestry program for the fiscal year 1948-1949 are listed as follows:

Federal Norris-Doxey Funds	$16,600
State Funds	9,650
Counties	8,000
	$34,250*

* Does not include college and federal contributions for salary, expenses, stenographic assistance for the Extension Forester, nor services in kind contributed by the County Extension Services in furnishing desk space and stenographic assistance for the county foresters.

In order to take care of reasonable salary increases and increased operating costs for the county foresters, and to pay for stenographic services in the counties, it is recommended that the 1949-1950, 1950-1951 budgets be increased as follows:

Federal Norris-Doxey Funds	$16,600
State Funds	15,000
County Funds	8,000
	$39,600

The New Hampshire intensive educational program in forestry is organized on a sound basis. The program in forestry extended to a large number of woodland owners throughout the state is a practical and efficient way of influencing a large number of forest owners to apply good cutting practices on their forest lands.

REGISTERED ARBORISTS

REGISTRATION is required for all persons engaging in tree surgery, pruning, spraying and dusting (including airplane operations) forest, shade and fruit trees in the state. The only exception is in the case of practice within the town in which the operator resides. The New Hampshire Arborists Association includes most of the registered arborists in the state, and contributes much to keeping the standards of work high and its members acquainted with the latest developments in the field. Meetings of the Association have been addressed by the State Entomologist and representatives of this commission.

Recently the proposal has been made that the standards required of New Hampshire arborists should be raised so that they would be acceptable to other states, for instance Connecticut, and that arrangements be made for granting licenses to persons registered in Connecticut to practice in New Hampshire without taking an examination. There would be much to be gained by adopting a uniform set of requirements in each New England state and granting licenses at the regular fee to those registered in other states.

The list of registered arborists follows:

Registered Arborists 1948

Abbott Brothers Tree Service, Wells, Maine (William F. Abbott)

Aldrich Tree Service, Inc., 25 Eastern Avenue, Dedham, Mass. (Leon F. Aldrich)

Karl F. Amalia, Amalia, Inc., 9 Bridge Street, Manchester, Mass.

F. H. Bailey & Sons, Inc., P. O. Box 308, Nashua, N. H.

Barber Tree Service, Peterborough, N. H. (Eugene L. Barber)

F. A. Bartlett Tree Expert Co., 795 Memorial Drive, Cambridge, Mass. (Wilfrid Wheeler, Jr.)

J. Armand Bouchard, 747 Hall Street, Manchester, N. H.

Ernest J. Chase, 686 Court Street, Keene, N. H.

Leon H. Clark, Jr., Box 396, Meredith, N. H.

Gordon Cloud, Norwich, Vermont.

Conley & Brown, 96 Conant Street, Danvers, Mass.

Walter F. Crowe, Hillrise Lane, Meredith, N. H.

Davey Tree Expert Company, Kent, Ohio.

The Dodge Associates, Main Street, Wenham, Mass. (Albert W. Dodge)

John E. Earl, Haverhill Spraying Co., 10 Coffin Avenue, Haverhill, Mass.

Eastern Tree & Landscape Corp., 280 Bridge Street, Dedham, Mass. (Arthur J. Hasson, Brookline, Mass.)

Robert H. Eaton, Alton, N. H.

George E. Ellinwood, Hillsboro, N. H.

William G. Elliott, 33 Salem Street, Wakefield, Mass.

Edward O. Flint, 368 Water Street, Keene, N. H.

George W. Flint, Jr., 10 Charles Street, Keene, N. H.

Leo E. Fontaine Tree Service, 32 Broad Cove Drive, Concord, N. H.

William A. Franke, 30 Cameron Street, Brookline, Mass.

Franklin Tree Expert Co., 318 Main Street, Greenfield, Mass. (C. T. Caldwell)

Miss Lillian A. Fraser, Riverside Spraying Company, 145 Elliott Street, Haverhill, Mass.

H. L. Frost & Higgins Company, 20 Mill Street, Arlington, Mass. (by J. Cooke White, R. D. Keene and E. W. Higgins).

E. Leroy Greene, Rye Beach, N. H.

George L. Harkins, 250 North Main Street, Concord, N. H.

Henderson & Herndon Tree Co. Inc., 9 Story Avenue, Beverly, Mass. (William P. Henderson)

John P. Herbert, 2 Hancock Street, Gloucester, Mass.

John E. Hook, Locale Tree Company, 9 Hillsdale Avenue, Beverly, Mass.

Royce H. Hutchins, R. F. D. 1, Plymouth, N. H.

Arthur J. Jean, Jr., 321 Maple Street, Manchester, N. H.

Robert E. Knapp, Belmont, N. H.

Warren Kolb, Atkinson, N. H.

B. F. Lawrence Tree Expert Company, 17 Garfield Street, Greenfield, Mass. (Benjamin F. Lawrence)

The Lucas Tree Expert Company, 179 Sheridan Street, Portland, Maine. (R. E. Billings)

Elmer F. Mayberry, Lancaster, N. H.

Robert W. Meader, Greenland, N. H.

Harry F. Melendy, Milford, N. H.

Kenneth S. Mochrie, 157 North Road, Chelmsford, Mass.

Munson-Whitaker Company, 9 Fellsway East, Malden, Mass. (by John E. Riley and Robert S. O'Shea)

Willard N. Myers, Atkinson, N. H.

William H. Nehring, Ridge Farm Nursery, New Durham, N. H.

George Price, 713 Pleasant Street, Pawtucket, R. I.

Fred Ralston & Co., 337 Washington St., Brighton, Mass. (Frederick R. Ralston)

M. L. Raymond, Wolfeboro, N. H.

Clifton E. Richardson, Peterborough, N. H.

Philip H. Rines, R. F. D. 3, Box 160A, Manchester, N. H.

Lester W. Robbins, Winkle Lodge, 186 Main Street, Keene, N. H.

Russell N. Stalbird, Star Route, Sunapee, N. H.

Oscar P. Stone Tree Surgeon, 2 Bonnyvale Road, West Brattleboro, Vermont.

John Tierney, 16 Liberty Street, Manchester, N. H.

W. F. Tuttle, Wolfeboro, N. H.

James R. Walker, 31 Grant Street, Concord, N. H.

Stillman E. Walter, Wolfeboro, N. H.

Myles Standish Watson, Newington, N. H.

William H. Welchans, R. F. D. 1, Warner, N. H.

Russell H. Welsh, 23 Linden Street, Exeter, N. H.

John W. Wholley, Bradford Tree Expert Company, 4 Clinton Street, Haverhill, Mass.

Edwin S. Wise, Box 248, Newport, N. H.

DISTRICT FOREST ADVISORY BOARDS

THE Forest Advisory Boards have continued to render valuable service in keeping the commission advised of local sentiment for conservation in their districts and cooperating with other agencies in supporting plans for fire protection and other aspects of forest conservation. Especial mention should be made of the services performed by the over-all state chairman, Richard W. Read and secretary, Thomas J. King working with representatives of each of the district boards. The membership of the boards was as follows:

District Forest Advisory Boards as of January 1, 1948

BELKNAP-CARROLL:

Howard W. Sanborn, R. 1, Laconia
Richard W. Read, Tamworth
Roger Williams, Center Tuftonboro
Arthur P. Gale, Jackson
Richard C. Varney, Gilmanton
Stephen H. Boomer, Secretary, North Conway

CHESHIRE-SULLIVAN:

Arthur A. Davis, Claremont
Maurice A. Mansell, Marlow
George L. Porter, R. F. D., Alstead
George H. Duncan, Jaffrey
L. F. Dickinson, Keene
Fred J. Baker, Secretary, Keene

COOS:

Everett A. Morrison, Groveton
Howard L. Woodward, Berlin
Clarence S. Herr, Berlin
George D. Keysar, North Stratford
Lawrence E. Philbrook, Shelburne
Harold B. Chase, Secretary, Lancaster

GRAFTON:

Amos N. Blandin, Bath
Henry C. Waldo, Lincoln
Harry D. Sawyer, North Woodstock
Wayne C. Lewison, Beebe River
Merle H. Webster, West Canaan
George F. Richardson, Jr., Secretary, Lebanon

HILLSBOROUGH-MERRIMACK:

Harold H. Wilkins, Milford
Victor E. Phelps, Andover
Charles A. Bartlett, Concord
A. J. Christie, Manchester
Henry H. Hildreth, Hollis
Thomas J. King, Secretary, Concord

ROCKINGHAM-STRAFFORD:

A. Harlan Calef, East Barrington
Lewis C. Swain, Exeter
Joseph F. Culick, Fremont
Arthur W. McDaniel, East Barrington
Harold E. Flower, Barrington
Merton A. Webber, Secretary, Windham

FOREST PRODUCTS CUT IN 1946 AND 1947

FOR many years the Commission has compiled reports on the annual lumber cut. Increased utilization of forests during and after the war following closely on the great destruction of the hurricane, has caused concern over the maintenance of timber supplies adequate to the needs of industry. It therefore becomes ever more important that an accurate record be kept of depletion from all sources.

The completion of the National Forest Survey field work in New Hampshire gives us for the first time an accurate inventory of forest resources. However, this will become out-of-date in a short time if depletion is not recorded. Accordingly, the 1947 legislature broadened the scope of the reports required, so that reports of the cut of pulpwood and cordwood are now required by law, in addition to that of lumber and similar products. So far no practical method, other than by field sampling, has been found for collecting reports on cordwood cut but no funds have been available for carrying out such surveys.

LUMBER CUT FOR CALENDAR YEARS

1946 and 1947

	1946[1]	1947[2]
	Thousand Board Feet	
Balsam Fir	880	464
Cedar	34	22
Hemlock	44,052	47,947
Norway Pine	Not reported	1,650
Pitch Pine	294	591
White Pine	282,899	297,654
Spruce	13,264	15,976
Tamarack	44	21
Other	Not reported	32
Total Softwood	341,476	364,357
Ash	881	1,667
Aspen	49	541
Basswood	271	409
Beech	5,059	6,767
Birch	17,391	22,092
Elm	85	405
Maple	9,696	13,634
Oak	7,108	7,797
Other	368	324
Total Hardwoods	40,908	53,636
Total all lumber	382,384	417,993
Number of mills reporting	534	743

1) Lumber Production in New Hampshire 1946—Facts for Industry, Bureau of Census M 13G, 15-06, 1948

2) Mail Canvass, N. H. Forestry and Recreation Commission

LUMBER CUT BY COUNTIES

Thousand Board Feet

County	1946[1] Softwood	Hardwood	Total	1947[2] Softwood	Hardwood	Total
Belknap	30,789	1,393	32,182	25,422	5,153	30,575
Carroll	35,265	2,828	38,093	37,406	3,456	40,862
Cheshire	32,887	6,459	39,346	31,374	7,646	39,026
Coos	5,938	7,467	13,405	10,251	13,354	23,605
Grafton	56,124	8,202	64,326	52,138	7,738	59,876
Hillsborough	29,367	2,328	31,695	49,773	4,776	54,549
Merrimack	50,937	3,304	54,241	52,590	4,962	57,552
Rockingham	44,424	2,660	47,084	37,390	1,045	38,435
Strafford	32,556	2,982	35,538	46,764	2,147	48,911
Sullivan	23,189	3,285	26,474	21,249	3,359	24,608
			382,384	364,357	53,636	417,993
State	341,476	40,908				

1) Lumber Production in New Hampshire 1946. Facts for Industry M 13G-15-06, 1948 U. S. Bureau of Census

2) N. H. Forestry & Recreation Commission. Mail canvass.

Portable sawmill. This type produces the bulk of the lumber sawn in the state.

Lumber Cut

The collection of data on the 1946 cut was again greatly facilitated by the excellent cooperation given by the U. S. Forest Service and Bureau of the Census. These agencies in cooperation with this Commission conducted a field canvass of all mills. This survey provided a complete mailing list which was used to canvass mills by mail for the 1947 cut. Constant changes of mill location, mailing address, and ownership status make such lists difficult to keep up-to-date. However, directories of sawmills and other wood-using industries, based on the most recent information have been issued by this Commission in mimeographed form in 1947 and 1948 and have proven most useful to the public. During both years the substantial help rendered by the District Fire Chiefs, whose duties include inspection of portable sawmills, and by the County Foresters, has been of the greatest importance. The U. S. Census of Manufacturers also conducted a field canvass of the 1947 cut. The cut of lumber has remained at the prevailing high level during both years, and shows no indication of decrease.

Where lumber cut in New Hampshire goes is shown by a study based on the 1943 cut. From this it appears that about three-fourths is used locally and one-fourth sent to other states. Imports of lumber from other states amount to about one-tenth of the local cut. Details are given in the following table:

NEW HAMPSHIRE'S LUMBER SUPPLY IN 1943

Production, Imports, Exports, Stock Changes, and Domestic Consumption

Thousand Board Feet

Source of Supply			Distribution of Supply		
Production (1)		392,332	Domestic consumption (2)		293,054
Taken from stock (3)		72,298	Exports to: (4)		
Imports from: (4)			Connecticut	14,063	
Arkansas	885		Illinois	5,712	
California	1,448		Maine	1,462	
Georgia	815		Maryland	148	
Idaho	635		Massachusetts	125,049	
Kentucky	173		Missouri	9	
Louisiana	87		New Jersey	2,100	
Maine	7,288		etc.		
Mississippi	11		Total exports		211,865
Montana	36		Total supply distributed		504,919
etc.					
Total imports		40,289			
Total available supply		504,919			

(1) Census, Lumber Production in New Hampshire, 1943

(2) Delivered to consumers and dealers

(3) Stock shrinkage January 1 to December 31

(4) Pierson, A. H. and R. H. Blythe, Jr., Domestic Lumber Distribution 1943, U. S. Forest Service, 1945

Miscellaneous Non-Lumber Products

Where bolts shorter than 6 feet are utilized, the product, even if sawn into squared boards or blanks is not classed as lumber. An effort has been made to cover all uses of wood by primary converting industries, but returns were not complete enough to allow separation by species of wood used. Hardwood predominates among these industries.

WOOD CONSUMED BY NON-LUMBER INDUSTRIES

Thousand Board Feet

Product	1946	1947
Bobbins	1,944	4,850
Lath and Shingles	380	553
Boxes and Shooks	10	992
Excelsior	1,826	3,620
Dowels	2,321	3
Handles	377	622
Posts, Poles and Piling	2,170	955
Veneer	19,527	3,139
Sporting Goods	305	10
Cooperage	11,730	5,187
Heel stock, etc.	1,662	770
Miscellaneous	3,848	1,400
	46,100	22,101

Pulpwood Cut

The pulpwood cut in New Hampshire is supplied not only to local mills consuming pulpwood, but to a number of out-of-state mills. The wood cut for export out of the state is included in the state cut. The amount thus exported is believed about equal to the wood imported into New Hampshire from other states and Canada. The cut reported for the years 1946 and 1947 was as follows:

	No. Mills Reporting	Softwood	Hardwood	Total Cords
1946	12	196,180	49,795	245,975
1947	11	152,207	37,007	189,214

FOREST SURVEY OF NEW HAMPSHIRE

DURING 1948 the field inventory phase of the forest survey of New Hampshire conducted by the U. S. Forest Service was completed. According to this survey, there are 4,847,900 acres of forest land in the state or 83.9 percent of the total land area. The forest area was determined from aerial photos provided by the Forestry and Recreation Commission and by private agencies. The

forest land classed as non-commercial is either of low productive capacity or reserved from timber cutting.

COMMERCIAL AND NON-COMMERCIAL FOREST AREA OF NEW HAMPSHIRE, 1948

Forest area	Acres*	Percent
Commercial	4,682,200	81.0
Non-commercial	165,700	2.9
Total forest	4,847,900	83.9
Non-forest area	927,500	16.1
Total land area	5,775,400	100.0

* Figures rounded to nearest 100 acres.

The ownership of commercial forest land is largely in private hands. The Federal ownership is principally in the White Mountain National Forest administered by the U. S. Forest Service.

OWNERSHIP OF THE COMMERCIAL FOREST LAND, 1948

	Acres	Percent
Federal	585,600	12.5
State, county, town, municipal	96,800	2.1
Farm woodland*	1,201,200	25.7
Other private	2,798,600	59.7
Total	4,682,200	100.0

*Based on Census of Agriculture, 1945.

It is estimated that there are nearly 10 billion board feet of saw timber on the commercial forest area of New Hampshire.

NET BOARD-FOOT VOLUME ON COMMERCIAL FOREST AREA OF NEW HAMPSHIRE BY STAND-SIZE CLASSES, 1948

Stand-size class	Area		Sawlog volume
	Acres	Percent	M Board Feet*
Saw-timber stands	1,808,300	38.6	8,125,000
Pole-timber stands	1,736,000	37.1	1,126,500
Seedling and sapling stands	512,300	10.9	254,800
Poorly stocked stands	625,600	13.4	206,900
All stands	4,682,200	100.0	9,713,200

*Based on the International ¼-inch rule.

The sawlog volume in softwoods 9.0 inches and larger and in hardwoods 11.0 inches and larger is included in this estimate.

More than four-fifths of the board foot volume is in saw-timber stands, containing 1,500 board feet (International ¼-inch rule) net volume per acre or more. These stands range in size from one acre to several hundred acres and average about 4,500 board feet per acre.

The pole-timber stands range from 200 cubic feet (about 2½ cords) per acre up to the minimum for saw-timber stands. The seedling and sapling stands are well stocked with at least 40 percent of the stand area covered by the crown canopy of seedlings and saplings. The poorly stocked stands include unstocked areas and do not qualify for any of the other classes.

Spruce and fir account for nearly 14 percent of the net board foot volume; other softwoods, principally white pine, for 47 percent; and hardwoods for 39 percent. When one considers the total cubic foot volume in all trees 5.0 inches and larger, however, the proportional distribution by species groups changes significantly. Although spruce and fir still comprise about 14 percent of this volume, other softwoods account for only 31 percent and hardwoods for nearly 55 percent. This reflects the aggressive nature of hardwoods in the regeneration of stands following the removal of the saw-timber.

NET BOARD-FOOT AND CUBIC-FOOT VOLUME ON COMMERCIAL FOREST AREA OF NEW HAMPSHIRE BY PRINCIPAL SPECIES GROUPS, 1948

Species Group	Sawlog volume		Total Timber volume	
	M Board Feet	Percent	M Cubic Feet	Percent
Spruce and fir	1,342,700	13.8	661,500	14.5
Other softwoods	4,568,800	47.1	1,404,300	30.8
Hardwoods	3,801,700	39.1	2,488,700	54.7
All species	9,713,200	100.0	4,554,500	100.0

These figures cannot be compared with previous estimates because no survey has previously been made with the same standards of accuracy, or in the same manner, with which this can be compared. Therefore, differences compared to earlier beliefs about the extent and volume of forests in New Hampshire can be attributed as much to errors in former estimates as to actual changes in forest conditions. With this in mind it may be remarked that the present survey increases the forest area 1 percent over earlier estimates, and shows that we have 20 percent more saw-timber (and 43 percent more softwood saw-timber) than was supposed a few years ago.

The Forest Survey is planning to issue three statistical reports covering the Forest Survey findings for New Hampshire. The first will report forest area and timber volume statistics for the three northern counties; the second will apply to the southern counties; and the third to the state as a whole. Later on, a comprehensive report for the state will present a picture of the current and prospective forest situation, analyzing the findings on forest area, timber volume, growth, and commodity drain.

FOREST RESEARCH

MOST forest investigations carried on under supervision of the Commission are supported by the Fox Trust Fund, and the work is conducted chiefly at the Fox State Forest in Hillsboro, where a small office and laboratory are maintained. In addition to the regular staff, Mr. Benjamin S. Troop was employed as assistant research forester during 1946 and 1947. Mr. Stanley B. Coville was engaged in this capacity in the summer of 1948 when Mr. Harry Lawson also served as assistant on the Fox Forest.

Progress Report on Investigations

Weeding. Cutting back small sprouts and bushes to free plantations or natural seedlings and saplings has been found extremely costly when the material cut is too small to be salable. Recent measurements of plots weeded in 1933 to release white pine lead to the conclusion that the advantages in greater growth may not always be enough to offset the cost. Where the trees to be released can survive until cordwood can be cut that will at least meet the cost of the operation, it is often better to wait until this can be done. However, in the case of the plots alluded to the pine volume on the weeded plot has increased to three times that on the control. Blister rust damage to pine has been so severe (22% of the volume) that the beneficial effects of the weeding have been partly obscured. There is reason to suspect that infection has progressed more rapidly in the trees set free by the weeding.

Girdling. Plots where maples were girdled to release white pine showed striking increase in diameter compared to untreated control plots. Only trees directly under the girdled hardwoods are affected, and even on girdled plots mortality of small trees by natural crowding has been heavy. Demonstration of the effects of girdling can best be made by comparing individual trees and groups of trees in close proximity to large hardwoods removed from competition by girdling.

Planting. Measurement of plots of Norway pine planted in 1934 at different spacings revealed that during the first 12 years, growth in total volume has been greatest in the close spacing. While the form of trees is better in the close spacing, the average diameter is greater in the wider spacing. Most of this difference has occurred during the last 4 years. Maximum diameter growth occurred 10 years after planting. In order to produce trees of merchantable size in the shortest time, wide spacing or early thinning is necessary.

Early Pine Plantings. An example of one of the oldest pine plantations in the state was discovered in Brentwood and some measurements taken to determine the amount of timber produced. No records

could be found of the source of the planting stock. Probably wild seedlings pulled up in adjacent pastures were used. The oldest plantations were spaced 15 to 16 feet apart, and consequently the trees are branchy and heavily weevilled. A later plantation was set out about 8 x 8 feet. About one-half the trees developed into straight trees for the first 16 feet in all plantings. The present stand per acre of the different aged plots is as follows:

Age	Average Diameter Breast High (inches)	No. of Trees	Mechantable Volume Board Feet	Mean Annual Increment Board Feet	Current Annual Increment Board Feet
40	9.4	500	32,271	807	1,280
50	16.3	154	41,206	824	1,473
60	16.5	140	59,348	989	1,007

Sixty-year old white pine plantation, Brentwood, N. H.

Origin of Seed Experiments

A large series of European larch plots was planted in 1948 with seedlings raised from seed supplied by the International Union of Forest Research Organizations. About 40 different sources are rep-

resented. The purpose is to determine which origin makes the most rapid growth and produces the best formed trees. Similar plantations of Norway spruce made from 1935 to 1942 were measured to determine relative height growth. Great differences were discernible only when trees originating in the far north were compared with those from warmer countries. In general, seeds from southern Europe and Balkan countries produced trees making most rapid height growth.

Christmas Tree Plantations

Small numbers of Christmas trees have been sold from thinnings in plantations on the Fox Forest. Balsam fir of good form averaging 11 feet in height have been cut from 12-year old plantations. Considering the prices now being received for such trees, planting fir for Christmas tree production appears to offer a profitable use for abandoned pasture land. Assuming a cost of $20 for planting 1,000 trees, the value of each tree should increase from 2 cents to 25 cents or more in 10 years. Experiments are being conducted to determine if acceptable trees can be grown from branches left attached to the stumps after cutting.

REVISION OF LAWS, 1947

Laws relating directly or indirectly to the activities of the Commission were enacted at the session of 1947. They are given below by title with description of purpose:

CHAPTER 68

An Act Relating to Reports of the Cut of Forest Products

1. **Forest Products.** Amend section 66, chapter 233, Revised Laws by striking out said section and inserting in place thereof the following:

66. **Report of Cut.** Every person operating or causing to be operated any timber, cordwood, or pulpwood, except for domestic use and not for sale or conversion into products for sale, shall during the month of January of each year render a report to the Forestry and Recreation Commission, giving in separate items the amount of softwoods and hardwoods cut within the state by or for him during the preceding calendar year. Owners or operators of sawmills and other wood-using industries may be required to render similar annual reports. Information contained in said reports shall not be made public in so far as the same applies to individuals.

2. **Takes Effect.** This act shall take effect July 1, 1947.
(Approved April 3, 1947.)

CHAPTER 158

An Act Establishing a State Tree for New Hampshire

1. **State Emblems.** Amend chapter 13 of the Revised Laws by inserting after section 3, the following new section: 3-a Tree. The White Birch Tree, *(Betula papyrifera)* is the state tree of New Hampshire.

2. **Takes Effect.** This act shall take effect upon its passage. (Approved May 22, 1947.)

CHAPTER 215

An act to free from tolls the so-called Kearsarge Mountain Toll Road and classify said road as a Recreational Road.

CHAPTER 274

An act to provide for the development and extension of Recreational facilities on Public lands and the further acquisition of Recreational areas.

CHAPTER 225

An act relating to an aerial survey of the State of New Hampshire. Continuation of appropriation.

CHAPTER 296

An act making appropriations for the expenses of the State of New Hampshire for the year ending June 30, 1948. Forestry and Recreation Administration, 1948.

CHAPTER 297

An act making appropriations for the expenses of the State of New Hampshire for the year ending June 30, 1949. Forestry and Recreation Administration, 1949.

CHAPTER 294

An act making appropriation for capital improvements and long term repairs for the State of New Hampshire. Warehouse and Storage Building.

FORESTRY DIVISION APPROPRIATIONS

A statement of appropriations of the Forestry Division for the biennial period ending June 30, 1948, is given below. A complete statement in detail of all appropriations, special funds and revenue of the Division may be found in the annual reports of the State Comptroller and the State Treasurer.

Forestry and Recreation Commission

Forestry Division

July 1, 1946 — June 30, 1947

	Appropriation	Expenditure	Reserved for Bills Payable	Balance Available
Administration	$23,835.04	$	$	$
Transfer	303.59	23,770.12	368.51	
Nursery	10,599.43			
Transfer	222.75	10,707.22	114.96	
Reforestation	2,999.25			
Transfer	—378.98	2,616.27		
District Fire Supervision	11,831.50	11,831.00		
Prevention of Fires	4,827.00			
Transfer	51.57	3,426.86	1,451.71	
White Pine Blister Rust	7,170.00			
Transfer	—188.36	6,727.33	254.31	
Federal Emergency Program	6,700.00			
Transfer	—10.57	6,689.43		
Lookout Stations	21,500.00	21,500.00		
Training Conferences	1,000.00	1,000.00		
Forest Fire Bills, to Towns	7,500.00	7,200.86	299.14	
Old Year Reserve	7,239.63	7,111.83		
	$105,197.85	$102,580.92	$2,488.63	

July 1, 1947 — June 30, 1948

	Appropriation	Expenditure	Reserved for Bills Payable	Balance Available
Administration	$28,799.33	$	$	$
Transfer	—66.65	28,737.13	62.20	
Nursery	11,904.75			
Transfer	681.14	12,536.61	49.28	
Reforestation	3,473.75			
Transfer	—681.14	2,792.61		
District Fire Supervision	15,185.00	13,959.47	1,225.53	
Prevention of Fires	6,555.37			
Transfer	53.93	3,534.99	2,292.75	
White Pine Blister Rust	12,780.00			
Transfer	53.93	12,217.35	616.58	
Federal Emergency Program	9,650.00	9,650.00		
Lookout Stations	22,320.00	22,320.00		
Training Conferences	1,350.00	1,350.00		
Forest Fire Bills, to Towns	7,500.00	180,743.65	3,339.92	—176,583.57
Old Year Reserve	2,488.63	2,458.05		
	$122,006.83	$290,299.86	$8,221.09	$—176,583.57

REPORT

of

Recreation Division

A View of Cathedral Ledge
Echo Lake State Park

RECREATION DIVISION

DIRECTOR'S INTRODUCTION

ACTIVITIES within the Recreation Division were extensively broadened in scope and detail during the calendar years 1947 and 1948, reflecting unusually favorable weather conditions, and thus a more widespread participation by the public in all kinds of outdoor recreation. The backlog of travel, created by a strict curtailment during the war years, exceeded in volume all previous predictions. Thus, demands upon New Hampshire's recreational facilities were constant and pressing. While generally good business conditions abetted a travel-conscious public, inflationary trends created many operational and maintenance problems for the Recreation Division.

Fortunately, some of these operational and maintenance problems were anticipated, and our budgetary requirements were adjusted upward to meet the same inflation in expenditures. The costs of material and maintenance of park facilities rose tremendously during this period. Wages increased and the expanded use of our facilities was reflected in a need for replacement and improvement of those facilities found to be inadequate. Part of this burden was borne by higher park revenues resulting from a greater patronage by the public. The Division embarked upon a capital improvement program to extend park facilities found to be inadequate—a program which met the approval of the General Court inasmuch as funds were provided to defray the cost of such a program.

The actual limit of this inflationary spiral experienced during the past two years, and its effect upon the cost of operation and maintenance, could not be fully anticipated. Costs continued to climb and an effort was made during the period to balance these costs by resorting to additional income sources. The income from service charges, rentals, sales, and other sources of income were proportionately higher. The policy to operate directly the sale of souvenirs, gifts, and refreshments as determined some time ago has proved highly successful from many viewpoints. The traveling public has thereby been provided good service and quality merchandise at reasonable rates—a factor having considerable advertising value in itself—and the Division is assured additional income with which to meet its expenses. This program, extended in practice during the years ahead, should serve to proportionately reduce requests for funds from the General Court over a period of time. This will be particularly true should prices level off or actually move downward to the degree where we are able to anticipate our operational and maintenance costs with some semblance of accuracy.

Center—Russell B. Tobey, Director of Recreation
Left—James D. Bell, Administrative Assistant
Right—John B. Blackwood, Administrator of State Parks
Top—David Heald, Managing Director of Mt. Sunapee State Park
Bottom, L. to R.—Bernard M. Reen, Planning Director
Robert E. Sullivan, Design and Dev. Engineer
Armand A. Dugas, Jr., Engineer
Phillip M. Hodgkins, Chief Draftsman

During 1947 and 1948 our park facilities were critically strained by very heavy and prolonged use by the traveling public. Proper maintenance and replacement of these facilities were, of course, impossible during the war years due primarily to a shortage of labor and material. Depreciation continued and was accelerated by the unusually heavy demands of the public once wartime restrictions were lifted. Many serious breakdowns and functional inadequacies of equipment became manifest as a direct result of these factors. Thus, it was that a traveling work crew was organized as a means of remedying this dilemma in the face of rising costs. This crew, provided by budgetary allotment, operated from a base camp which was stocked with supplies, tools, and other equipment essential to a balanced program of maintenance. Serving under the guidance of the Planning Director and his staff, this work crew was able to meet both emergency and long-term maintenance needs at the several parks. This program will be continued, and should succeed in counteracting the neglect of the war years, spiraling costs, and a constant depreciation arising from use by the public.

The legislature during the period also allotted funds for a program of capital improvement—a program "for developments on the several recreation areas where at present there is considerable investment of public funds, and which, because of their age and extreme use, are not now capable of supplying recreation for the numbers of people who wish to use them, nor sufficiently developed to provide optimum financial returns." Consistent with the provisions of this improvement program, projects were carried out at several parks, both by contract and by forced account. Hardly had work been completed on these projects when the public began showing its appreciation by an increase in park use. Suitable parking facilities for an additional four-hundred cars were provided under this improvement program at the Wellington State Park. The week end following completion witnessed a complete utilization of the added capacity by a larger park attendance!

Two new facilities were added to this Division's program during the biennium. The smaller facility comprised Rhododendron State Park in Fitzwilliam, a gift from the Appalachian Mountain Club, and whose unusual growth of rhododendron maximum attracted many visitors during its first season under our jurisdiction. The Flume Reservation in Franconia Notch, the larger of the two facilities, resulted from a transfer by the Society for the Protection of New Hampshire Forests —an organization which did much during a twenty-year period to publicize the natural beauty and scenic charm of this area. The formal transfer of this property, our manner of operating and statistical reports of this facility, will be dealt with more fully elsewhere in

this report. It has long been felt desirable by our commission that wayside picnic areas be established on main highway routes for the convenience of the traveling public. Authorization and financing for development were included in the capital improvement program, and during the biennium four wayside areas were developed.

Toward the end of the biennium, preparations were made for the operation of the new Mount Sunapee State Park at Newbury. As previously arranged, developments were to be carried out on Mount Sunapee by the New Hampshire Highway Department, with the approval of the Governor and Council. Upon completion of this phase, the park was to become a facility under the jurisdiction of the Forestry and Recreation Commission. Plans for its administration were drawn up in the fall of 1948, and were similar to those employed at the Franconia Notch State Reservation. The director was to function as liaison for the commission and other state agencies in matters pertaining to this newest state park. A manager was selected for direct supervision, detailed plans were formulated on the basis of winter-time operations. At the end of the biennium we were awaiting completion of the facility in order that we might operate during the winter season 1948-1949.

Bishop John T. Dallas and Mrs. Meredith B. Givens attending memorial tablet dedication for Philip Wheelock Ayres, Echo Lake, Franconia Notch State Reservation

The Division, cooperating with public and private agencies, participated in several projects in allied fields. The Youth Conservation Camp at Bear Brook State Park each year of the biennium was a source of considerable personal satisfaction to us as a cosponsor. Under the guidance of an excellent faculty, young people from various parts of our state gained a more tangible and conscious appreciation of the need for the wisest utilization of our state's natural resources. The results were most gratifying, and can certainly be attributed in no small degree to the sincere efforts of the faculty, the students, and the variety of the environment provided in this state park. We were also very happy to be permitted to participate with an exhibit at the State Flower Show in Manchester, feeling as we did that herein lay an excellent opportunity to acquaint people with the advantages available to them in nearby parks for out-door recreation. A rehabilitation and modification of the old Civilian Conservation Corp buildings and camps at Bear Brook State Park have provided opportunities for a great variety of group meetings. Many fields of interest have been represented by these group meetings, such as, a high school football training camp, 4-H Clubs training courses, forest fire training units, the University of New Hampshire Student Christian Movement outings as well as others too numerous to mention in detail. An excellent beginning has been made, and it is sincerely our hope that training courses will be provided in the future such as forestry, soil conservation, wild life conservation, and a wide variety of other allied fields. Certainly, the location of Bear Brook State Park and its 7,000 acres offer a splendid opportunity to youth and adults as a training ground for more healthful living and better citizenship. Another cooperative project of mutual benefit to all participants, and one which was shared by representatives from all parts of our country, on the state and federal levels, was the National Conference on State Parks held at Bear Mountain State Park, New York, in 1947. Here our representatives enjoyed an opportunity to share in the discussion of common problems and to indulge in an exchange of ideas, all of which was bound to bring a fuller and clearer appreciation of the scope of the state park work. Experiences were again shared on a smaller, and perhaps more personal basis, when the members of the New England State Park group met at Rhododendron State Park in 1947 for a week end conference. On a state-wide basis of cooperation members of our staff participated in the New Hampshire State Federation of Garden Club's project of interest and benefit to our state, namely, the judging of the "most beautiful mile" in the "Mile-of-Beautification" contest in 1948.

Since the establishment of the Recreation Division in 1945, there have been assumed added responsibilities and duties each year as new

areas and facilities have come under the administration of the commission. To the smaller permanent staff and seasonal field staff is due considerable credit for the maintenance and improvement of park facilities, the services for increasing numbers of park visitors as evidenced by the statistics which indicate that in this period far greater numbers of persons were accommodated in their out-door recreational pursuits than ever before.

The following areas were added to the Recreation Division's administration during the biennium:—

RYE HARBOR AREA
MOUNT SUNAPEE STATE PARK
FLUME RESERVATION
CHESTERFIELD WAYSIDE
FAY WAYSIDE
HONEY BROOK WAYSIDE
DIXVILLE NOTCH WAYSIDE

Governor Dale, on behalf of the State of New Hampshire, accepts the deed to the Flume Reservation from Edgar C. Hirst, Secretary of the Society for the Protection of New Hampshire Forests

Looking on are Mr. Adams, former Governor Spaulding, Mrs. McDuffee, Mr. Brown and Mr. Rathbun

1947 - 1948

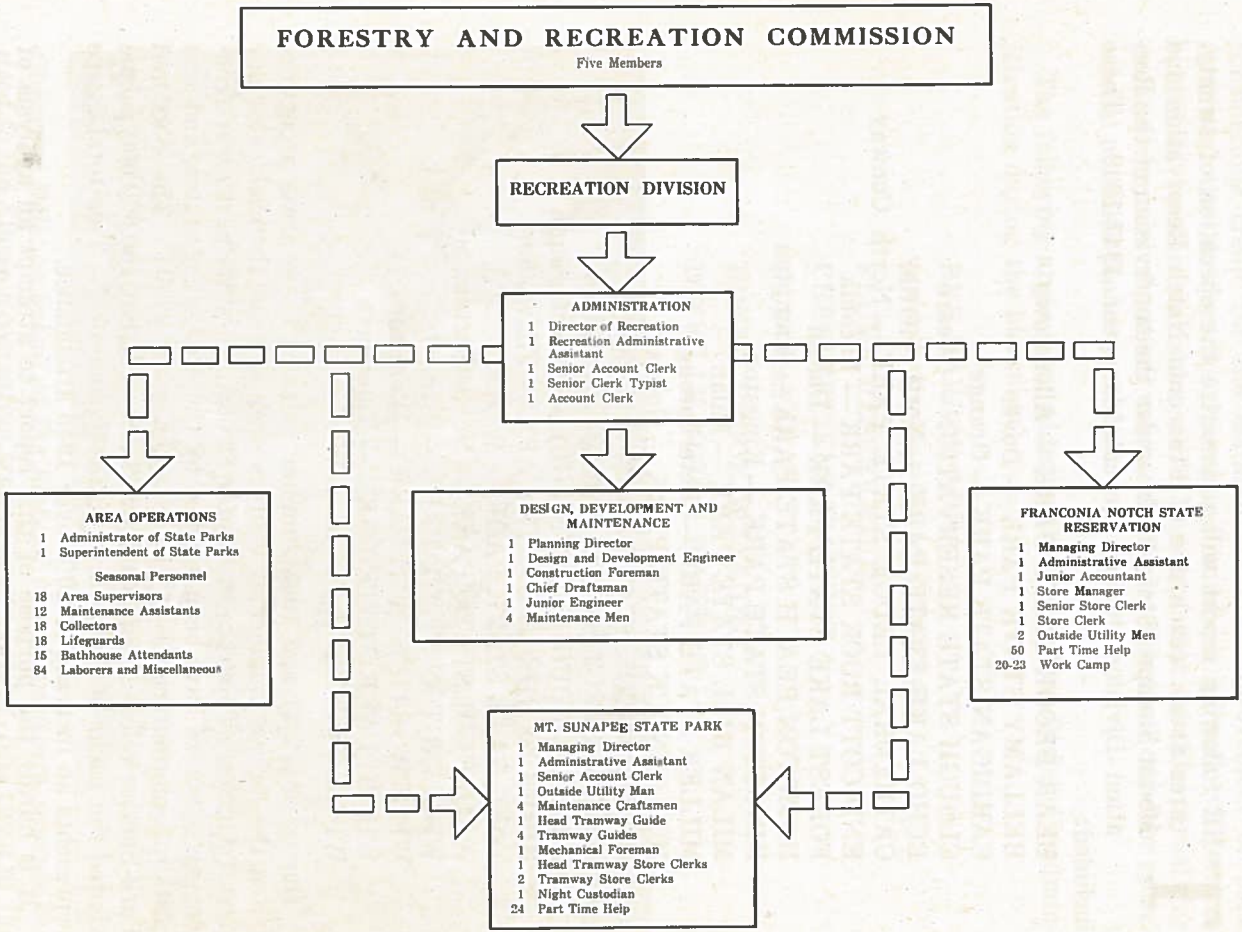
STATE PARK OPERATIONS

THE following report will summarize the operation of twenty-three areas, (exclusive of Franconia Notch Reservation and Mount Sunapee State Park) under the supervision of the Recation Division during the calendar year 1947-1948. These included:

BEAR BROOK STATE PARK — Allenstown
BELLAMY STATE PARK — Dover
CARDIGAN STATE PARK — Orange
CLOUGH STATE RESERVATION — Weare
ECHO LAKE STATE PARK — North Conway
CATHEDRAL LEDGE STATE PARK — North Conway
ENDICOTT ROCK STATE PARK — Laconia
FOREST LAKE STATE PARK — Dalton
HAMPTON BEACH STATE PARK — Hampton
KINGSTON STATE PARK — Kingston
MILAN HILL STATE PARK — Milan
MILLER STATE PARK — Peterborough
MONADNOCK STATE PARK — Gorham
MOOSE BROOK STATE PARK — Gorham
MT. PROSPECT STATE PARK — Lancaster
PETERBOROUGH STATE POOL — Peterborough
RHODODENDRON STATE PARK — Fitzwilliam
TOLL GATE STATE PARK — Warner
WADLEIGH STATE PARK — North Sutton
WELLINGTON STATE PARK — Bristol
WENTWORTH STATE PARK — Wolfeboro
WHITE LAKE STATE PARK — Tamworth
WINSLOW STATE PARK — Wilmot

During the 1947 and 1948 summer seasons, these areas accommodated the largest number of visitors ever to avail themselves of our park facilities. This record, insofar as our own state parks were concerned, seems to have been equaled by those of other states, and was certainly characteristic of the country as a whole. The National Park Service released figures which indicated that 100,000,000 people visited the parks of forty-three states during 1947. This total figure represents an increase of 20% over 1946 attendance.

It is hardly the purpose of this report to attempt an analysis of the reasons for this influx of visitors to our parks. There does appear, however, to be a close correlation between the search for a more worthy use of newly-acquired leisure time, escape from international tensions, and a release from wartime restrictions relative to travel.


FORESTRY AND RECREATION COMMISSION
Five Members
RECREATION DIVISION
ADMINISTRATION
1 Director of Recreation
1 Recreation Administrative Assistant
1 Senior Account Clerk
1 Senior Clerk Typist
1 Account Clerk
AREA OPERATIONS
1 Administrator of State Parks
1 Superintendent of State Parks
Seasonal Personnel
18 Area Supervisors
12 Maintenance Assistants
18 Collectors
18 Lifeguards
15 Bathhouse Attendants
84 Laborers and Miscellaneous
DESIGN, DEVELOPMENT AND MAINTENANCE
1 Planning Director
1 Design and Development Engineer
1 Construction Foreman
1 Chief Draftsman
1 Junior Engineer
4 Maintenance Men
FRANCONIA NOTCH STATE RESERVATION
1 Managing Director
1 Administrative Assistant
1 Junior Accountant
1 Store Manager
1 Senior Store Clerk
1 Store Clerk
2 Outside Utility Men
50 Part Time Help
20-23 Work Camp
MT. SUNAPEE STATE PARK
1 Managing Director
1 Administrative Assistant
1 Senior Account Clerk
1 Outside Utility Man
4 Maintenance Craftsmen
1 Head Tramway Guide
4 Tramway Guides
1 Mechanical Foreman
1 Head Tramway Store Clerks
2 Tramway Store Clerks
1 Night Custodian
24 Part Time Help

ADMINISTRATION

In order to provide adequate facilities for people using our parks during the past two years, it has been necessary in many instances to increase the number of personnel in the field. During the two summer seasons of the biennium a total respective personnel of 107 and 103 were employed at an average monthly rate of pay which has increased consistently over a period of several years. In spite of these steady increases in remuneration, it has become very difficult in recent years to secure suitable workers on a seasonal basis. In fact, in certain instances, it has been found expedient to provide year-round employment to some who were formerly employed only on a seasonal basis. The number and classification of full-time seasonal personnel required to supervise, administer, and maintain the areas during the past two seasons are shown in the following table:

PERSONNEL CHART

Position	1947 Number Employed	1947 Average Monthly Wage	1948 Number Employed	1948 Average Monthly Wage
Area Supervisors	16	$165.75	17	$167.89
Maintenance Assistants	8	143.68	10	144.78
Collectors	14	107.63	17	113.44
Lifeguards	11	123.61	15	129.07
Bathhouse Attendants	15	114.14	16	110.65
Senior Stock Clerk			1	160.25
Maintenance Craftsman			1	172.00
Casual Labor	43	124.21	26	110.01
Total Employees, and Average Monthly Wage	107	$128.76	103	$126.80

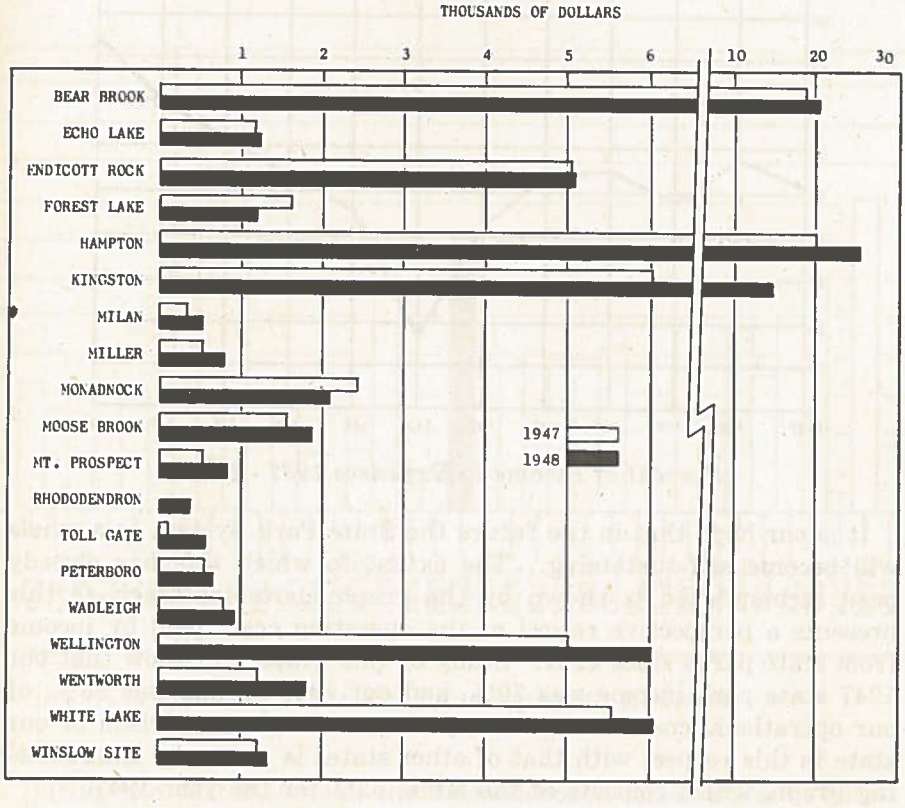
The capital budget program, approved by the last session of the General Court, has enabled us at many parks to provide more convenient and efficient service by various projects undertaken under the provisions of this program, through a re-designing of facilities in order to handle an increase in volume without the necessity of employing more personnel. The public has expressed its appreciation of the improvement in service brought about by this capital budget program.

The net operational cost—including salaries, supplies, goods for resale, equipment and travel expenses for all areas—was $100,524.24 for the 1947 season, and $112,991.93 for the 1948 season.

The tremendous increase in patronage which has taken place at our parks during the past several years has also resulted in a corresponding increase in operational costs. This was to be expected, however, statistics show that these data do not entirely reflect an unfavorable financial operation. For example, there has been a concomitant increase in income which has derived from the various

State Parks Offer Many Kinds of Recreation

charges and rental fees collected at the areas. Such income has tended to offset at least in part rising costs. The income for areas is shown in the graph below:

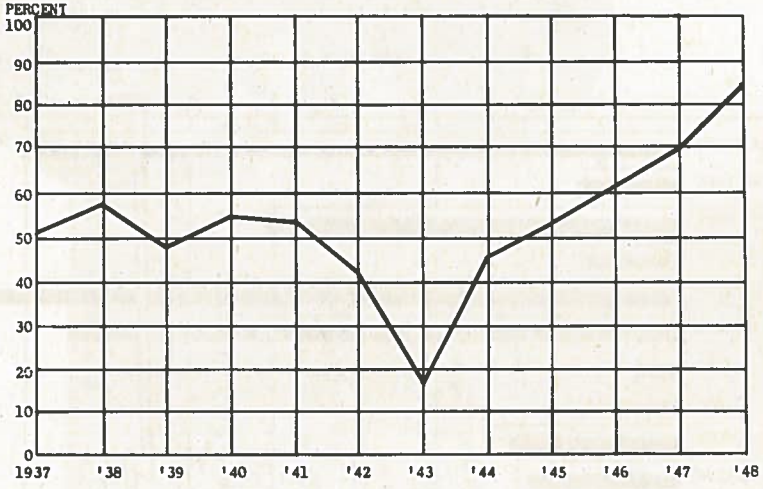


Total Income for State Parks

Other factors, in addition to those previously mentioned, have operated to encourage attendance at our parks, and particularly to promote a sustained attendance which has been very substantial. Among these are:

1. Public appreciation of the high type and low cost of the recreational opportunities offered by our state parks.
2. Additional publicity relative to areas during the biennium.
3. Additional and expanded facilities available for public use.
4. Exceptional weather conditions each year during the summer months.

During the summer of 1947, approximately 423,500 visitors were admitted to our various parks. This total increased in 1948 to 457,300, and the average net cost per visitor decreased from $.058 in 1947 to $.045 in 1948.



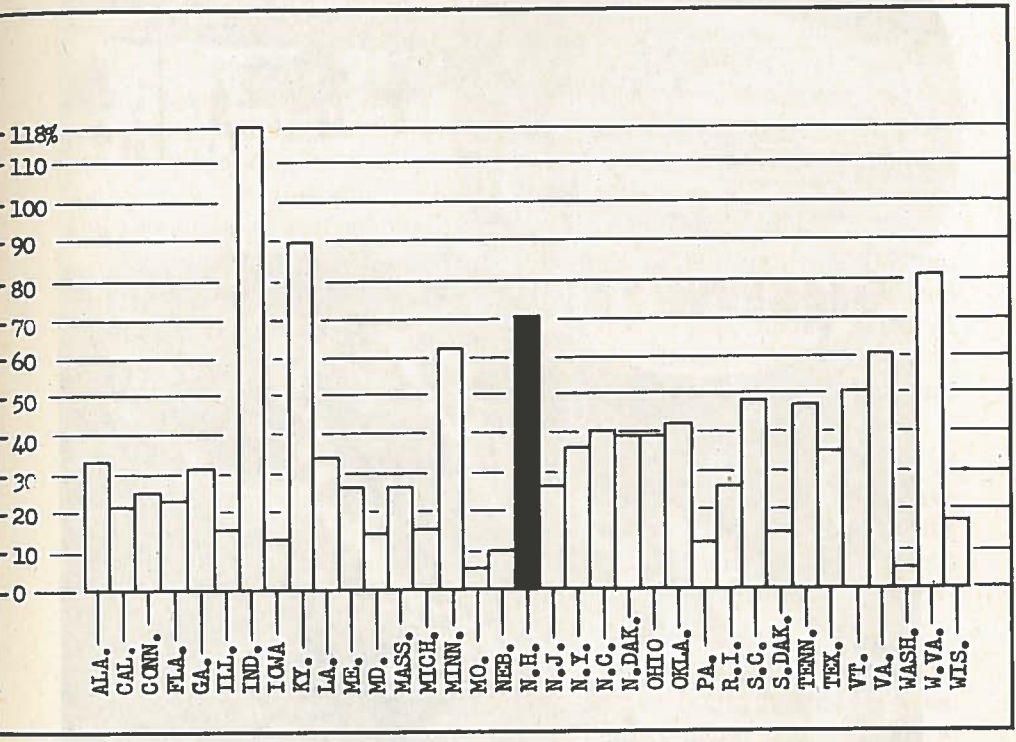
Percent of Income to Expenses 1937 - 1948

It is our hope that in the future the State Park System as a whole will become self-sustaining. The extent to which this has already been accomplished is shown by the graph above inasmuch as this presents a perspective record of the operating costs paid by income from state parks since 1937. Study of this graph will show that our 1947 state park income was 70%, and our 1948 income was 85%, of our operational costs for the two-year period. A comparison of our state in this respect with that of other states is shown by the following graph, which consists of the latest data for the year 1947.

SUPPLY DEPOT

The task of supplying the several parks, scattered widely throughout our state, has been facilitated by a reorganization of the Supply Depot at Bear Brook State Park. This reorganization occurred during 1946, and permits a requisitioning and stock-piling of more than 1,000 individual items for redistribution to the areas upon their request. Quantity purchases by a central agency have resulted in a sizeable reduction in cost, and have made functions more efficient by providing an uninterrupted flow of supplies essential to normal operation of a particular park. Two men are employed to check supplies upon receipt at the Supply Depot, also to keep stock records and inventories, fill orders, pack, and route these items to all areas as requisitioned. These men also repair and recondition damaged supplies and equipment sent

to the Supply Depot from various areas, thus effecting further economy.

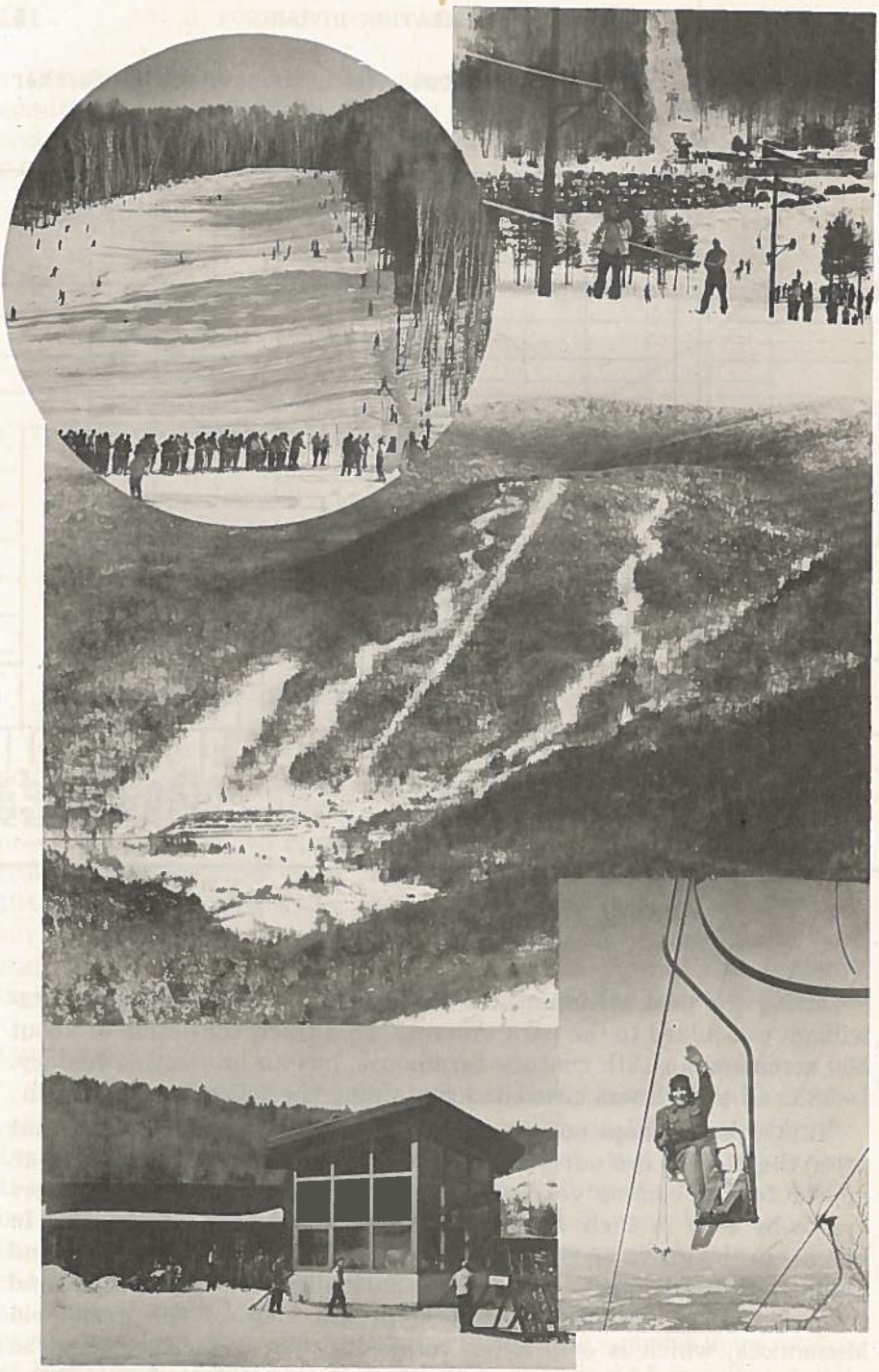


Percent of State Park Income as to Expenses

NEW AREAS

During the past biennium, the Rhododendron Reservation in Fitzwilliam was added to the park system. This tract, consisting of about 300 acres and an 18th century farmhouse, has an interesting history. In 1885 a handbill was circulated containing the following paragraph:

"It is a fact perhaps not generally known of the Rhododendron, that after the flowers are out of bloom in August, the new buds begin to appear for the coming year. Several acres of these beautiful flowers are to be seen in their season, growing from one to fifteen feet in height, in the grove on the "Evergreen farm" of S. M. Follansbee and Company, situated about two and one-half miles from Troy village and two miles from Fitzwilliam village, in full view of the grand old Monadnock, which is only a few miles distant. This Rhododendron garden is supposed to be the largest of its kind east of the Rocky Mountains, and is fast becoming noted as a resort for pleasure seekers, hundreds having visited it this past summer, many of whom were



Winter Sports Activities at Mt. Sunapee State Park

people from the city, boarding at hotels and other places in the neighboring towns. The Rhododendron are in full bloom from June 20th to August 10, and consequently that is the best part of the year to visit this place, although it is a pleasant drive at any time in the summer. Plants and clusters are kept constantly on hand, and bouquets in their season, at the house of Mr. Follansbee on the premises. It is this same farm and only a short distance from the house, where the famous "Silverette, Flower of the Forest," a celebrated polishing powder is found in its natural state. Also a mineral spring, 41 degrees cold, which contains silica, magnesia, sulphur, iron, etc. and is as pure and as valuable for medicinal purposes as many kinds sold."

In 1902, Miss Mary Lee Ware, a patron of botany from Boston, bought the area in order to stop logging operations which threatened to destroy what was then the Northeast's largest known tract of Rhododendron Maximum. Miss Ware later deeded the property to the Appalachian Mountain Club, which in turn deeded it to the state in 1947 after an ownership of more than forty years.

The Reservation suffered severe damage from the hurricane of 1938. However, nearly all of the debris has been cleared, paths have been reopened, and new foot trails constructed. The unusual growth of Rhododendron Maximum was also threatened with extinction, but seems to have recovered from the effects of the hurricane and is thriving well at the present time.

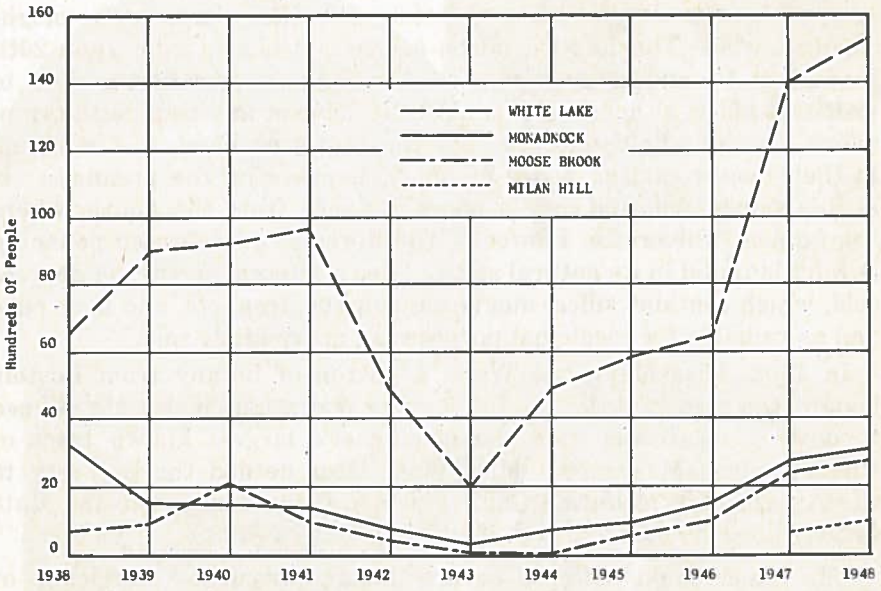
Additional parking and picnic facilities have recently been added and should encourage visitors to enjoy all the facilities of this area. It seems likely to become one of our more popular state parks in southern New Hampshire.

CAMPING

Tent camping in the out-of-doors is increasing in popularity. An average increase of 382% was noted in the number of camper-days for the period 1945 to 1948 on those camping areas supervised by this Division. The following graph shows quite clearly the trend in camping during the past ten years at our three largest areas.

Statistics also show that the campers are remaining a longer period of time at the camp site—an average increase from 2.5 days in 1941 to 3.6 days in 1948. Tallies further indicate that a wide geographical distribution, in fact from all forty-eight states and Canada, is represented by this increase in the number of campers.

Taking into consideration improvements which are now being made, or have already been completed at White Lake and Monadnock State Parks, larger number of campers may be expected during the next two years.



Camper Day — Eleven Year Trend

SPECIAL EVENTS

This Division, from August 30 to September 1 of 1947, cooperated with the Federated Sportsmen's Clubs, Inc., in an effort to demonstrate to the residents of New Hampshire—as well as neighboring states—the urgency of a more intensive interest on the part of the public in the preservation of our natural resources. This effort, known as the "Sportsman's Show," resulted from cooperative plans by our representatives and those of the Club. Measured in terms of financial return on the investment, expenditures exceeded returns. However, the demonstration and goodwill which accrued as a result of this venture go far to compensate for meager returns.

WATER SAFETY PROGRAM

This Division has cooperated with the American Red Cross in conducting water safety programs at those areas having water front facilities. Representatives of the Red Cross toured these areas during the biennium, checking our facilities and making constructive suggestions relative to our methods of protecting the people using these facilities. Whenever suitable facilities were available, a program of swimming instruction was also provided, particularly for those children visiting or living near our parks and unable to swim.

CONSERVATION CAMP

During both summer seasons of the biennium, the division cooperated with the Society for the Protection of New Hampshire Forests in the operation of the New Hampshire Conservation Camp at Spruce Pond Camp, Bear Brook State Park. This camp offered several hundred children a favorable opportunity to become better acquainted with the forests, soil, water, and wildlife resources of New Hampshire. This proved to be a vital program which better prepared young people to conserve by wise use our natural resources.

DESIGN, DEVELOPMENT AND MAINTENANCE OF STATE PARKS

THE work of this branch of the Recreation Division is indicated by its title. During the biennium considerable progress was made to offset the necessary neglect to buildings, equipment and facilities due to the war and the ravages of time. Considering the widely scattered location of the state parks, it was felt this work could best be carried out by organizing a small traveling work crew supplemented by local labor. Headquarters, work shop and a maintenance depot for special tools, machinery and materials was established at Bear Brook State Park. The development of plans and estimates, and supervision of projects were the responsibility of our regular staff with professional assistance. During the summer months the traveling work crew carried out maintenance projects and part of the capital projects, although some of the latter were done under contract. During the winter the traveling crew came back to its base and built tables, benches, signs, small buildings, etc.

A new type of public recreational facility to our state was undertaken in the biennium. This was the development of wayside picnic areas adjacent to main highway routes. First choice for locating these were on state lands which had favorable terrain and were located strategically. The development consists of a small parking area and an optimum number of picnic sites, pit latrines, water by hand-pump or gravity, where possible, and the necessary foot trails and signs.

The following is a resume of projects carried out under this program on the several parks during the biennium.

Milan Hill State Park—The superintendent's residence, garage and the shelter-latrine buildings were stained and painted. A new water pump was also installed at the lower reservoir.

Moose Brook State Park—The administration, bathhouse and toilet buildings were stained and painted. The roof on the bathhouse was

Upper Right and Left—1948 Conservation Camp Activities
Lower Right and Left—1947 Sportsman Show

reshingled, two vehicle bridges were repaired and one other in the bathhouse area rebuilt.

Mt. Prospect State Park—At the ski slope site, a ski shelter building 55′-0″ x 20′-0″ was constructed at the base of the slope. The building was salvaged from one of the remaining barrack buildings at Danbury, transported to the new site and then reassembled and remodeled. The existing ski slope parking area was extended so as to provide a capacity for twenty-five additional cars.

In the fall of 1948, the area of the existing ski slope was increased, providing 200,000 square feet of additional area. In the ski area, a 12′-0″ deep concrete lined well was dug and a force pump installed. Both the upper and lower water reservoirs were repaired. The lower reservoir was gunited on the inside surfaces and the upper reservoir repointed. A new pump was installed in the upper system serving the building and picnic area. The main building and the garage at the summit were both given one coat of paint on the exterior. The interior of the main building received some repairs and improvements.

Forest Lake State Park—The bathhouse sills were renewed and the wooden terrace removed and replaced with a concrete terrace. A new sink and the necessary plumbing was installed in the rear of the bathhouse. A new footbridge connecting the picnic area was also constructed.

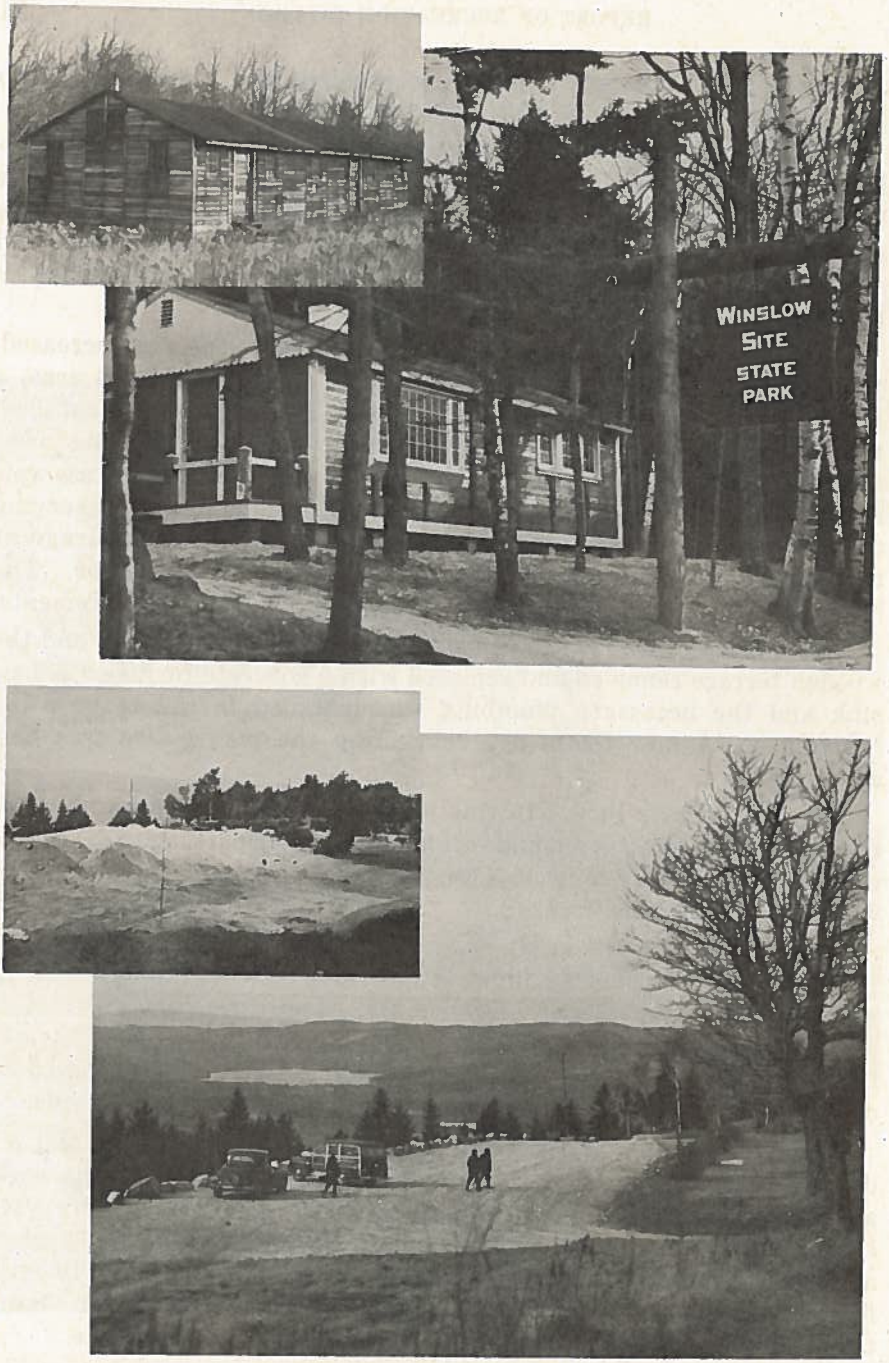
Echo Lake State Park—In this newly acquired park area, day use facilities were constructed and include a sixty-car parking area, twelve unit picnic area, new toilet building, water and sewage systems. This work was carried out in 1948.

White Lake State Park—In the camping area, the existing camping facilities were extensively improved, including a new toilet building, water, sewage and electric service lines. Approximately 400 feet of new entrance road connecting the camping area was built. A soft ball field was also constructed on the camping area. Minor alterations of the superintendent's residence completed the work in this area.

Wellington Beach State Park—A new park entrance road and additional parking was provided for 500 cars. In carrying out this work, about 7,000 cubic yards of fill and 1,500 yards of gravel were used in this construction. A new toilet building, water and sewage system and an electric service line 1,300 feet long was built. A new twenty-five unit extension of the present picnic area was constructed. Sanitary facilities were installed at the superintendent's residence.

Endicott Rock—Toilet facilities were extensively repaired at the bathhouse and the approach road repaired.

Wentworth State Park—It was necessary to install a new water system at the bathhouse, and replace the electric service lines. A



Before and After
Construction at Winslow Site State Park

part of the under structure including the sills in the bathhouse were replaced and some exterior concrete terraces constructed. Approximately 150 yards of fill was also placed in the beach area for additional expansion of the park facilities.

Wadleigh State Park—A parking area with a capacity of 120 cars was constructed, repairs to the toll station made and improvement and extension of walks and paths to the beach, picnic area and toilet building carried out. A complete new twenty unit picnic area was constructed near the beach and in connection with this work, approximately 600 stumps remaining from the 1938 hurricane and other debris were removed from this area and from along the park access road. Screen planting and some release cutting in the beach area and along the access roads was also carried out.

Extensive repairs were carried out in the men's and women's dressing building and the main concession building. Minor repairs were made to the superintendent's residence. The existing facilities of the toilet building were extended and repairs to the existing water supply and the extension of the water system were also made.

Winslow Site State Park—Additional parking area facilities for approximately forty cars was constructed and a group picnic area of fifteen additional units was made available to the public. The existing caretaker's house, in poor repair, was razed and replaced with a new building 20′-0″ x 35′-0″ on a newly prepared site. This building was converted from the remaining section of the CCC Danbury barracks building. Four hundred feet of electric service lines, 850 feet of water service line and a sewage system was also installed at this point. Several extensive vista cutting operations were also carried out.

Toll Gate—In 1947, the State Highway Department carried out a road oiling operation beginning at the Toll House and terminating at the Summit Parking Area, a distance of approximately four miles. In the lower Toll Gate Area, an eight unit picnic area was constructed, complete with a driven well and a small eight-car-parking area. Minor improvements were made on the superintendent's residence and some vista cutting was carried out on the mountain road.

Bear Brook State Park—In the Day Use Area a new concession and storage building 20′-0″ x 32′-0″ was constructed, fully equipped and put into operation. Further extension of the parking area facilities in the Group Use Area was carried out, as well as beach improvement in the Day Use Area, Bear Hill and Spruce Pond Areas. The exterior of the bathhouse was painted. At the Supply Depot, the existing water system was converted from a faulty elevated tank supply to a pressure system. One of the existing buildings was remodeled for the purpose of setting up a woodwork and paint shop for the maintenance crew, and all necessary machinery and equipment installed

to facilitate the construction and assembly of small units used in the maintenance and development of State Parks. Repairs and alterations of a minor nature were also made on the supply and garage buildings in this area. A sewage system was constructed at the contact station and some additional sanitary facilities installed in the building.

Some minor repairs were carried out in both Spruce Pond and Bear Hill Pond Camps. Included were alterations to the cold storage room and kitchen at Bear Hill Pond. Materials have been purchased and are on hand and the foundations poured for the reconstruction of the elevated water storage at Spruce Pond.

In June, 1947, in preparation for the Annual Sportsman Show, sponsored by the New Hampshire Federation of Sportsman's Clubs, a parking area with a capacity of 2,000 cars was constructed. In addition, skeet shooting, pistol and trap shooting ranges were graded out. Extensive roadside thinning and improvement work was carried out over nine miles of road within the area and in the exhibition areas themselves. Ticket collection booths and toilet buildings were constructed and set up for the convenience of the public during the show.

Hampton Beach State Park—At the rear of the bathhouse, 400 additional ornamental shrubs were planted in prepared beds. Within the bathhouse, extensive storm drain and concrete floor slab repairs were necessary. Some of the steel dressing booths in the women's wing deteriorated and were removed, and on the open floor area resulting from this operation, benches were installed.

Additional refrigeration and counter units were also necessary to handle increased patronage in 1948.

Some interior painting was carried out and forty new benches for the use of the public were installed in the area.

Kingston State Park—Extensive repairs were necessary in the replacement of the sills and wooden terrace at the bathhouse and the nearby superintendent's residence. The refreshment stand was also repaired.

In the north end of the park a twenty-five unit picnic area was constructed. Extension of water lines into this area and the reconstruction of the electric service lines serving the refreshment stand was carried out. Some release cutting was also accomplished in this area.

Miller State Park—Extension of the Summit Parking Area providing a total capacity of fifty cars, construction of an eight unit picnic area, foot trails and toilet facilities completed the work at this area.

Peterborough State Pool—At the swimming pool, expansion joints and water seals were replaced and water piping failure accounted for

the major repairs necessary to keep the pool in operation. One coat of rubber base aluminum paint was applied to the pool's surfaces.

The connecting bathhouse was painted on the outside and inside and some minor repairs were also necessary. A section of fencing along the highway was also repaired.

Monadnock State Park—Construction of three parking areas with a total capacity of 160 cars, a complete tent camping area of 21 sites served by an access road 2,000 feet long were among a few of the improvements carried out in this area in 1948.

In addition, a rearrangement of the existing picnic area providing fifty picnic tables and fireplaces was partially completed. A concrete dam thirty-eight feet long by six and one half feet high with center section flashboards was also constructed, thus assuring adequate water supply for the area in the future.

Rhododendron State Park—At the park, a six unit picnic area was completed including water and toilets and a parking area with a capacity of sixty cars was constructed. About 800 feet of entrance road connecting the town road with the parking area was also built.

Wayside Picnic Areas—The areas listed below were completed in 1948:

Fay Wayside (20 car capacity), located on U. S. 3, two miles north of North Woodstock.

Dixville Notch Wayside (8 car capacity), located on State Route 26, 12 miles east of Colebrook.

Honey Brook Wayside (10 car capacity), located on State Route 10, 21 miles north of Keene.

Chesterfield Gorge (20 car capacity), located on State Route 9, 7 miles west of Keene (partially completed).

During the months when outside activities could not be carried out, the services of the small group of skilled men comprising the maintenance crew were employed at Bear Brook Maintenance Depot. In the four months available in each year, approximately 250 log picnic tables, twenty toilet buildings, 60 to 100 log benches, several hundred directional park signs

A Central Depot Furnishes Supplies Necessary for State Park Operation.

A Fully Equipped Carpenter's Shop Speeds Up Production of State Park Units

and twenty row boats were constructed to be used later in maintenance and capital budget operations. In addition were several units for exhibits and the construction and erection of park entrance signs for twelve state parks.

FRANCONIA NOTCH STATE RESERVATION

TWO significant and memorable services took place in this notch in the fall of 1947. They are best described in "Forest Notes," a publication of the Society for the Protection of New Hampshire Forests and are here quoted in part:—

"Ayres' Memorial Tablet Dedicated

Notwithstanding the fact there was an overcast sky and a chill in the air approximately 100 members and guests of the Society gathered at the head of Echo Lake at 11:30 o'clock on the morning of Friday, October 3, 1947, to witness the dedication of a tablet in memory of Philip Wheelock Ayres, Forester of the Society from 1901-1935. The brief service of dedication was conducted by Bishop John T. Dallas of New Hampshire who recalled pleasant memories of those qualities of Mr Ayres which endeared him to so many people. The tablet was unveiled by Mrs. Meredith B. Givens of New York, daughter of Mr. Ayres. The bronze tablet is attached to a large boulder at the head of and facing Echo Lake, a spot which commands one of the finest views to be found in the State.

It was under Mr. Ayres' leadership and guidance that not only was this State Reservation and many others acquired, but also the White Mountain National Forest itself, a result of the passage of the so-called Weeks Act to which Mr. Ayres devoted so much time and effort."

"Custodianship Ends

For the past twenty years our Society has held title to the 900 acres of the Flume Reservation, part of the 6,000 acres of the Franconia Notch Memorial Reservation purchased jointly with the State of New Hampshire.

Back in 1927 the Forestry Commission had little experience in handling business enterprises or even recreation areas. As our Society, under the leadership of Philip W. Ayres, had raised $200,000 to match an equal appropriation by the legislature to purchase the Notch, it was fitting that the Society should assume the business responsibility of developing the commercial aspects of the enterprise. So it was that a twenty-year agreement was arranged between the State and our Society. That agreement terminates at the end of the

present year.

This year's annual membership meeting and forestry conference will be held Friday, October 3d, at Franconia Notch. It will specially mark the end of our custodianship and the passing of responsibility to the State of New Hampshire of our administrative right and interest in Franconia Notch.

Our Society takes justifiable pride in the property which will be turned over to the State and has every expectation that the Department of Forestry and Recreation will on behalf of the State not only maintain the standard as the years go by but will be able to serve the people satisfactorily and at the same time preserve the natural beauty of the Reservation.

Anyone who has administered publicly owned property will recognize two major difficulties which private enterprise escapes. First is the constant pressure of individuals and groups, political and otherwise, to carry out their pet ideas as to administration. Secondly, there is the public as it uses and misuses the property. There must be an alert sensitiveness as to the psychology of those who use facilities as there can be little or no discrimination or restriction. The planning must present conditions where use will not turn into abuse, nor permit deterioration from the mere presence of relatively uncontrolled numbers. Space is essential for dealing with large numbers so concentration will not in itself destroy the main purpose of recreation. Long-time planning is essential and New Hampshire must remain aware of the need for more areas as the number of people increases who find real pleasure in enjoying its State Parks and Reservations."

On October 3, 1947 a notable group concerned with forestry, recreation and conservation gathered in the Notch to witness the passing of the Flume Reservation from the Society for the Protection of New Hampshire Forests to the State of New Hampshire. Thus, administration of this reservation became a responsibility of the Forestry and Recreation Commission. Mr. W. R. Brown, chairman said at this ceremony in part:—

"You have heard about the acquisition of Franconia Notch. I will try to project something of its future. In the half century that has passed since the first hesitant beginnings of the comprehension of our natural resources much has been accomplished in this State, but more remains to be accomplished. One hundred or more tracts of forest and recreational land totalling fifty thousand acres have been acquired by the State, many by gift. Additional areas are still waiting to be secured where the public interest would be served by the acquisition of certain focal points of interest towards which the public inevitably turn in their tours of the State, scenic spots that present

noble trees and fine views, sparkling waterfalls, mountain lookouts, smooth beaches, and natural wonders of all kinds. There are also a number of historic sites and buildings that the State should own and cherish."

"Recreation which started as a concomitant of forestry, has grown to the stature of a Division of its own and bids fair to become self sustaining before many years and offers possibilities of extension from surplus earnings. Presently, however, many of its areas, especially the beaches, are overcrowded and much capital improvement unable to be done during the war years needs renewal and expansion to meet the ever growing demand. Fortunately for Franconia Notch, the Governor generously appropriated $50,000 out of his funds for its rehabilitation this last year, the evidences of which you can see in the Echo Lake Park, Lafayette Clearing and elsewhere. A similar amount could be wisely spent in Crawford Notch through which also a large number of tourists travel.

Many people still do not realize the responsibility involved in the operation of property held for the State. Public access may not be denied. At the same time, public use to any extent requires much supervision. By proper care, the State must provide protection against accident, and the information and satisfaction of the visitor which results from friendly treatment. Conveniences are often required such as roads, parking areas, trails, walks, bridges, guard rails, rest rooms and sanitary facilities, trash removal, fire prevention, life guards on beaches, open fire places, wood to burn, and occasionally midday lunches at places remote from private restaurants. Post cards and inexpensive souvenirs are wanted to commemorate the particular visit. Guards are necessary to safeguard against undue wear and erosion which might damage growth and spoil the scenic beauty. For all of this a small charge is understood as quite necessary and gladly paid by the traveling public, 70% of whom are our guests from out of the State. Good service brings them back year after year. These services must be provided with as little infringement as possible on private establishments in nearby places catering to the same needs. The State by law is estopped from engaging in the hotel business, conse-

Another Distinctive State Park Sign Being Erected

quently the hostelries in the neighborhood of a public recreational area are ultimate gainers from the attractions developed nearby. Without a doubt, the attractions afforded by the State bring more of the traveling public to the surrounding region than would otherwise come. In all these matters, the society has set a high example of good management and efficiency in its past conduct of the Flume, as well as the Tramway Commission in the handling of the Tramway. Both are to be heartily commended for their trusteeships.

From an economic standpoint, the securing of the income from the Flume by the State and its yearly participation in the earnings of the tram, will create opportunity for expansion in the Notch and elsewhere by unified management. From increased revenue, help can be extended to other non-self supporting areas and thus tend towards a decrease in the overall departmental cost of all areas.

As to the general policy of operation of Franconia Notch Area, there appear to be two conflicting views that have received publicity. From the ultra conservative standpoint, the scenic splendor of this popular area should be preserved as a sylvan wilderness, where only quiet and solitude should prevail and the minimum of provision made for the public. From the other extreme standpoint this area should be developed with a view towards receiving the greatest possible revenue from the greatest number of people even at the expense of some of its natural wildness. Our Commission believes in the middle way between these extremes, signified by the expression "Use but not Abuse." It is confident that Franconia Notch's wilderness splendor can be preserved by the careful protection of its natural scenery, and at the same time, by good planning, the comfort of the myriads of nature lovers who will pour through this Notch can be provided for. The inspiration derived from a trip through the White Mts. is not alone for the young, the strong or the privileged few, it is equally appreciated by the old, the weak, or the underprivileged dwellers in our hot cities. The cult of exclusiveness can be no part of a public trust and all the people who come to enjoy our beautiful State must be hospitably received, albeit with reasonable restrictions for the general good."

"Our creator has set his stamp of approval in generous measure upon our lofty mountains, gentle valleys and sparkling lakes, and as inheritors of his bounty and as true sons of the forest vastnesses, we have been in history and will continue so to be, notable for independence and courage. In these dark times when the dignity and liberty of the individual is called in question, of which as yet one-half of the world is ignorant, sons of New Hampshire, by lifting their eyes to the hills, have an opportunity unexcelled to play their part in peace or perhaps in war, by preserving this their inheritance intact, and by

offering to this distracted world, rest, peace and inspiration; to enable it to return again to the contest for freedom, renewed in mind, body and spirit."

The director of recreation assumes his responsibilities concerning the Flume Reservation with regard for and in agreement with these admonitions. The operating practices for the 1947 season were similar to those conducted by the Society. However, several physical changes were made to some of the buildings to facilitate management and new equipment including busses were acquired.

Roland E. Peabody, managing director for the Aerial Tramway Commission was engaged by our commission and carried out management for the season. Light refreshments, gifts and souvenirs were sold and busses operated for the convenience of those visiting the Flume. Details of operation were consolidated under Mr. Peabody's operations at Lafayette Camp ground and Profile Shop in Franconia Notch, and included a central office and a consolidated stockroom for the handling of merchandise.

EXPENDITURES FROM CAPITAL IMPROVEMENT FUND

(Ch. 274, '47 Session)

From November 1, 1947 to December 31, 1948 Inclusive

Area	Costs
Bear Brook Concession	$6,793.99
Echo Lake	13,058.59
Forest Lake	6,929.28
Hampton Beach	314.99
Toll Gate	991.62
Winslow Site	14,459.50
Kingston Lake	4,678.16
Miller Park	5,028.07
Mt. Prospect	11,969.55
Monadnock Park	13,704.44
Rhododendron Park	3,200.42
Wadleigh Park	9,382.36
Wellington Park	23,007.71
White Lake	9,065.58
Honey Brook Wayside	751.19
Dixville Notch Wayside	1,283.85
Fay Wayside	712.28
Welton Falls Wayside	201.50
Chesterfield Gorge Wayside	747.14
Intervale Wayside	179.64
Spruce Pond Water Tower	430.00
Sunapee Park	710.69
Silver Lake	1,049.50
Haverhill	171.00
Tables, Signs and Toilet Buildings	12,094.14
Overhead	1,761.87
Total	$142,677.06

OPERATION, MAINTENANCE, IMPROVEMENT AND ADMINISTRATION EXPENSES OF STATE RECREATION AREAS (GENERAL FUND) FOR THE PERIOD JANUARY 1 — DECEMBER 31, 1947

AREA	No. of Personnel	Average Monthly Wage	Total Wages	Other Expenses	Total Maintenance Cost	Total Income	Net Cost	Estimated Attendance	Net Cost Per Visitor
Bear Brook	24	$144.00	$21,732.85	$19,447.22	$41,180.07	$19,509.14	$21,670.93	95,170	$.227
Bellamy	5	125.00	1,597.08	425.65	2,022.73	83.22	1,939.51	30,000	.064
Cardigan	1	132.00	326.69	59.05	385.74	161.55	224.19	1,080	.207
Echo Lake	3	124.00	971.23	280.17	1,251.40	1,217.55	33.85	12,000	.002
Clough	1	144.00	483.75	8.05	491.80	.....	491.80	5,000	.058
Endicott	5	121.00	2,008.55	1,114.10	3,122.65	5,478.48	2,355.83	33,330	.070
Forest Lake	2	136.00	840.20	110.39	950.59	1,752.58	801.99	11,170	.071
Hampton	19	125.00	8,393.14	11,433.89	19,827.03	20,630.03	803.00	55,000	.014
Toll Gate	2	125.00	589.12	430.28	1,019.40	49.72	969.68	500	1.939
Winslow	1	166.00	1,149.23	377.51	1,526.74	1,249.23	277.51	10,000	.027
Kingston	5	128.00	2,656.19	420.50	3,076.69	6,182.90	3,106.21	41,000	.075
Milan Hill	2	128.00	686.38	686.38	1,372.76	295.10	1,077.66	1,922	.560
Miller	1	149.00	243.77	66.69	310.46	417.30	106.84	6,000	.017
Monadnock	5	133.00	2,721.49	413.92	3,135.41	2,482.64	652.77	16,958	.038
Moose Brook	4	120.00	1,416.97	906.53	2,323.50	1,688.26	635.24	7,840	.081
Mt. Prospect	2	125.00	1,122.41	962.58	2,084.99	625.75	1,459.24	3,786	.385
Peterborough	4	143.00	1,829.35	499.32	2,328.67	465.40	1,863.27	9,300	.203
Rhododendron	1	149.00	490.88	1,050.05	1,540.93	.....	1,540.93	5,000	.308
Wadleigh	3	165.00	1,481.08	443.38	1,924.46	780.00	1,144.46	5,322	.215
Wellington	5	134.00	3,018.87	937.16	3,956.03	5,906.48	1,950.45	37,900	.051
Wentworth	3	115.00	1,294.35	1,362.41	2,656.76	1,240.39	1,416.37	7,220	.196
White Lake	6	113.00	3,095.56	939.87	4,035.43	5,512.83	1,477.40	28,000	.052
22 Area Totals	104	$132.00	$58,149.14	$42,375.10	$100,524.24	$75,728.55	$24,795.69	423,498	$.058

ADMINISTRATIVE AND OVERHEAD EXPENSES

AREA	No. of Personnel	Average Monthly Wage	Total. Wages	Other Expenses	Total Maintenance Cost	Total Income	Net Cost	Estimated Attendance	Net Cost Per Visitor
Administration Office	4	$228.00	$11,590.32	$4,123.54	$15,713.86				
Area Operation Administration	2	215.00	3,942.53	3,469.58	7,412.11				
Supply Depot	1	144.00	636.89	220.00	856.89				
D. D. & M. Administration	7	184.00	8,622.88	1,879.86	10,502.74				
Totals	14	$198.00	$24,792.62	$9,692.98	$34,485.60				

SUMMARY EXPENSES

Operations	$100,524.24
Administration Overhead	34,485.60
Total Expenses	$135,009.84

OPERATION, MAINTENANCE, IMPROVEMENT AND ADMINISTRATION EXPENSES OF STATE RECREATION AREAS (GENERAL FUND) FOR THE PERIOD JANUARY 1 — DECEMBER 31, 1948

AREA	No. of Personnel	Average Monthly Wage	Total Wages	Other Expenses	Total Maintenance Cost	Total Income	Net Cost	Estimated Attendance	Net Cost Per Visitor
Bear Brook	26	$124.79	$22,214.24	$13,245.57	$35,459.81	$20,157.14	$15,302.67	85,000	$.180
Bellamy	5	131.99	1,922.69	889.46	2,812.15	96.76	2,715.39	30,000	.091
Cardigan	1	138.25	572.27	112.27	684.54	146.20	538.34	5,000	.107
Clough	1	156.00	574.50	17.45	591.95	.....	591.95	5,000	.118
Echo Lake	2	124.70	1,566.97	617.97	2,184.94	1,347.00	837.94	13,000	.064
Endicott Rock	4	130.45	2,114.59	639.06	2,753.65	5,457.25	2,703.60	33,890	.079
Forest Lake	3	156.13	1,154.72	563.82	1,718.54	1,239.30	479.24	8,528	.056
Hampton Beach	20	123.14	8,303.23	13,681.59	21,984.82	25,912.03	3,927.21	63,800	.061
Toll Gate	2	125.45	1,026.40	184.57	1,210.97	646.85	564.12	4,208	.134
Winslow Site	1	171.25	1,317.68	343.03	1,660.71	1,292.21	368.50	7,831	.047
Kingston Lake	6	127.26	4,167.55	5,404.86	9,572.41	14,154.81	4,582.40	51,374	.089
Milan Hill	2	133.70	664.86	363.80	1,028.66	407.60	621.06	3,535	.175
Miller Park	1	149.25	580.26	244.06	824.32	816.70	7.62	6,305	.001
Monadnock Reservation	2	115.37	2,766.87	362.34	3,129.21	2,192.75	936.46	15,810	.059
Moose Brook	4	121.33	1,496.52	3,598.24	5,094.76	1,938.81	3,155.95	10,000	.315
Mt. Prospect	2	125.45	1,436.35	762.72	2,199.07	813.30	1,385.77	5,000	.277
Peterboro Pool	4	152.50	2,317.16	1,225.22	3,542.38	558.15	2,984.23	11,160	.267
Rhododendron	—	.....	524.52	276.55	801.07	279.90	521.17	3,500	.148
Wadleigh Park	4	131.41	1,610.13	366.51	1,976.64	903.55	1,073.09	6,000	.178
Wellington	5	137.33	3,447.70	1,366.76	4,814.46	6,124.30	1,309.84	47,485	.027
Wentworth Beach	2	132.83	1,595.81	2,237.57	3,833.38	1,808.95	2,024.43	12,085	.167
White Lake	6	125.20	3,782.24	1,331.25	5,113.49	5,729.05	615.56	28,850	.021
22 Area Totals	103	$126.80	$65,157.26	$47,834.67	$112,991.93	$92,022.61	$20,969.32	457,361	$.045

ADMINISTRATIVE AND OVERHEAD EXPENSES

AREA	No. of Personnel	Average Monthly Wage	Total Wages	Other Expenses	Total Maintenance Cost	Total Income	Net Cost	Estimated Attendance	Net Cost Per Visitor
Administration Office	5	$220.66	$13,158.89	$4,198.57	$17,357.46				
Area Operation Administration	2	239.79	5,340.32	10,315.09	15,655.41				
Supply Depot	1	143.75	2,065.87	32.67	2,098.54				
D. D. & M. Administration	4	264.44	8,202.98	1,605.30	9,808.28				
Totals	12	$232.03	$28,768.06	$16,151.63	$44,919.69				

SUMMARY EXPENSES

Operations	$112,991.93
Administration Overhead	44,919.69
Total Expenses	$157,911.62

FRANCONIA NOTCH RESERVATION

Financial Summary of Operations — 1947

Total Income	$60,656.22
Total Expenses	46,565.86
Net Income	$14,090.36

Financial Summary of Operations — 1948

Total Income	$231,440.44
Total Expenses	186,847.85
Net Income	$44,592.59

SUMMARY OF RECREATION DIVISION OPERATIONS

	1947	1948
Expenses		
Administrative and Overhead Expenses	$34,485.60	$44,919.69
Operations—22 State Parks	100,524.24	112,991.93
Franconia Notch State Reservation	46,565.86	186,847.85
TOTAL EXPENSES	$181,575.70	$344,759.47
Income		
Operations—22 State Parks	$75,728.55	$92,022.61
Franconia Notch State Reservation	60,656.22	231,440.44
TOTAL INCOME	$136,384.77	$323,463.05
NET EXPENSES	$45,190.93	$21,296.42

Principal State Parks and Reservations

New Hampshire

1. Milan Hill State Park
2. Moose Brook State Park
3. Mt. Prospect State Park
4. Forest Lake State Park
5. Crawford Notch State Reservation
6. Franconia Notch State Reservation
7. Cathedral Ledge State Reservation
8. Echo Lake State Park
9. White Lake State Park
10. Cardigan State Reservation
11. Wellington State Park
12. Endicott Rock State Park
13. Wentworth State Park
14. Wadleigh State Park
15. Winslow Site State Park
16. Toll Gate State Park
17. Bear Brook State Park
18. Hampton Beach State Park
19. Kingston State Park
20. Miller State Park
21. Peterboro State Pool
22. Monadnock State Park
23. Rhododendron State Reservation
24. Mt. Sunapee State Park
25. Bellamy State Park