



New bathing development at Hampton Beach. Rectangle indicates location of bathhouse now completed

Photo by Fairchild Aerial Surveys

State of New Hampshire

BIENNIAL REPORT

of the

**Forestry and Recreation
Commission**

For the Two Fiscal Years
Ending June 30, 1935-36



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REPORT

*To His Excellency, the Governor
and the Honorable Council.*

The Forestry and Recreation Commission submits herewith a review and summary of the forestry work of this Commission leading up to and including the various activities of the biennial period of 1935 and 1936. The detailed report of the past two years will appear in publication with this review.

The change in name of the Forestry Commission to the Forestry and Recreation Commission by the last Legislature gives recognition to the broader character of service along recreational lines which the public expects of the State and which the Forestry Commission has in previous years endeavored to furnish wherever places of particular interest within the State reservations could be made available to people with little or no expenditure of public funds. The published records of the past fifty years indicate that recreational needs were ever a part of the ultimate plans and purposes of the work of our Commission. For the past four years the State bond issue provisions of Chapter 150, Laws of 1933 and Federal funds under CWA, ERA and particularly the CCC have given work to thousands of unemployed, and made possible the development of a program of recreation as well as of forestry of far-reaching importance to the State.

The report of the first special Commission of Forestry to the Legislature of 1885 was but a brief challenge to the people of New Hampshire to become concerned in the forest affairs of the State. Wild lands had then entirely passed out of State hands into private ownership and the timber was being cut off at a prodigious rate with the resultant havoc caused by fires. This report pointed out the necessity of a code of laws, a

forest policy, a State-wide system of fire protection and public reservations. Public sentiment slowly responded. The Society for Protection of New Hampshire Forests was organized in 1900 and became an active force in favor of forest conservation. A permanent Forestry Commission carried forward the work of the special Commission but with few laws and no money with which to operate. The Federal Forest Service made its first contribution to State co-operation when it made possible the studies and reports of 1903, 1905, and 1907 on the forest resources of the State and the taxation of forest property. A State Department of Forestry and a code of laws were established under the Forestry Commission in 1909.

Two years later the Weeks Law, afterwards known as the Clarke-McNary Act, passed Congress, providing for (1) purchase of national forest lands in the East; (2) financial aid to the states in maintaining adequate systems of forest fire protection; (3) forest tree production and distribution. The Extension Service soon followed with its latent opportunity to include farm forestry among its beneficial activities. As in other Federal bureaus such as Public Roads and Education, the Government was aiding with talent and money these forward looking programs, which have become so far-reaching and indispensable today. It is worth pointing out that progress in developing these various Federal-aid programs has not been rapid or spectacular and always it has gone forward only as the states were ready to accept and support them. There was time for planning and the perfection of organizations by the states. Progress by the fundamental principle of co-operation and joint participation of governmental agencies, Federal, State and Towns, has been and is likely to continue to be the best policy in the future.

The goal of forestry toward which to strive has long been defined; namely, to restore the deteriorated forests

of the State to highest productiveness that they may render maximum service as sources of raw material for the industries, for watershed protection and for recreation. Methods to achieve this goal, as applicable today as in the past, are:

(1) To provide public forests, National, State, and Town, as a foundation for and as examples of properly managed forests;

(2) To create conditions enabling and encouraging private owners to improve their forests—systematic fire prevention and suppression until the average area burned over annually becomes negligible and forest property becomes an insurable risk at reasonable rates; continued protective measures against forest insects and diseases; modification of taxing systems to insure equality of tax burdens on forest land owners as compared with other owners; investigation of problems of growing and marketing timber; distribution of forest planting stock to land owners at the cost of production; other measures to control stream-flow and thereby to help prevent floods;

(3) To protect public health, promote happiness and increase the general attractiveness of the State through public development and supervision of small areas of high scenic and recreational value; embracing sea and lake shores, waterfalls, mountain scenery, roadside areas, remnants of primeval forests and sites of historic interest;

(4) An organized effort to educate and interest all elements of business, professional, civic and social life to a true recognition of the overwhelming importance of forests in all plans for future prosperity and development.

These objectives are generally understood by those who have followed the progress of forestry and rec-

reation from the beginning. Efforts have been made to bring about a change in the general property tax as applying to forest growth but have so far failed. Larger programs and funds might well have been advanced by the Government and State during earlier years for land acquisition, recreation and to perfect policies involving forest taxation and sub-marginal land use. There has been substantial progress in developing a State-wide forest fire organization, in controlling the white pine blister rust, in bringing into State ownership by gifts and purchases 112 widely scattered demonstration forests and reservations, in forest tree planting, in helping towns to improve their town owned forests, and in studies of forest resources, the forest industries of the State and markets for their products.

Not until emergency relief work started with special State and Federal funds and CCC labor has it been possible to prove that the long time policy of State forest ownership could bear fruit in public enjoyment of so many of the areas in State ownership for bathing, camping, picnicking, skiing and other winter sports. Roads and bridges to reach the more important places, parking spaces to accommodate the cars and a number of scenic roads have been built for public recreation. It has been possible also to provide needed bathhouses, caretaker cabins, shelters, sanitary provisions, drinking water, electric lights, picnic tables and fireplaces. There are now 15 State recreational centers under supervision for bathing or camping and day picnic use; of which Franconia and Crawford Notches, the Poole Memorial on Mount Monadnock and Wellington Beach on Newfound Lake are earlier developments. Six of the newer centers were acquired by the State and partially developed by other agencies using emergency funds before they were transferred to the Forestry and Recreation Commission by the Governor and Council to complete and administer.

Forestry as well as recreation has had an important place in the emergency work programs. The State Forests outside the recreational areas have produced thousands of cords of low grade wood to improve their future value, the wood not needed for CCC Camps and recreation areas being given to towns for relief purposes. The chief contribution to fire protection has been in making our reservations accessible through road building, in improving our system of telephone lines to fire lookout stations and in the construction of many hundreds of water holes to supply water for pumping equipment now largely in use for fire suppression.

CCC and Other Federal Projects

The Emergency Conservation Work, commonly known as the CCC, had its beginning in the spring of 1933 with five State camps allotted by the Federal Forest Service. With the closing of certain camps, transfer of others from Forest Service to National Park jurisdiction and the addition of new forest and park camps during the intervening four years, there are now six Forest Service camps and three National Park Service camps engaged in allowable State and private land projects. A large amount of detail is involved in carrying out the requirements provided in government regulations. Management of the camps and the enrollees is the responsibility of the Army, except as enrollees are turned over to the technical agencies for the conduct of work projects. While the State Forester serves as Procurement Officer and State Authority, responsibility by the State is shared principally by two others of the Department staff—L. N. Watson and W. H. Tripp, whose time is now almost entirely given to CCC work. The former has charge of the technical personnel, project superintendents and foremen, and their work in the field for the six Forest Service Camps. The State

is expected to initiate projects and prepare surveys, plans and estimates which then require approval of Federal representatives in the State and the regional office. One inspector and a road engineer under Federal pay assist in this work. The National Park Service, however, maintains a Central Design Office of its own in Concord to prepare plans and supervise field projects for the park camps.

Keeping the property records and accounts, submitting bids for purchase, making distribution and transfers of supplies, equipment and materials for the work, disposing of worn-out and condemned property and preparing monthly payrolls for payment by the Army are other details handled by the Department under W. H. Tripp. An accountant and two clerks, also a property custodian, warehouse foreman and traveling mechanic are provided from the Federal payroll. The project superintendent at each camp is responsible for the property furnished to him and for the conduct of approved work by the foremen and enrollees.

During the biennial period ending June 30, 1936 funds to the extent of \$356,546.83 have been allocated and paid by the Federal Government on account of the Forest Service camps for work under our supervision. Of this amount about 70% was spent for field and office salaries, 20% for tools, supplies and repair of equipment and 10% for construction materials. Heavy equipment furnished to our forest camps since the beginning of CCC work in 1933 and purchased direct from Washington cost an additional \$110,740.95. This equipment consists of 108 trucks, 19 tractors and trail builders, 9 road graders and 7 drilling compressors, out of which two tractors and one truck trailer costing \$9,369.00 have since been transferred to other states. During the last biennial period the expenditures for the work projects of our National Park camps have

amounted to \$90,275.47. Most of the heavy equipment for the park camps has been transferred from other states.

What appeared at first to be a temporary emergency measure, the CCC has become a well organized system of work camps, efficiently conducted by the Army with educational facilities for the enrollees and a work program for the benefit of forestry and recreation on our public forests and reservations, together with such fire protection, pest control and other work, as may be authorized on private land. With probable reductions and further changes, these camps are likely to continue for some time. For the services of our Department staff and the spending of about \$5,000 annually of State funds for certain urgent land purchases, for office rentals, travel expenses of a few field agents under Federal pay and for some materials and equipment which the Government cannot supply, New Hampshire is receiving the benefit of important public land improvements which the State is expected to maintain in the future.

The CCC is available at all times of emergency to save life and property. In March of this year foremen and enrollees from both forest and park camps were used wherever their services were needed in flood relief work. A total of 6,921 man days of work and the use of all equipment were freely supplied from five of our camps in towns along the Merrimack, Contoocook and other rivers in the southern part of the State. Outstanding assistance was rendered in saving the Amoskeag Bridge in Manchester and in speedily replacing a bridge across the Smith River in the town of Hill.

In addition to continuing all incompletd projects described two years ago, several major developments have been started during the last biennial period. A new forest camp near Warner is chiefly engaged in rebuilding the old Kearsarge Mountain toll road up the south slope of Mt. Kearsarge which the State acquired

under the provisions of Chapter 97, Laws of 1935. Tolls will again be charged to pay for the upkeep of the road when completed.

A moth control forest camp located in the town of Unity near Claremont is working in conjunction with similar camps in Vermont and Massachusetts to prevent the westward spread of gypsy moth infestations.

The Pawtuckaway Camp near Deerfield was transferred from Forest Service to National Park jurisdiction for the continuation of park projects at the Pawtuckaway, Bellamy River (Dover), Endicott Rock and Belknap Reservations and at the University of New Hampshire. The Moose Brook Camp at Gorham was also transferred to National Park jurisdiction for new and continuing projects.

Connecticut Lakes Forest Reservation and Park is a gift of land to the State from the New Hampshire-Vermont Lumber Company and the Connecticut River Power Company and accepted by the Legislature (Chapter 92, Laws of 1935). It consists of an area 1000 feet in width by 9 miles in length extending from Second Lake to the Canadian Boundary and including the entire shore of Third Lake. Work is now in progress according to the terms of the gift and acceptance. A scenic road within this forest park is under construction by CCC enrollees from a special forest camp approved for this project and is nearly completed about half the distance to the Boundary. Eventually the road will become a part of the State highway system as an extension of the Daniel Webster Highway. No buildings other than necessary service structures of the State and Federal Government and no commercial development or advertising signs will be allowed. Every effort will be made to preserve wilderness conditions.

The last report of the Forestry Commission, pages 24-27, described in some detail certain proposals by the Federal Government to acquire sub-marginal areas of considerable size for recreational development and ulti-

mate administration or ownership by the State. The so-called Bear Brook area in the territory between Manchester and Concord had been selected by the Resettlement Administration and National Park Service for one of the 46 similar projects in 24 different states, subject to necessary enabling legislation by the State. This was secured by passage of Chapter 74, Laws of 1935 setting up the Land Use Board, establishing the means by which the Federal Government may acquire land outside the 1929 purchase area of the White Mountain National Forest and providing for an agreement with the State for the administration of such lands as are designated for administration by the State. The Land Use Board recommended and the Governor and Council approved purchase by the Resettlement Administration of about 8,000 acres in the towns of Allenstown, Deerfield, Candia and Hooksett. These towns held special town meetings and voted in favor of the land purchases in their respective towns. Detailed surveys and options to purchase followed in due time. A new CCC park camp was established on the Bear Brook area in 1935 and work plans were undertaken for the improvement of the area in accordance with a master plan, involving both CCC and WPA workers from Manchester and surrounding towns.

General work done on the 6,100 acres optioned in Allenstown and Deerfield during the past year and a half consists of road, culvert, bridge, water hole and trail construction throughout the area, forest clean-up and fire hazard reduction. The development of an organized camping area consisting of twenty-four sleeping cabins, four lodges, dining hall, infirmary, help and counselor quarters, garage and storage building, parking area, playfield, water and electric systems and bathing beach at Bear Hill Pond in a secluded part of the reservation is under way. Each of the four units will accommodate 30 persons. A first day picnic, camping

and general recreational area on lower Bear Brook near the Suncook-Deerfield highway is well under way toward completion. A dam and flowage with bathing facilities, buildings and equipment are expected to be provided as a part of this picnic, camping and general recreational area. Caretaker and service buildings will be located on Podunk Road near the main entrance and central to the entire reservation.

The purpose of the four organized camp units at Bear Hill Pond and other units contemplated at Shingle Pond is to provide camping facilities for low-income and under-privileged groups otherwise unable to enjoy camping. An advisory committee of citizens to represent communities and organizations of the State will serve to study recreational needs and assume leadership of the groups using the facilities of the organized camp. It is intended that a rental fee sufficient for the upkeep of the organized camping area and buildings will be paid by agencies which can properly conduct the camp groups according to the requirements prescribed. The Commission has approved the development of bathing, picnic and over-night camping facilities as well as the general improvement of the Bear Brook area but has not endorsed or been willing to commit the State to the policy of organized camps which seemed to them costly to build and maintain in the future and of less general public use and value.

One other Federal camp project of a different nature has been developed on the Black Mountain State Reservation at North Haverhill. The Transient Bureau of the Emergency Relief Administration, with the consent of the Commission, located a transient camp with buildings and complete accommodations and equipment for 200 men on a portion of this reservation in 1935. Work was done on adjacent public roads and in parking and landscaping the surrounding premises with some forest improvement work in connection with the wood

supply of the camp. A nearby abandoned farm property of 76 acres was purchased by FERA for garden land and work was done to restore the house and barn on this property.

With the abandonment of the transient camp in the spring of 1936 a WPA group occupied the camp buildings and continued the projects. In the fall of 1936 this work was discontinued and all buildings, furnishings and equipment including the farm became the property of the State and were transferred to the Forestry and Recreation Department by the Governor and Council. Arrangements have since been made for the temporary occupation of the camp by the National Youth Administration as a camp for girls. These buildings should in the future continue to serve some public agency as an organized camp without expense to the Department.

Forest Fire Protection

Forest fire protection has been the primary and continuing effort of the Commission for 27 years. Financial aid from the Federal Government under the Clarke-McNary Act has enabled the State with moderate appropriations and satisfactory laws to build up and maintain an adequate protective system which includes prevention, detection and suppression of fires. Prevention activities include enforcement of laws governing control of burning by permits, disposal of dangerous slash along highways and railroads, licensing of portable sawmills and checking their changes of location, together with educational and publicity measures.

Detection and reporting of fires not under permit or control have been accomplished by a State-wide system of 26 modern steel watch towers, each covering approximately a twenty mile radius, equipped with suitable maps, telephone connections with central stations and experienced watchmen in charge and living in well

built State cabins near the towers during the fire season of each year. There has been a growing value in secondary aid furnished by a co-operating public, including motorists, persons living at vantage points and many others able and willing to aid our wardens in the report of fires. Special patrol during hazardous periods is supplied in part by the State and towns but chiefly by land owners belonging to the Timberland Owners Association in the northern part of the State and operated in conjunction with the Department. Additional lookout stations and fire patrol are also furnished by the Federal Government on the White Mountain National Forest.

Progress in suppressing fires has taken place through the years by improvement in the force of wardens and deputies, greater speed of the wardens in bringing crews to fires and more and better organized fire companies in many of the towns, with whom the Department enters into full co-operation and thus bringing into the forest fire system better equipment and experienced man power, such equipment, including motor trucks, portable power pumps, and hose lines to be extended from established water supplies to the fires. Knapsack pumps and small fire fighting tools are supplied to the towns by the Department at half the purchase cost.

The forest protection forces have benefited by the formation of county forest fire warden associations which bring their members and others together for monthly meetings at different places and at their own expense for social as well as business purposes. Two such associations in Grafton County and in Coos County have been formed within the biennial period making six altogether in the State. Forest fire protection has come to pass without greatly increasing the annual expenses of the Department or the towns and the benefits are shown in decreasing costs per fire, acres burned over and damage to property. During 1936 there have been

387 town fires which burned 2,011 acres as compared with the 27 year average of 371 fires and 8,280 acres burned over. The size of the average fire has been reduced from 22.3 acres to 5.2 acres in 1936.

The office administration of the State Forest Fire Service is handled by E. J. Couture, working with the State Forester, and one clerk who assists in keeping the fire records, town warden and lookout station accounts, mill permits, supplies, etc. There are now two district fire chiefs on *per diem* when needed and six others serving in this capacity in conjunction with other employment. Four of these are Federal blister rust agents by special arrangement with the Bureau of Entomology and Plant Quarantine giving part time to fire protection work in their respective districts without cost to the State except their expenses. One is employed jointly with the Timberland Owners Association and one is an assistant extension forester giving part time in a group of towns where regularly employed. These men supervise the 26 fire lookouts, co-operate with local wardens in their respective towns, inspect mills, slash hazards and serious fire situations and violations arising in connection with this work. The number of forest wardens and deputies is about 1,200. In spite of tendencies away from the local town warden system in some states, we still believe that local wardens and nearby call men, together with organized fire companies where they exist, all well supervised by the State, can handle our forest fire work intelligently and economically. The CCC is used in fire fighting only in emergency and where sufficient help is not otherwise available.

State Nursery and Reforestation

The State Forest Nursery is located on the Daniel Webster Highway in Boscawen, 12 miles north of Concord. This plant is operated for the purpose of growing forest planting stock for State and town lands,

for use of 4-H and other similar boys' groups for planting on home woodlands and for sale at cost to land owners interested in forest planting in New Hampshire. The trees for planting out are of small size, two to four years old and are not for private ornamental use. Some trees and shrubs are used by the Department on its recreational areas and in co-operation with the State Highway Department for roadside planting. During several years past all State land planting has been done with the CCC and other relief labor without need for regular appropriation. Of the sixteen and over million trees distributed from the State Nursery, about 23 per cent have been planted on State land, 11 per cent on town land, 16 per cent have been furnished to club agents of the Extension Service for 4-H club planting. The balance or 50 per cent was sold to land owners in the State and the revenue returned to the General Fund of the State Treasury. Last fiscal year this amounted to \$2,475.

The State Nursery is in charge of Assistant State Forester L. N. Watson, who also directs the actual planting, preparation of plans for land owners, distribution of fuel wood for relief purposes and the forest improvement work and most of the construction work conducted on public lands by the CCC and other work agencies of the Department. From three or four up to a considerable number are employed at the State Nursery according to seasonal needs. The buildings in addition to being used for nursery purposes, contain storage space, facilities for repair of equipment, sign making and preparation of exhibit material. All records, accounts and bookkeeping relating to the nursery are kept in the Concord office. During the past several years the entire plant has been put in excellent repair and a high degree of operating efficiency by State emergency funds and relief help available.

White Pine Blister Rust Control

This destructive bark disease of white pine first made its appearance in New Hampshire about 1916. Because of the commercial importance and aesthetic value of white pine and the rapid spread of this disease throughout the northern states from Maine to the West Coast, the Federal Bureau of Entomology and Plant Quarantine at Washington has for many years co-operated with the Department, as well as with other white pine states throughout the range of the disease, in a definite control program of destroying currant and gooseberry bushes upon which the spread of blister rust depends. There has been some variation in procedure among the states, we in New Hampshire having worked on the basis of the towns and individuals paying for eradication crews and the State paying for trained foremen for the crews and to the extent of about twenty per cent of the total. The State also assumes other administrative costs. The Federal contribution through all these years has been to employ a State agent in charge, part time of a clerk and five or six district control agents, who usually have headquarters with the county agents of the Extension Service. The Federal share of the cost cannot exceed the combined cost of control by the State, towns and individual land owners. The State Forester is the State co-operator under a working agreement with the Extension Service and Federal Bureau of Entomology and Plant Quarantine. By a clause in this agreement we may use the services of the blister rust agents not to exceed 25 per cent of their time on fire protection and other forestry work of the Department and pay their traveling expenses. These agents are familiar with their districts and acquainted with town officials and land owners whom they have occasion to contact in both blister rust and forest fire matters.

During the last few years Federal relief funds have been made available through the Federal Bureau of En-

tomology and Plant Quarantine for blister rust control, aside from the regular town work, to the extent of about \$250,000 mostly for local labor. During winter periods when eradication cannot be carried on agents and selected crews engage in advanced mapping of white pine areas in preparation for crew eradication the following season. This emergency program has largely dwarfed the regular work of previous years and made towns and the State feel that their contributions are less urgent. Such conditions cannot continue and the towns and State will again be called upon to take a greater financial responsibility in local control measures.

During the past twenty years initial eradication of currant and gooseberry bushes has been done on about 3,050,000 acres in 214 white pine towns of New Hampshire, except on some 200,000 acres in 64 of these towns. Re-eradication has been done on 618,000 acres. Control areas covered more than five years ago should be again scouted for new infections.

Studies have been made on protected and unprotected areas to determine the extent of the disease and the effectiveness of control work. They show that while 30 per cent to 38 per cent of all white pine trees on protected areas studied have been infected, only 2.5 per cent of these trees have become infected since eradication work was done. On the other hand studies of areas which have never been protected by eradication work show that 57 per cent of the trees are infected, of which 39 per cent have become infected since 1928.

The approximate total expenditures for blister rust control work in New Hampshire up to the present time, including all the emergency relief funds used, is approximately \$1,600,000. It is sometimes stated that the value of white pine is not sufficient to justify this expenditure. This sum is in fact about $4\frac{1}{2}$ per cent of \$35,000,000 which is the estimated, commercial value of pine stumpage at \$3.50 per M. which is likely to

increase well beyond this value with return of prosperity. The aesthetic value of white pine to New Hampshire cannot be measured but that it is large in the minds of most people is not to be disputed. Our towns and the State cannot afford to spend as much as the importance of white pine appears to justify. Sufficient scouting and re-eradication should be done in towns each year, however, to learn conditions and to re-eradicate where conditions are bad. Blister rust control is 95 per cent a labor cost and as long as relief work is needed, it is a worth-while way to use relief funds.

State Forests and Reservations

General Miller Park consisting of three acres of the summit of Pack Monadnock Mountain in Peterborough was the first gift of land to the State under the Forestry Commission in 1891. A second gift ten years later was the Cathedral and White Horse Ledges—118 acres, west of the Saco River in the town of Conway. This tract was acquired by townspeople and deeded to the State to preserve this unique feature from commercial use as a stone quarry. Other gifts followed at infrequent intervals including the Monadnock Reservation, where a later gift of an entrance roadway one mile in length has opened up this splendid mountain to public use. In 1913 the State purchased by Act of Legislature 5,925 acres comprising Crawford Notch in Hart's Location. The most valuable and outstanding reservation is Franconia Notch of 5,244 acres purchased by Act of the Legislature in 1928. It is joined by the Flume Reservation on the south, owned by the Society for Protection of New Hampshire Forests, which the Society is to transfer to the State in 1947.

During the past two years twenty additions to the State reservations have been made, mostly by gifts and totaling about 4,000 acres. The State now owns 112 State forests and reservations located in about 80 dif-

ferent towns and with a total of 41,765 acres. These areas so widely scattered and diversified in character, including many of the prominent mountain summits and ranges south of the White Mountains, some areas of unusual forest growth, lake shores, waterfalls, stream borders, slopes for winter sports and most accessible and attractive places for summer recreation, are now being put to their most important uses whether timber production, preservation of places of unusual interest or for massed recreational use. Work on the State lands where public recreational use is not a primary factor is to build up more valuable stands of timber for the future by selective cutting of low grade wood, supplemented by planting. Many miles of forest roads have been built to increase accessibility. Areas having distinctive recreational uses are kept in natural condition as much as possible but are made accessible to the public by approach roads and trails. Land titles, mapping and surveys, recreational planning, inspection of fire problems, assistance to arborists and tree wardens and examination of private forest lands for tax classification are lines of the Department's work handled by Assistant State Forester Warren F. Hale.

Forest Research

The Caroline A. Fox Research Forest, buildings and equipment for forest investigations and demonstration at Hillsboro are maintained by the Department according to the terms of a Trust accepted by Chapter 49, Laws of 1933, the income from which amounts to about \$6,500 per year. A research forester, Dr. Henry I. Baldwin, resides on the property, devoting his time to problems of forest management, treatment and care of woodlands, forest tree insects and diseases, forest industries and markets for forest products.

The Fox Forest of 363 acres has received the benefit of much important construction and improvement work

by the CCC. Roads have been built to make all parts of the area accessible for wood removal, sample plot study and public education and recreation. Space in the buildings is available for offices, laboratory and museum. One or more fellowships are granted each year to students desiring to carry on special investigations in forestry or closely related subjects. It is intended that problems relating to forestry generally over the State, including those of forest industries and marketing may be given attention and publications issued from time to time. Already the Fox Forest has received much favorable attention and brings visitors seeking information or desiring to see what applied forest management really means.

Recreational Administration

In the recreational work of the Department we are, in addition to administering State owned recreational facilities, endeavoring to become the agency responsible for studying the recreational problems of the State as a whole, in terms of programs as well as properties, co-ordinating efforts among town and private agencies and advising on plans and construction.

Outdoor recreation throughout the country has grown by leaps and bounds during the last few years. Previously, it had become well advanced and efficiently organized only around large centers of population like Westchester County and Long Island, New York and many forward looking municipalities of smaller size, which longer ago provided bathing and playfields for their children. Confronted with unemployment and the necessity of providing work, the Federal Government and states everywhere have turned to recreational development of public lands as one of the important means of accomplishing lasting benefits by the expenditure of emergency funds available. New Hampshire has shared in this recreational development program but in

a far more modest and conservative way than many other states even in New England. Our wealth of natural attractions, many already in public ownership, nearness to large centers of population south of us and consequently our large vacation population would justify no less an effort than has been made.

Recreational developments in natural forest or lake surroundings have had an immediate appeal to our own citizens as well as the traveling public. We have seen the amazing growth of winter recreation take place wherever public facilities such as ski trails have been provided for people to use. Of the 300,000 people who used the State's supervised recreational areas last summer, 70 per cent came from other states. Last winter 10,000 were counted on the ski trails within the State reservations alone over a period of six week-ends, using 2,200 cars, of which 1,300 were from outside the State.

The commercial value to the State as a whole is very large. People purchase gasoline and food supplies. Local enterprise is encouraged and hotels are now often open in winter as well as summer, outing clubs are organized and hotels, chambers of commerce and other local organizations mention their proximity to the forest parks in their recreational leaflets. Surrounding property values are increasing where recreational facilities are available. Some of the State's lake shore areas have actually been developed on property which previously has been a growing nuisance to the community. The best advertisement for our recreational centers comes from satisfied users who not only return but send many others. Cities and towns throughout New Hampshire are recognizing the importance of our public recreational areas and are asking for additional areas nearer to their towns. Six of our cities and two towns with a combined population of 99,000 appropriated \$23,900 from their general funds for recreational purposes in 1935.

As long as there were but a few State recreational areas extensively used and requiring little supervision, the administrative work was handled by the Department staff in connection with other work. With the completion and operation in 1935 of additional bathing beaches and public camp grounds and intensive use of them by large numbers of people, necessitating the employment of caretakers, life guards at beaches, and others to check clothing, direct parking, assist in clean-up work and care of water supply and sanitation, it has been necessary to provide a new member of the staff (Russell B. Tobey beginning June, 1935) to administer these recreational areas, supervise the personnel and provide the supplies and needed equipment, visiting the areas, delivering supplies, receiving reports of attendants and planning future needs and changes. Care of pumps, motors, chlorinating and sewage disposal plants, water supplies and a large amount of other details are involved.

As intensive winter use of some of the State areas developed, especially over week-ends, recreation buildings and enclosed shelters have been opened and heated to provide comfort to the users. This involves employment of caretakers for extra period work, in order to protect State property and serve in first aid work in case of accident. At the ski trails toboggans are kept for emergency use. When water supplies are drained in winter, portable sanitary structures are necessary where many people assemble.

The average wage paid to caretakers last summer was \$74.00 per month. These men must be on duty from around 8 in the morning until 7 or 8 in the evening. They are required to work seven days a week with no time off during the season except on such days as the weather discourages attendance entirely. Their duties include janitor service at bathhouses and other buildings, general clean-up of the entire grounds, supervision of

and accommodations to the public as the Department's representatives at the park. They receive some assistance from the life guard if one is employed. The average salary paid to life guards in the last season was \$64.40 per month. In several cases they had to maintain themselves in tents, provide their own meals; always their hours were long. Early mornings, they had to be available to the caretaker as assistants. Their main duty, however, was to supervise the public in the water whenever bathing was going on. In this work, high standards of efficiency and training are required and applicants must be qualified Red Cross life guards. It is a tribute to them that since the operation of State parks, no life has been lost in or about the water and that, in fact, several lives have been saved through their efforts. Although wages are a large part of the operating cost, the average rate has been moderate and the services received have been excellent.

With 13 recreational areas, buildings and equipment under supervision last season in addition to Franconia and Crawford Notches and two more to follow in 1937 and 1938, the time of one traveling maintenance assistant will be needed to distribute supplies and make repairs to equipment. The time of the member of the staff should be reasonably free to engage in planning work, advising and working with outing clubs, winter sports associations, towns, and other Federal and State recreational agencies, preparing information for distribution, attending fairs with exhibits, giving talks before local groups and meeting with recreational representatives of other states.

Because of the rising cost of maintaining and administering the State's recreational centers the desirability of making charges at these centers has not been overlooked. Charges can be justified because of the increasing difficulty in obtaining additional funds for this purpose from appropriations. There is usually greater

interest and appreciation on the part of those who use the facilities if they pay something for them. These facilities are after all used only by a small part of the general tax payers of the State.

There are many, however, who believe that the facilities should be free to the public and that the State benefits by this accommodation to its citizens and visitors. They question the numerous fees, particularly entrance fees charged by some other states for use of their park facilities. It can be shown that public recreation provides benefits similar to public education, that municipalities have free parks and playgrounds under supervision to promote health and that public buildings such as libraries and museums are mostly maintained at public expense. It is also true that visitors at State recreational areas purchase food, gas and other supplies locally and increase the taxable income of the towns and State thereby. Use of the State's facilities by a satisfied public is a benefit to the towns and State generally. A further difficulty arises out of the fact that similar recreational areas within the White Mountain National Forest are likely to continue to be free to the public.

Effort was made but without avail two years ago to secure legislative approval to enable the Commission to make reasonable charges for services and accommodations at the more intensively used places which must be maintained and properly supervised. It is our desire to secure some income from these facilities. To that end we have drawn up tentative charges for certain facilities and services which we hope to inaugurate in the coming season. These cover such facilities as automobile parking at certain areas every day or on Saturdays and Sundays, camping sites, tables and firewood for picnic parties. It is expected that these revenues should amount to between \$4,000 and \$6,000 during the season and that they may be increased in the future, commensurate with larger attendance and better facilities.

The Department cannot maintain these properties with the necessary requirements for sanitation and safety to life without a sufficient personnel to take care of them, which means an increasing cost with larger use each year. Sufficient funds must be available either from appropriations or fees from the users. A middle ground whereby enough revenue is obtained from fees so that the cost does not become a public burden seems the desirable policy.

Hampton Beach

The recreational lands at Hampton Beach acquired by the State under Chapter 159, Laws of 1933 were placed under the jurisdiction of the Forestry and Recreation Department by the Governor and Council in June, 1935, subject to approval by the Governor and Council of important changes in policy. These lands represent three distinct areas between the Boulevard and the beach separated by private shore property at Great Boar's Head and at White Island so-called. North Beach from Great Boar's Head to the northerly end of the new sea wall at the Coast Guard Station has increasing public use but there is little land and no facilities for the public. Central Beach opposite the principal business center has long been in use and includes several small public buildings, parking area and playground, the supervision and income having continued to remain with the Selectmen and Town of Hampton up to the present time by direction of the Governor and Council.

South Beach begins at the Hampton River Toll Bridge on the south and includes nearly 35 acres of land between the Boulevard and the beach, much of which has since 1933 been filled by dredging the Hampton River in conjunction with the construction of jetties to protect this part of Hampton Beach.

The newly made land should be developed at once

as a State recreational area and bathing beach. It has been graded and gravelled and a circular oiled strip with some log railings have been supplied by the Highway Department. Various plans and estimates for the construction of a State bathhouse and public comfort station as well as for parking and landscaping have been prepared. The State Legislative Building Commission allotted \$10,000 for such a project and with balances available from the Department's bond issue fund, confidence has been felt that some co-operating Federal agency would provide additional funds or labor. Help from PWA and WPA has not been forthcoming but it is expected that approval by the National Park Service will be secured to use the services in part of the Pawtuckaway CCC Camp in conjunction with the use of State funds so that the project can be undertaken early in 1937.

The toll bridge area has other possibilities for future improvement and expansion. The shore of Hampton River on the west side of the Boulevard now partly in State ownership should sometime be improved in connection with the use of Hampton River as a boat basin. A portion of the land adjoining the south shore of the Hampton River to the beach now undeveloped needs to be controlled in order to protect and beautify the approach to Hampton from the south.

Fulmer Act

In May, 1936, Congress passed but without appropriation the so-called Fulmer Act for the purpose of stimulating the acquisition, development and proper management of State forests from lands that are more suitable for public than for private ownership and should be devoted to the production of timber crops or maintained for watershed protection. The Secretary of Agriculture through the Forest Service and with the approval of the National Forest Reservation Commission is authorized to enter into co-operation with states

which qualify under the Fulmer Act by acquiring forest lands in the name of the United States to be turned over to the co-operating state for administration. One-half of the gross proceeds from such lands shall be paid by the state to the United States to be credited to the cost of acquiring the land. Upon payment of the full purchase price, title to said lands will then be transferred to the state.

A condition of the Act provides that no further lands shall be acquired for any state after 1942 unless the state has provided by law for blocking into state or other public forests such tax delinquent lands as are desirable for public management. At present there is little information available as to the location or condition of tax title lands in the hands of the towns or whether they should be placed in State or town forests or disposed of for some other use either public or private. Many thousands of acres of forest land outside the White Mountain region not classed as farm woodlands are so depleted of merchantable timber that there is no immediate prospect of further financial returns. Public ownership which can wait for the restoration of new timber values and assure continued productivity by proper management is part of the solution of forest land problems. There is an urgent need for zoning provisions which will encourage study of tax delinquent and other lands in sparsely settled communities and control conditions where necessary.

The only immediate legislation required of New Hampshire in order to qualify under the Fulmer Act, since Chapter 74, Laws of 1935 provides for Federal acquisition of land and administrative agreements with the State, is to further provide for reimbursing the United States out of the gross proceeds from the lands, such payments to be credited to the price of acquiring the land. The length of time necessary to pay for these lands out of revenue would depend of course upon

the growing stock, soil quality, accessibility, markets and upon the improvements necessary to obtain the maximum of returns under a proper system of management. It is likely that Fulmer work will become an important part of State forest management in the future.

Farm Forestry

The Federal Government is considering additional legislation to bring farm woodlands into sound producing condition and thus take their place in the forestry field. Just what will be the scope and character of Federal legislation to promote farm or other private forestry is yet to be determined. The Forest Service proposes to operate on a wider co-operative basis, using the same agencies already concerned with farm forestry matters, which are the extension services and the state forestry departments, under Federal leadership and dealing with farm woodland owners and associations in definitely planned projects. Lack of co-ordinated effort and adequate funds have been responsible in part for the slow progress in accomplishing results in farm forestry work during years past. The proposed plans are to provide increased facilities for the production and distribution of nursery stock and to follow planting operations with improved practices for getting farm forests restored in a manner closely correlated with public forest management, thus contributing to a balanced program of production of raw materials, watershed protection and recreational needs. Such a program has a definite value in making farms more attractive and self-contained and in stabilizing forest using industries and social conditions in rural districts.

The Federal Government would assist co-operating agencies to employ qualified additional personnel in nursery and planting work, co-ordinate the various existing agencies, review past performances and investigate farm woodland conditions and problems relating to

production, harvesting, manufacture and marketing of forest products. The responsibility of the Extension Service being educational is to stimulate interest among farm owners, supply information, conduct demonstrations and initiate group or individual projects for co-operative forestry purposes. The state forestry agencies with Federal aid and approval would assume the responsibility for the actual conduct of all work projects on farm woodlands and the cost would be borne by the Federal Government and the land owner. A few five acre demonstration projects on farm woodlands are now being undertaken as examples of co-operation where the CCC can do the work. Under the Agricultural Adjustment Act farm woodlands are to be included with other crop lands whose owners will receive grants for land improvement.

A co-operative Forest Products Association consisting of farmers representing ownership of over 70,000 acres of woodland in Coos County, New Hampshire, and Essex County, Vermont, financed by the Resettlement Administration, has been organized during the past biennial period with the assistance of the Forest Service and the State Extension Service. Heretofore many farmers have been unable to finance relatively small woods operations. This co-operative Association plans not only to distribute the yearly cut among its members but supervises the operations, advances funds to members for their operating costs and sells the products to the appropriate industries. Members will then be able to cut and dispose of material in small amounts without financial embarrassment and using methods of good forest practice. A survey is now being made of the resources of the Association as a whole using enrollees and technical foresters from several CCC Camps for the purpose of determining a reasonable annual cut and insuring a continuous yield of products under the principle of sustained management.

New Legislation

We do not believe that any fundamental changes in the laws governing the organization and work of the Forestry and Recreation Commission are necessary or desirable at this time when CCC programs are in operation and new Federal forestry policies of far-reaching importance are in the making. There is need, however, for certain amendments to be made in order to continue or properly administer existing laws relating to the work of the Commission, particularly to create a continuing forest and recreational fund in place of the present forest improvement fund which expires this year and to authorize the Commission and State Forester to render services and furnish accommodations to the public on State forests and reservations and charge reasonable fees for such services and accommodations. Contracts for the leasing of privileges and concessions should be limited to five years and only those exceeding one year or where the annual consideration is more than \$100, should be required to be recorded in the County Registry of Deeds. Agents or caretakers responsible for the protection of State property and public conduct on reservations and recreational areas should have police powers.

Legislation to provide for reimbursing the Federal Government out of gross revenue from Fulmer Act lands which may be acquired under our Chapter 74, Laws of 1935 is very necessary in order that New Hampshire be given consideration with other states in the program of forest land purchase for administration and ultimate ownership by the State.

Budgets

The proposed budgets which have been worked out in detail for 1938 and 1939 indicate a needed increase of \$21,711 the first year and \$26,781 the second year,

of which \$14,175 and \$18,745, respectively, are for recreational administration, maintenance equipment and improvements of the recreational areas. Oiling entrances and parking areas, additional lighting and such equipment as rafts, children's slides, fireplaces, signs and tables are desirable expenditures at areas now in use and which will help increase returns when fees are charged. Fees charged for services and accommodations will in time help to pay the operating and maintenance expenses of these areas. No further major recreational areas beyond those now in use or under development have been considered.

Increases in the budget other than for recreation include restoration of salary cuts, labor in reforesting land and for meeting town blister rust appropriations, both of which have been furnished from emergency funds and removed from the budgets of the past four years, increases due clerks under classification and for additional office help, for automobile exchange, increased cost of nursery seed and forest fire equipment to towns.

W. R. BROWN,
B. K. AYERS,
H. K. ROGERS,

Forestry and Recreation Commission.

JOHN H. FOSTER, *State Forester.*

REVISION OF LAWS—1935

The following changes in the laws affecting the work of this Department were made by the Legislature of 1935.

Chapter 192 of the Public Laws:

Section 6-a was amended and section 6-b inserted to read as follows:

6-a Privileges and Concessions. On terms approved by the commissioners, the state forester may make contracts for the leasing of privileges and concessions on state forests and reservations, provided that all such contracts shall be approved by the governor and council.

6-b Recording. All such contracts shall be recorded in the registry of deeds in the county, or counties, where the lands to which such contracts relate, are situated.

Chapter 191 of the Public Laws:

Section 1 was amended by Chapter 126, Laws of 1935 as follows:

Section 1. Change of Name. Amend section 1 of chapter 191 of the Public Laws by adding after the word "forestry" in the first line the words, and recreation, so that said section as amended shall read as follows: 1. Commission. There shall be a Forestry and Recreation Commission of three members, appointed by the governor, with the advice of the council, for terms of three years. One member shall be appointed each year, to take office May first, and vacancies shall be filled in the same manner for the unexpired term.

Chapter 126, Laws of 1935 further providing:

Section 2. Tenure of Office. The present members of the forestry commission shall continue in office as members of said forestry and recreation commission until the expiration of their respective terms.

Section 3. Transfer of Powers and Duties. All powers and duties now conferred upon the forestry commission by the Public Laws or any session laws shall be transferred to said forestry and recreation commission.

Section 4. Amendment; Reference. All acts or parts of acts having to do with the forestry commission are hereby amended to conform to the change of name provided for herein and any reference in the Public Laws or session laws to the forestry commission shall hereafter refer to the forestry and recreation commission.

Chapter 197 of the Public Laws:

This chapter was revised by chapter 124, Laws of 1935. The following sections were inserted in the revised Chapter 197 of the Public Laws:

Section 29. Declaring. The governor and council, upon the joint recommendation of the director and the state forester, when, in their opinion, the danger of starting fires in the woodlands of the state, during periods of protracted drought or excessive dryness requires extraordinary precautions, may, by official proclamation, declare any or all of the woodlands of the state closed to hunters, fishermen, trappers and other persons whose presence in such woodlands might create a fire hazard under the circumstances, for such time as they may designate.

Section 30. Woodland. Woodland includes cut-over land, slash, and such other land as bears a sufficient amount of wood growth, wood, weeds, grass or other growth as to be likely to be burned over.

Section 31. Notice. Such proclamation shall be published in two or more newspapers of the state, and shall be posted in such places and in such manner as the governor may order.

Section 32. Violations. No person shall drop a lighted cigarette, lighted cigar, lighted match or other article likely to cause fire, within two hundred yards of any woodlands during the time such woodlands are closed by such proclamation.

Section 46. Penalties. A person who violates a provision of this chapter shall be fined as follows: For each violation of sections 2 to 9 inclusive ten dollars and five dollars additional for each fish, bird or animal or part thereof bought, sold, offered for sale, taken, possessed, transported or had in possession for sale or transportation contrary to the provisions thereof; for each violation of sections 10, 11, 12, 13, 17, 18, 19, 32 and 33 not more than fifty dollars; for each violation of section 39 ten dollars; for each violation of any rule or regulation of section 39 ten dollars; for each violation of any rule or regulation of the director, except as otherwise provided in this title, ten dollars; and for each violation of any provision of this title for which a penalty is not otherwise provided ten dollars.

Chapter 196 of the Public Laws:

Section 15 was repealed in a revision of this chapter by the Legislature of 1935. A request to reenact this section into law will be made to the Legislature of 1937. This section referred to the duties of Wardens of the Fish and Game Department upon discovery of a forest fire.

Reference is also made to laws of 1935 pertaining directly or indirectly to the work of this Department as follows:

Chapter 74, An Act granting consent to the acquisition of land by the United States of America.

Chapter 140, An Act to reimburse the Federal Government for emergency conservation work on State lands.

Chapter 141, An Act containing an appropriation for emergency unemployment relief by forestry and general improvement work.

Chapter 97, An Act laying out a highway on Kearsarge Mountain.

Chapter 92, An Act providing for the acceptance of a gift of land from the New Hampshire-Vermont Lumber Company to the State of New Hampshire for the purpose of a State Forest Reservation and Park and the construction of a road to the Canadian Border.

Chapter 100, An Act relating to lines of telegraph and other companies in highways. (See Section 13, Cutting trees)

Chapter 108, An Act to provide for the construction and operation of an aerial tramway on Cannon Mountain in the Franconia Notch.

Chapter 132, An Act to amend "An Act to provide for the construction and operation of an aerial tramway on Cannon Mountain in the Franconia Notch."

Chapter 123, Section 1, Revising Chapter 196 of the Public Laws. Fish and Game Commission. Sections 24-28 of revised Chapter 196 authorizes establishment of special area in White Mountain National Forest for protection of game and other animals, birds and fish.

WHITE MOUNTAIN NATIONAL FOREST

C. L. GRAHAM, *Forest Supervisor*



REFACED by decades of public sentiment and authorized by the Weeks Law of 1911, the White Mountain National Forest has during its quarter-century of steady development become an outstanding example of public forests in the Northeast, with the responsibility for protecting and making available for use the natural resources of this



The White Mountain National Forest is one of the most popular of recreational areas in the East

Photo by U. S. Forest Service

pioneer among Eastern National Forests entrusted to the Forest Service of the U. S. Department of Agriculture. Its local administration is directed by the Forest Supervisor at Laconia, with District Rangers at Conway, Gorham, Littleton and Plymouth.

The purchase area as last established by Presidential Proclamation in 1929 includes 855,200 acres, of which 801,900 acres are located in Carroll, Coos and Grafton Counties in New Hampshire, and the balance in Oxford County, Maine. Of the total area in which purchases by the United States for national forest purposes are authorized, 633,865 acres had been acquired by June 30, 1936, 69,269 acres had been approved for purchase, and the balance remained in private ownership. A proposal is now under consideration by the State Land Use Board, Governor and Council, and the eighteen towns affected, covering extension of the present purchase boundary to include 54,784 acres of wild land adjoining the present area. The U. S. Forest Service is requesting authority, as prescribed by House Bill 163 of the 1935 Legislature, to purchase on the basis of a willing sale to a willing buyer such lands within the revised boundary as the United States may be in a position to acquire. During the past year two large tracts located in the center of the Forest area have been purchased: the 29,900 acre Saunders Estate in Livermore and the 68,785 acre Parker-Young Company tract in the East Branch of the Pemigewasset River.

The White Mountain National Forest continues to be very fortunate in regard to the number and severity of forest fires. Seven reportable fires occurred within the National Forest during 1936 and five fires in 1935. The total area of national forest land burned over during both years totaled only slightly more than one acre. In fact, during the past ten years less than fifty acres of national forest land has suffered fire damage. This exceptional record, despite periods of high risk and hazard over an area now representing 12% of the total land area in New Hampshire, is made possible by a number of favorable factors: extreme vigilance and complete support from the hundreds of thousands who travel through the Forest, constant co-operation

extended by the State Forestry and Recreation Department and the local fire warden organization, and steady improvement in Forest Service fire control methods and equipment. To minimize the forest fire hazard in several areas where recent slash conditions temporarily constitute a threatening fire danger, it was found necessary in 1936 to close to public entry during the fire season approximately 15,000 acres of land carrying relatively slight recreational use. At the present time



Timber sale activities on White Mountain National Forest

Photo by U. S. Forest Service

the entire forest fire problem is being analyzed in the light of recent acquisitions and improved fire control technique to determine the most effective distribution and operation of fire detection and control facilities.

The White Mountain National Forest is managed for the development and use of four basic natural resources: timber, water, wildlife and recreation, and while it is the express policy of the Forest Service to

produce maximum crops of timber and to harvest such crops for the benefit of local industries and labor up to the limit of sustained annual yield, areas of predominant value for the development of one or more of the other resources are devoted to such uses in accordance with the well established policy of multiple use.

The current steady increase in timber sale activities should help to stabilize local industries, provide local employment and contribute to the mountain communities a balance of trade in their favor. During the fiscal year ending June 30, 1936 approximately twelve million board feet of national forest stumpage were sold to private operators and it is confidently expected that the income of approximately \$40,000.00 received from these commercial timber sales will be considerably increased this year. This gain will be welcomed by the towns within which lands have been purchased and which receive 25% of the gross receipts in lieu of taxes.

The past two years have witnessed marked progress in at least two other forest management activities. A comprehensive timber survey of the entire Forest is steadily approaching completion and is providing a wealth of information for inventory purposes and for the preparation of a long term management plan under which future timber crops may be harvested systematically with due consideration for the many factors involved. Timber stand improvement continues to be a major winter activity in the Forest work plans and as a result of these silvicultural operations on 8% of the Forest, future timber sales of much more valuable timber at higher stumpage prices will be possible.

Planting operations during the past two years have been limited to the restocking of large burns where it is evident that natural reseeding will not result in the establishment of desirable species. The outstanding example of such work is found in the Kilkenny Burn west of Berlin where 1,005 acres were planted during

the past two years in a total area of 6,500 acres where artificial restocking is contemplated.

The White Mountain National Forest is the great upland reservoir from which flows the drainage system of New England. The headwaters of the Saco and the Merrimack, and the most important tributaries of the Androscoggin and Connecticut have their sources on the high slopes of the White Mountains. The importance of protecting the watershed of these rivers, so important in the industrial and domestic life of New England, is a paramount consideration.

By virtue of its location in a scenic area of national repute, the White Mountain National Forest continues to be one of the most intensively used public recreation areas in our country. The development of adequate facilities to meet the needs of the various types of recreational use is a constant responsibility. Fourteen roadside Forest Camps, used by 150,000 persons in 1936, have been established for the primary use of motor campers and picnic groups. Numerous trail-side shelters and high country cabins have been constructed for use by those who tramp, ski, hunt, and fish along the 1,000 mile trail system now maintained by the Forest Service. A major project of the past two years has been the conversion of Campton Pond from a mill pond to a recreational center of unlimited possibilities, and Dolly Copp Forest Camp continues to be the most intensively used tenting area on the Forest with 7,204 campers remaining there in 1936 for an average period of 6.4 days.

Few ski trails have been built during the past two years, the present policy being to improve and maintain existing winter recreation facilities. The phenomenal popularity of spring skiing on the high slopes in the Forest has introduced several unique problems of major importance. Since the terrain suitable for late season skiing is definitely prescribed by topographical and met-

eorological factors and since public interest in this phase of skiing is apparently on the increase, it is easy to predict continued developments along this line.

The stocking of streams and ponds found suitable for fish planting as a result of prior investigation has become



Winter sports throughout the White Mountains have developed to amazing proportions

Photo by U. S. Forest Service

of greater importance with the constantly increasing ease by which fishing waters may be reached over road and trail. During 1935 Forest Service personnel planted 490,000 brook trout fry, 110,900 fingerling and adult brook trout, 11,000 adult rainbow trout and 2,185 Montana grayling adults. The State Fish and Game

Department supplemented these plantings in national forest waters with 205,905 brook trout, 41,500 rainbow trout, and 30,000 lake trout. In 1936 more than one million brook trout of various sizes were supplied by the Federal Hatcheries at St. Johnsbury, York Pond, and Nashua and from the Warren State Hatchery for stocking ponds and streams within the Forest by State conservation officers and Forest Service personnel. Future fish culture plans recognize the limited natural food supply available in many of our mountain streams, the desirability of planting a greater proportion of larger sized fish, the need for rearing pools in which to raise fish to legal size and the necessity for continued study in the important field of fish culture. Of the 236 streams offering 814 miles of fishing water in the Forest, 492 miles have been carefully surveyed by Bureau of Fisheries and Forest Service technicians.

Additional improvements to the facilities of the York Pond Fish Hatchery promise to double the egg producing capacity of this outstanding plant developed during the past fifteen years by the U. S. Bureau of Fisheries in co-operation with the Forest Service. In 1935, the State Legislature passed a law permitting the U. S. Forest Service to establish game management areas in the White Mountain National Forest, subject to the approval of the State Fish & Game Commission. Several proposed areas are being investigated for possible future development as experimental areas where wildlife problems may be studied intensively.

Appreciable progress has been made during the last two years in the construction of roads and highways essential to the protection and utilization of forest resources. The Evans Notch Road was dedicated on September 14, 1936, by Mr. Robert E. Fechner, Director of Emergency Conservation Work, and on the following day the group, assembled at Bretton Woods to celebrate the Silver Jubilee of the Weeks

Law, drove over the Woodstock-Warren Road which will be open to public use early in the summer of 1937. Substantial progress has been made on several other projects including Swift River Road, Zealand Road, Saco Road, and Rocky Branch Road and numerous secondary utilization roads. The construction of both the Tripoli and Wild River Roads to meet higher standards than originally proposed is another feature of the current engineering program. The relocation and betterment of the Pinkham Notch Forest Highway by the State Highway Department, financed in part by the Forest Highway Fund, is resulting in a much improved route through this important Notch.

Projects carried on in the National Forest and financed by various Federal funds continue to provide employment opportunities in the construction and maintenance of projects having a definite and permanent public value, with more than four hundred local men at work on Forest Service projects at the close of 1936, in addition to enrollees quartered at the eleven camps of the Civilian Conservation Corps now in operation in the Forest. Current work projects on which these crews are engaged should prove of great value in the future development of the White Mountain National Forest "for the greatest good of the greatest number of persons in the long run."

STATE FORESTS AND RESERVATIONS



THE total acreage of State forests and reservations as given in the last report was 38,016 acres. Purchases and gifts acquired by the State in 1935 and 1936 were 4,061.5 acres. Two tracts of 43.5 acres were deeded by the State making a net gain of 4,018 acres. Much time has been spent in locating the disputed south boundary of the Cardigan Mountain tract in the town of Orange. After a careful search of the title in the Grafton County Registry of Deeds and in the files of the Secretary of State, an old court decision was found stating that a portion of the original boundary between Alexandria and Orange should be relocated. The changing of these lines and other boundaries adjacent reduced the acreage of the Cardigan Mountain Reservation from 3,309 as previously reported to 3,090, a loss of 219 acres. Surveys of other lands brought the loss of acreage to 269. The acreage of all lands on January 1, 1937 under the supervision of the Department was 41,765 acres.

Brief Description of State Forests and Reservations Acquired During The Years 1935 and 1936

Ayers:

Mrs. Clara M. Ayers of Concord gave a portion of her husband's old homestead to the State in 1935. Augustine R. Ayers was long interested in forestry and its practice, especially on farm woodlots. This tract of 50 acres lies in two townships: 42 acres in Canterbury and 8 acres in Northfield. There are no buildings on the lot, but there is an excellent stand of

young soft and hardwood timber which in time will be of value. A good town road crosses one end of the tract.

Fox Addition:

Two small lots of forest land of 36 acres were purchased from Carl Colby of Hillsboro for \$500.00 to allow easier access to certain portions of the Caroline A. Fox Research and Demonstration Forest. The purchase was made from the Fox fund with the approval of the Trustees. One of these lots, containing 29 acres, lies north of the road leading from the reservation to Hillsboro Center while the other includes 7 acres between this road and the reservation to the south. These two lots with a right of way connect certain portions of the reservation and enable more efficient management and operation.

Sculptured Rocks:

Mrs. Elinor C. Plummer of Cooperstown, New York, a former resident of Bristol, gave to the State a small tract of land adjacent to Sculptured Rocks in the town of Groton. This plot of one acre lies between the main road and the river just below the old bridge. The river at this point has worn deep pot holes and basins in the solid rock. Many years ago an old water mill was built on this site which has been known in the past as the Kemp Mill Privilege. It is hoped that other lands can be acquired either by gift or purchase to permit further developments of this unusual site.

Peterborough Pool:

This area of 12 acres, near the center of Peterborough, was acquired in 1934 for recreational development under CWA and FERA. The tract was placed under the jurisdiction of the Forestry and Recreation Department in June, 1935 for completion and administration.

Bellamy Park:

In 1934, the recreational division under CWA acquired several tracts of land at Dover, totaling 29 acres for \$3,100. These areas lie on both sides of Bellamy River and include the old mill which has been a landmark for generations. The grantors were Timothy J. Sullivan, the Textile Realty Company, the Fernald Estate, and the American Woolen Company, all of Dover. The area is mostly open land with a small pine grove located on the north side of the river. Under CWA a stone dam was built on Bellamy River just above the old mill creating a recreational area for swimming. In June, 1935, the Governor and Council transferred this project to the State Forestry and Recreation Department for completion and administration. During the past year an exchange of land was made between the State and Timothy J. Sullivan of Dover. In order to widen the entrance road leading to the bathhouse, Mr. Sullivan deeded to the state one-half an acre of his farm.

In return for this conveyance the State deeded one-half an acre of park land to Mr. Sullivan. Work is now being carried on under the direction of the Pawtuckaway CCC Park Camp.

Hampton Beach:

The State acquired Hampton Beach from the town of Hampton by legislative act, Section 3, Chapter 159, Laws of 1933. This property consists of the North Beach adjacent to the sea wall and extending to the Coast Guard Station with a plot of land near the Station; the Central Beach extending from Haverhill Street at White Island north almost to Great Boar's Head; and the South Beach including all the made land lying between White Island and Hampton River. The sea walls, jetties, toll bridge, and Boulevard also belong to the State under the supervision of the Highway Department. All major changes of policy are subject

to the approval of the Governor and Council. The town of Hampton is responsible for public order and sanitation. The total area is 50 acres. Upon the recommendation of a committee previously selected to consider the problem of beach control, the Governor and Council in June, 1935, designated the Forestry and Recreation Commission as the permanent and continuing State agency to have general management and supervision of the beaches. On account of the lateness of the season and the fact that the Selectmen of Hampton had already made plans for the summer to supervise and manage the State property, it was decided that the Forestry and Recreation Department should act as advisor and co-operate with the Selectmen and Precinct Officers. Several meetings with these Boards were later held with the object of co-ordinating the different view points and interests involved and bringing about the best possible management of the beach property. The Governor and Council again decided that the Selectmen of Hampton should supervise the beach during the season of 1936.

Kearsarge Mountain Camp:

In order to permit the reconstruction of the old toll road up Kearsarge Mountain from the town of Warner, a site was located for a CCC Camp at the junction of the Warner and Salisbury town lines. An old farm of 21 acres known as the Crockett Farm, of which 13 acres are in Warner and 8 in Salisbury, was purchased by the State from Mr. and Mrs. Louis C. Shaw of Warner for \$400. A CCC Camp has now been built on the area. The farmhouse is in very poor condition but will probably be repaired for the recreational and educational use of the camp.

Toll Gate:

On May 29, 1935, the legislature passed Chapter 97, entitled "An Act laying out a highway on Kear-

sarge Mountain." Three commissioners were appointed to examine the location of this road in the town of Warner and \$500 was appropriated out of General Funds to be paid to some 15 owners whose land would be taken for highway purposes. This road was laid out for a distance of about three miles with a width of 100 feet. In the deed by which Blanche N. Abbott conveyed to the State the section of highway which passes through her land, she also conveyed about ten acres of land near the toll gate. This land will be of value for future development of an entrance park and for an automobile parking area. In order to provide for the construction of this new road, a CCC Camp located on the above described area nearby is now at work.

Milan Hill Additions:

A tract of 122 acres in Milan was purchased in 1934. This conveyance included the top and slopes of Milan Hill on whose summit the State had already erected a fire lookout tower and cabin. The entrance road to this tract was very steep and too narrow to allow sufficient space for cars to pass. To obviate this condition and to establish a new entrance and easier grade, the State acquired four acres of open field in 1935 from Archie F. Jodrie of Milan for \$40. This addition permitted the abandoning of the old road and the making of an attractive entrance with easy grades to the summit. A further addition was made during the season of 1936 when one acre of land was purchased from Mr. Jodrie for \$25.00 to acquire an excellent water supply for the reservation.

Kearsarge Mountain Addition:

The Society for Protection of New Hampshire Forests deeded to the State as a gift 1,525 acres of forest land on the southern slopes of Kearsarge Mountain in 1935. This large tract lies on both sides of land

now owned by the Society with 1,150 acres in the town of Warner and 375 acres in Salisbury. The Woman's Clubs of New Hampshire were mainly responsible for the raising of funds to acquire these lands for the Society. The total area in State ownership on Kearsarge Mountain including land previously owned is 2,383 acres. The Society still owns 521 acres.

Connecticut Lakes:

Chapter 92, Laws of 1935, entitled "An Act providing for the acceptance of a gift of land from the New Hampshire-Vermont Lumber Company for the purpose of a State Forest Reservation and Park and the construction of a road to the Canadian Border" was passed by the Legislature in May, 1935. This tract is located in the town of Pittsburg and is about 9 miles long and 1,000 feet wide, starting from a point near the outlet of Second Connecticut Lake and following the westerly shores of Second Lake. The proposed road passes close to the shores of Third Lake and continues on to the border. The new road when completed will allow an entrance to New Hampshire from Canada and will provide one of the most attractive scenic highways within the State. In order to construct the road without great expense and fulfill the requirements of the gift, a CCC Camp was especially approved by Director Fechner upon appeal by representatives of the State. The forest land outside of the actual road is to be maintained as a State Forest Reservation and Park with restrictions to prevent commercial development. The Connecticut River Power Company also conveyed to the State certain flowage areas about Third Lake. The officials of the Highway and the Forestry and Recreation Departments have been working together on this project since the CCC Camp was established.

Shadow Hill:

The Society for Protection of New Hampshire Forests conveyed as a gift to the State ten acres of forest

land adjacent to Gile Pond in the town of Sutton. One tract of nine acres was deeded to the Society by Edward H. and James E. Carroll of Warner in memory of their father who was one of the foremost lumbermen in the State. The other area of one acre is located adjoining and was conveyed by Mr. Robert H. Davis of Sutton to the Society. The two lots have been called the Shadow Hill tract because of a prominent hill nearby known by that name. This tract offers excellent opportunities for limited camping and picnicking. There is a possibility that additional lands may be acquired for the purpose of protecting the attractive shores of this pond.

Lead Mine:

The Appalachian Mountain Club having offices in Boston, voted in January, 1934 to convey as a gift to the State certain of its forest properties in New Hampshire. Three tracts were included in the transfer: the Lead Mine lot in Gorham, Farrar lot in Temple, and the Sky Pond lot in New Hampton. The Lead Mine area of 202 acres, named because of some abandoned mines in that vicinity, lies on the northerly shore of the Androscoggin River five miles east of Gorham Village. A trail near the highway leads to the ledges located on this tract from which there is an excellent view of some of the high mountain peaks. A town road runs through the lot to an old abandoned farm. Excellent stands of white birch, beech, and maple cover many acres of this reservation.

Vincent:

In 1934, Dr. Clarence A. Vincent of Winter Park, Florida, and Henniker, N. H., following the Field Day at the Fox Research Forest, expressed his intention of donating some of his lands to the State. Formal announcement of the gift was made at the 1935 Field Day. The tract deeded consists of 172 acres of hilltop

pasture with a small amount of young timber. A large part of the area will probably be planted and an existing road to the summit improved. This tract lies in three towns: Deering, 137 acres; Weare, 27 acres; and Henniker, 8 acres.

Farrar:

This tract of four acres conveyed by the Appalachian Mountain Club to the State lies high up on the southern slope of Pack Monadnock Mountain in the town of Temple. This lot is adjacent to the mountain road to the summit just north of the old Half-Way House site and offers a picnic and parking place for visitors.

Fay:

The Appalachian Mountain Club also voted at a later meeting to convey to the State the Fay Reservation of 211 acres located in the towns of Lincoln and Woodstock. This tract just north of North Woodstock Village lies on both sides of the main highway and will offer unusual opportunities for roadside picnicking when improved. The reservation was deeded to the Appalachian Mountain Club by Charles Story Fay and a memorial bronze tablet has been erected near the south entrance. Many years ago paths were laid out through the tract and rustic seats placed in attractive spots. Some very fine stands of spruce, fir and hemlock can be seen within the reservation. The Pemigewasset River is the eastern boundary and one small island is included with the tract. Detailed plans for the development of this area are being made.

Sky Pond:

Sky Pond tract in New Hampton was another area conveyed to the State by the Appalachian Mountain Club. This lot of 119 acres lies just east of a small body of water called Sky Pond. The tract is not on a traveled road and must be reached on foot a distance of one-half a mile. From the eastern ledges on the

lot a view can be obtained of many lakes and ponds. The area contains some excellent stands of soft and hardwood growth.

Boardman:

On March 9, 1935, the Transient Bureau of the Federal Government deeded to the State a farm of 76 acres in the town of Haverhill known as the Boardman Farm. The farm itself was originally acquired for the purpose of raising vegetables to help supply the Transient Camp which was located on the Black Mountain Reservation about one-half a mile distant. The farmhouse and barn were in the process of being renovated by the men from this Camp when it closed in December, 1936. The Governor and Council transferred the jurisdiction of this tract to the Forestry and Recreation Department September 29, 1936.

Intervale Ski Slope:

The lack of open slopes for skiing has retarded the development of winter sports in the vicinity of North Conway. No natural slopes were available for advanced skiing. After much study of the terrain in this region, a hardwood tract having all the necessary requirements was located on the northerly side of Bartlett Mountain near Intervale Village. A ski trail leading to the top of the mountain crossed this area which extended to the East Branch of the Saco River. Chester A. Emerson of Intervale purchased a portion of this slope and offered as a gift to the State a sufficient area for general skiing and slalom courses. A tract of 13 acres was selected and conveyed to the State with the understanding that the area be cleared for winter sports.

Chesterfield Gorge:

The Society for Protection of New Hampshire Forests has recently conveyed the Chesterfield Gorge of 15 acres to the State. This tract lies in the town of

Chesterfield on the northerly side of Route No. 9 about eight miles west of Keene. The gorge is one-half a mile long with precipitous walls and unusual rock formation. The timber growth in and about the gorge has not been disturbed and includes some very tall trees. Near the highway is an open field suitable for a parking and picnic area.

State Conveys Red Stone Tract to White Mountain Airport Corporation

The White Mountain Airport Corporation of Conway in 1934 requested the Forestry Department for a lease of the easterly half of the Red Stone State Forest in Conway for airport purposes. A lease was made out dated June 28, 1934 for 20 acres of land for the term of five years with the rental of \$1.00 per year. A clause in the agreement permitted the lessee to purchase this tract for \$250. In 1936 the Airport Corporation made a request for the purchase of the whole tract of 43 acres. This acquisition was desired by the Corporation because of the cramped area of the landing field. The request was approved by the Forestry and Recreation Commission and by the Governor and Council because the area was of greater importance for the development of the airport than for forestry purposes. A deed dated July 30, 1936 and signed by Governor Bridges and the Council under authority of Section 28A, Chapter 105, Laws of 1931 quitclaimed the 43 acres to the White Mountain Airport Corporation for \$250. The conveyance was made with the understanding that the area would not be used for commercial purposes.

LIST OF STATE FORESTS AND RESERVATIONS BY TOWNS

(January 1, 1937)

| <i>Town</i> | <i>Total Acres in Town</i> | <i>Name of Tract</i> | <i>Divisions of State Tracts in Towns</i> | <i>Total Acres in Tract</i> |
|-------------|--------------------------------|--|---|--|
| Acworth | 203 | Honey Brook | Acworth Lempster Marlow | 203 50 628 981 |
| Alexandria | 872 | Cardigan Mt. | Alexandria Orange | 649 2,441 3,090 |
| | | Welton Falls | Alexandria | 223 223 |
| Allenstown | 413 | Bear Brook | Allenstown | 413 413 |
| Alton | 214 | Alton Bay | Alton | 214 214 |
| Amherst | 81 | Hodgman | Amherst | 18 18 |
| | | Ponemah | Amherst | 63 63 |
| Andover | 319 | Kearsarge Mt. | Salisbury Andover Wilmot Warner | 375 243 615 1,150 2,383 |
| | | Ragged Mt. | Andover | 76 76 |
| Ashland | 44 | Scribner-Fellows | Ashland New Hampton | 44 96 140 |
| Bartlett | 661 | Merriman Intervale Ski Slope Cathedral & White Horse Ledges | Bartlett Bartlett Bartlett Conway | 515 13 133 24 515 13 157 |
| Bedford | 252 | Pulpit Rock | Bedford | 252 252 |
| Bethlehem | 60 | Strawberry Hill | Bethlehem | 60 60 |
| Boscawen | 293 | State Forest Nursery | Boscawen Salisbury | 142 115 257 |
| | | Merrimaack River | Boscawen | 151 151 |
| Bristol | 154 | Sugar Hill Wellington | Bristol Bristol | 57 97 57 97 |
| Campton | 246 | Livermore Falls Blair | Campton Campton | 134 112 134 112 |
| Canaan | 174 | Mascoma | Canaan | 174 174 |
| Canterbury | 42 | Ayers | Canterbury Northfield | 42 8 50 |

| <i>Town</i> | <i>Total Acres in Town</i> | <i>Name of Tract</i> | <i>Divisions of State Tracts in Towns</i> | <i>Total Acres in Tract</i> |
|--------------|--------------------------------|---|---|-------------------------------------|
| Charlestown | 925 | Hubbard Hill Connecticut River | Charlestown Charlestown | 709 216 709 |
| Chesterfield | 15 | Chesterfield Gorge | Chesterfield | 15 15 |
| Concord | 120 | Taylor Walker Allen Mast Yard | Concord Concord Concord Concord Hopkinton | 7 47 25 41 359 400 |
| Conway | 954 | Conway Common Lands Cathedral & White Horse Ledges | Conway Conway Bartlett | 930 24 133 930 |
| Dalton | 420 | Forest Lake | Dalton | 420 420 |
| Danbury | 17 | Cardigan Mt. Camp | Danbury | 17 17 |
| Deerfield | 209 | Woodman | Northwood Deerfield | 53 88 141 |
| | | Pawtuckaway | Deerfield Nottingham | 121 950 1,071 |
| Deering | 137 | Vincent | Deering Weare Henniker | 137 27 8 172 |
| Dover | 29 | Bellamy | Dover | 29 29 |
| Dublin | 75 | Leighton | Dublin | 75 75 |
| Dunbarton | 56 | Everett | Dunbarton | 56 56 |
| Effingham | 15 | Green Mt. | Effingham | 15 15 |
| Farmington | 99 | Blue Job | Farmington | 99 99 |
| Fitzwilliam | 8 | Grant | Fitzwilliam | 8 8 |
| Franconia | 2,817 | Franconia Notch | Franconia Lincoln | 2,817 2,427 5,244 |
| Freedom | 1,458 | Huckins | Freedom | 1,458 1,458 |
| Gilford | 545 | Belknap Mt. | Gilford | 545 545 |
| Gilmanton | 42 | Meadow Pond | Gilmanton | 42 42 |
| Gilsum | 95 | Pot Holes | Gilsum | 95 95 |
| Goshen | 426 | Pillsbury | Goshen Washington | 407 2,627 3,034 |
| | | Pillsbury Camp | Goshen | 19 19 |
| Gorham | 755 | Moose Brook Park | Gorham | 755 755 |

| <i>Town</i> | <i>Total Acres in Town</i> | <i>Name of Tract</i> | <i>Divisions of State Tracts in Towns</i> | <i>Total Acres in Tract</i> |
|-----------------|--------------------------------|-----------------------------------|---|-------------------------------------|
| Greenville | 4 | Russell | Greenville Mason | 4 21 25 |
| Groton | 547 | Province Road Sculptured Rocks | Groton Groton | 546 1 546 1 |
| Hampton | 50 | Hampton Beach | Hampton | 50 50 |
| Hart's Location | 5,925 | Crawford Notch | Hart's Location | 5,925 5,925 |
| Haverhill | 731 | Black Mt. Boardman | Haverhill Haverhill | 655 76 655 76 |
| Henniker | 54 | Ames Vincent Oranney Hill | Henniker Henniker Henniker | 15 8 31 15 8 31 |
| Hillsboro | 399 | Fox | Hillsboro | 399 399 |
| Hopkinton | 406 | Mast Yard | Hopkinton Concord | 359 41 400 |
| | | Contoocook | Hopkinton | 47 47 |
| Hooksett | 8 | Stockdale | Hooksett Manchester | 8 58 66 |
| Jaffrey | 843 | Monadnock Gay Haven | Jaffrey Jaffrey Jaffrey | 699 49 95 699 49 95 |
| Keene | 23 | Beech Hill | Keene | 23 23 |
| Kingston | 91 | Kingston Lake Rock Rimmon | Kingston Kingston | 44 47 44 47 |
| Laconia | 2 | Endicott Rock | Laconia | 2 2 |
| Lempster | 272 | Dodge Brook Honey Brook | Lempster Lempster | 222 50 222 50 |
| Lincoln | 2,569 | Fay | Lincoln Woodstock | 142 69 211 |
| | | Franconia Notch | Lincoln Franconia | 2,427 2,817 5,244 |
| Litchfield | 122 | Litchfield | Litchfield | 122 122 |
| Livermore | 25 | Crawford Notch | Livermore | 25 25 |
| Loudon | 50 | Soucook | Loudon | 50 50 |
| Manchester | 58 | Stockdale | Manchester Hooksett | 58 8 66 |
| Marlow | 628 | Honey Brook | Marlow Lempster Acworth | 628 50 203 881 |
| Mason | 46 | Russell | Mason Greenville | 21 4 25 |
| | | Kimball | Mason | 25 25 |

| <i>Town</i> | <i>Total Acres in Town</i> | <i>Name of Tract</i> | <i>Divisions of State Tracts in Towns</i> | <i>Total Acres in Tract</i> |
|--------------|--------------------------------|-----------------------|---|-------------------------------------|
| Milan | 127 | Milan Hill | Milan | 127 |
| New Hampton | 215 | Scribner-Fellows | New Hampton | 96 |
| | | | Ashland | 44 |
| | | Sky Pond | New Hampton | 119 |
| New Ipswich | 97 | Marshall | New Ipswich | 20 |
| | | Binney Pond | New Ipswich | 77 |
| Northfield | 8 | Ayers | Northfield | 8 |
| | | | Canterbury | 42 |
| Northwood | 54 | Waldron | Northwood | 1 |
| | | Woodman | Northwood | 53 |
| | | | Deerfield | 88 |
| Nottingham | 970 | Stevens | Nottingham | 4 |
| | | Nottingham | Nottingham | 16 |
| | | Pawtuckaway | Nottingham | 950 |
| | | | Deerfield | 121 |
| Orange | 2,441 | Cardigan Mt. | Orange | 2,441 |
| | | | Alexandria | 649 |
| Ossipee | 112 | Duncan Lake | Ossipee | 100 |
| | | Lord | Ossipee | 12 |
| Pelham | 63 | Jeremy Hill | Pelham | 63 |
| Pembroke | 7 | Glover | Pembroke | 7 |
| Peterborough | 262 | Casalis | Peterborough | 247 |
| | | Miller Park | Peterborough | 3 |
| | | Peterborough Pool | Peterborough | 12 |
| Piermont | 143 | Sentinel Mt. | Piermont | 143 |
| Pittsburg | 1,500 | Connecticut Lakes | Pittsburg | 1,500 |
| Rindge | 902 | Annett | Rindge | 902 |
| | | | Sharon | 190 |
| Rochester | 20 | Salmon Falls | Rochester | 20 |
| Rumney | 5 | Baker | Rumney | 5 |
| Salisbury | 498 | State Forest Nursery | Salisbury | 115 |
| | | | Boscawen | 142 |
| | | Kearsarge Mt. | Salisbury | 375 |
| | | | Andover | 243 |
| | | | Wilmot | 615 |
| | | | Warner | 1,150 |
| | | Kearsarge Mt. Camp | Salisbury | 8 |
| | | | Warner | 13 |

| <i>Town</i> | <i>Total Acres in Town</i> | <i>Name of Tract</i> | <i>Divisions of State Tracts in Towns</i> | <i>Total Acres in Tract</i> |
|---------------|--------------------------------|---|--|--|
| Sharon | 190 | Annett | Sharon Rindge | 190 902 1,092 |
| Shelburne | 202 | Lead Mine | Shelburne | 202 202 |
| South Hampton | 52 | Powow River | South Hampton | 52 52 |
| Stoddard | 76 | North Branch Pitcher Mt. | Stoddard Stoddard | 71 5 71 5 |
| Sutton | 62 | Wadleigh Park Shadow Hill | Sutton Sutton | 52 10 52 10 |
| Tamworth | 2,269 | Hemenway White Lake Bowditch-Runnells | Tamworth Tamworth Tamworth | 1,957 258 54 1,957 258 54 |
| Temple | 4 | Farrar | Temple | 4 4 |
| Warner | 1,629 | Carroll Davisville Harriman-Chandler Kearsarge Mt. | Warner Warner Warner Warner Salisbury Andover Wilmot | 29 32 395 1,150 375 243 615 2,383 |
| | | Kearsarge Mt. Camp | Warner Salisbury | 13 8 21 |
| | | Toll Gate | Warner | 10 10 |
| Washington | 2,627 | Pillsbury | Washington Goshen | 2,627 407 3,034 |
| Weare | 336 | Clough Vincent | Weare Deering Honniker Weare | 309 137 8 27 309 172 |
| Wilmot | 615 | Kearsarge Mt. | Salisbury Wilmot Andover Warner | 375 615 243 1,150 2,383 |
| Wolfeboro | 112 | Gov. Wentworth Farm Wentworth Beach | Wolfeboro Wolfeboro | 96 16 96 16 |
| Woodstock | 69 | Fay | Woodstock Lincoln | 69 142 211 |
| | 41,765 | ACRES | | |

STATE FORESTS AND RESERVATIONS

Acquired and conveyed by the State during the years 1935 and 1936.

| Name | Location | Acreage | Year | How Acquired | Cost |
|------------------------|---------------------------|---------|---------|--------------------------|-----------|
| Ayers | Canterbury and Northfield | 50 | 1935 | Gift | |
| Fox Addition | Hillsboro | 36 | " | Gift | \$500.00* |
| Sculptured Rocks | Groton | 1 | " | By Transfer | |
| Peterborough Pool | Peterborough | 12 | " | By Transfer | |
| Bellamy Park | Dover | 29.5 | " | By Transfer | |
| Hampton Beach | Hampton | 50 | " | By Transfer | \$400.00 |
| Kearsarge Mt. Camp | Warner and Salisbury | 21 | " | Legislative Act | |
| Toll Gate | Warner | 10 | " | Legislative Act | |
| Milan Hill Additions | Milan | 5 | 1935-36 | Gift | 65.00 |
| Kearsarge Mt. Addition | Warner and Salisbury | 1525 | " | Gift and Legislative Act | |
| Connecticut Lakes | Pittsburg | 1500 | " | Gift | |
| Shadow Hill | Sutton | 10 | " | Gift | |
| Lead Mine | Shelburne | 202 | 1936 | Gift | |
| Vincent | Deering, Weare, Henniker | 172 | " | Gift | |
| Farrar | Temple | 4 | " | Gift | |
| Pay Pond | New Hampton | 211 | " | Gift | |
| Boardman | Lincoln and Woodstock | 119 | " | Gift | |
| Intervale Ski Slope | Haverhill | 76 | " | Gift | |
| Chesterfield Gorge | Barlett | 13 | " | Gift | |
| | Chesterfield | 15 | " | Gift | |
| | Total Acquired | | 4,061.5 | Total Cost | \$965.00 |
| Red Stone | Conway | 43 | " | Conveyed by State | |
| Bellamy Park | Dover | .5 | " | Conveyed by State | |
| | Total Conveyed | | 43.5 | | |
| | Net Acreage Acquired | | 4,013 | | |

*Fox Trust Fund.

RECREATION ADMINISTRATION



THE Legislature of 1935 appropriated \$11,500 each for two years, to carry out the work of this Department in the interest of public recreation. During the summer season of 1935 there were ten centers ready for public use requiring supervision. The next season this number was increased by two (Moose Brook Park, Gorham and Peterborough Pool) and one picnic area (Winslow Site, Kearsarge Reservation). These centers are distributed throughout the State from Kingston in the south, to Gorham in the north; from Dover in the east to Jaffrey in the west. Nine have public bathhouses as well as shelters and comfort facilities, seven have cabins for caretakers' residences; all require supervision, supplies and equipment. Caretakers are engaged during the summer months. Their duties include the care of the grounds and buildings, services to the visiting public and enforcement of regulations. Life guards are provided at the bathing beaches and are charged with the safety of the public in and about the water. Applicants are required to be approved American Red Cross Life Savers. Their training and vigilance has helped to maintain a record unblemished by any serious water accidents during the last two seasons. In fact, several lives have been saved through their efforts. Equipment provided to safeguard bathers included life boats, life preservers, float lines and rafts. The Department was fortunate in obtaining through the American Red Cross the services of Commodore W. E. Longfellow, an authority on life saving and safety equipment, who inspected each bathing center during the 1936 season. For the care of the bathhouses and other public buildings, cleaners, disinfectants, paper towels, and other necessary articles were furnished. For the care and upkeep of the grounds such equipment as incinerators,

rakes, wheelbarrows, and knapsack fire pumps for fire protection were provided. These articles were purchased before the summer season, stored at the Forest Nursery and delivered as needed throughout the season. A light truck was procured to expedite these deliveries.

Since the beginning of the 1935 season, an administrative assistant has been engaged to assist in purchase and delivery of equipment, to oversee operations of the various centers, to advise with the field personnel, and to attend to other phases of the recreational work. Problems of sanitation, maintenance, safety work, services to the public, and enforcement of regulations were discussed with each caretaker and life guard. A fine spirit developed among the field personnel and they willingly extended their services beyond the work-a-day requirements. Endeavoring to acquaint the general public with the recreational facilities maintained, talks illustrated with movies and stereopticons were given before various organizations, exhibits were held at several State fairs as well as at the Eastern States Exposition. Early in the 1936 season an illustrated booklet was published which described and located all centers. The development of centers has been largely attended to through CCC plans, but certain improvements and repairs were carried out by the Department at centers outside the CCC territory. These are described more fully later. Maintenance and supervision are the chief functions of the recreational branch, but close relation is maintained with other agencies which develop recreational facilities. The co-operation of individuals and groups will be sought to obtain the greatest benefits to the most people which each State Park can reasonably accommodate. Our efforts have been rewarded by the beneficial results in healthful enjoyment by the public and the stimulation to commercial recreational business.

State Recreation Centers

Franconia Notch Reservation covers 5,244 acres in Franconia and Lincoln and has many important forest and scenic values. Extending over the slopes of Bald and Cannon Mountains, and Artists' Bluff, it includes Echo, Profile, and Lonesome Lakes. The most famous feature, however, is the Profile at the upper end of the Notch. Highway Route No. 3 passes through the



*Community Lodge, Lafayette Camp Ground, Franconia Notch
State Reservation*

Photo by Forestry Department

length of the Notch and thus are the scenic values available to hundreds of thousands of persons each year. Many developments here are not new and administration differs from those at the smaller State parks. However, there have been developed here a new public camping ground and system of hiking and ski trails. The Society for Protection of New Hampshire For-

ests has a lease with the State for the Profile Store, Echo Lake Tea Room, and Lafayette Lodge, recently built near the camp ground. This rustic lodge provides community kitchens, laundries, and shower baths which are available at a small charge. In it also are quarters for the caretaker, a refreshment counter, and a large social room for general use. Auto turnouts have been built and vistas cut along the highway. Picnicking is provided for at several points. Excellent ski trails built on the surrounding mountain slopes have made this Notch a winter sports center. (See appended table for all State ski trails). Much of this work as well as forestry and fire control has been carried out by the aid of a CCC side camp established in the Notch.

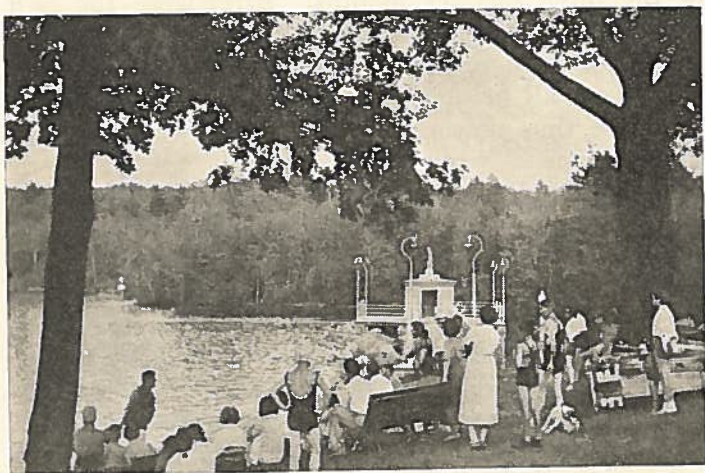
Crawford Notch Reservation in Hart's Location containing 5,950 acres is the largest area under State ownership. From the highway, route No. 302, which runs through the Notch may be seen Mounts Webster, Willard, and Willey, also the beautiful Silver and Flume Cascades. At the site of the historic Willey Slide the Department has for many years leased a set of public buildings including a restaurant, store, rest rooms, and cabins. A series of foot trails lead to Frankenstein Cliffs, Arethusa Falls, and other points of scenic interest. Along the highway clearings have been cut which allow those who drive to enjoy new vistas. A CCC side camp is established in the Notch to develop the forest and recreational possibilities. They have provided a small public camping ground and have nearly completed an auto road to the top of Mount Willard. Picnic grounds are developed at intervals beside the highway and parking turnouts provided.

Bellamy Park, 29 acres along the Bellamy River near Dover, is being developed by plans of the CCC. By the summer of 1935 sufficient improvements had been made to provide for public bathing. The Department engaged a life guard from June 24 to September

2. Aside from his regular duties this guard held classes in swimming and life saving. First aid supplies, a life boat and other water safety equipment such as float lines and life rings were furnished. During the 1936 season the bathhouse, though taking shape, was not ready for use. Improvements to the entrance road, parking area and picnic grounds attracted many persons other than bathers. In order to care for the grounds and added attendance a caretaker was provided from June 1 to October 15 and a life guard was on duty for the three summer months. Attendance for each season was estimated at about 30,000 persons. The park will be more nearly completed another season with a baseball field, bleachers, parking area, and new bathhouse, thus offering opportunities for a wide variety of recreation.

John Clough Reservation includes over 300 acres of wooded hills and river land in East Weare. A bathing pool has been developed in the Piscataquog River, camping sites provided along the bank, and hiking trails laid out. Along these trails are three lean-to shelters and by the pool are two dressing booths. A combination caretaker-life guard tented on the area while on duty from June 28 to September 14, 1935. An increased number of individual camping parties and two troops of Boy Scouts came during the season. Picnickers, bathers, and campers were estimated at 5,000. The combination man commenced duties a month earlier in 1936 than in 1935. This season extended from May 11 to November 1. The flood of 1936 caused severe erosion of the pool banking, damaged the dam, washed away the diving platform, and left debris along the river bank. Since picnickers and campers came early in the season, the repair work was prolonged into the recreation season. Extra labor was supplied the caretaker to expedite this work. General attendance was much greater than before (estimated at 11,000

for the season). Additional first aid supplies, float lines and life rings were necessary. Shovels, rakes, and other tools were provided for improvements to the camping sites, foot trails and for cleaning the grounds. The diving platform was rebuilt. A booth was erected for refreshments and the concession let to the caretaker's wife. Improvements to the main highway leading to this area will make it more accessible next season. This calls for enlargement of the auto parking accommodations and other improvement work.



State Bathing Beach at Endicott Rock, Weirs, Lake Winnepesaukee

Photo by Forestry Department

Endicott Rock Park in Laconia covers two acres on the shores of Lake Winnepesaukee. Though small, the park provides for bathing and picnicking. The 1935 season was the second under this Department's supervision and as before a life guard was supplied from the last of June until the middle of September. Temporary dressing booths and the general first aid and life saving equipment were provided. Improvements were under way according to CCC plans. By the 1936

season a new bathhouse was nearly completed. The parking area had been enlarged and the grounds landscaped. To care for these improvements and the increasing attendance it was necessary to provide a caretaker, in addition to the life guard, during the season from June 28 to October 15. Supplies and equipment for the bathhouse included brooms, cleaners, soap, waste baskets, paper towels, and holders, etc. For the care of the grounds, rakes, a wheelbarrow, garden hose, lawn mower, scythe, incinerators, etc., were furnished. Closer supervision and care of the public was maintained to continue the usefulness of the park while the improvement work was going on. An effort was made to minimize the hazard to bathers caused by the closeness of the channel to the bathing area. Through arrangements with the Public Service Commission, pilings were set to allow a more complete separation of this channel. On October 29, 1936, the Governor and Council placed with this Department the responsibility for historic Endicott Rock and the bridge leading to it from the park. This involves not only upkeep but the problem of illumination.

Forest Lake Reservation includes more than 400 acres in the town of Dalton extending from Dalton Mountain to the shores of Forest Lake. A small beach has been cleared for bathing and a bathhouse and picnic ground completed. The reservation road from the public highway leads to an ample parking area. Both foot trails and ski trails extend up the slopes. The first season of use was 1935 when from June 22 to October 15 a caretaker was engaged. The regular bathhouse supplies and equipment and first aid outfit were provided. Provisions were made for the checking of clothing at the bathhouse and the caretaker attended to this service. He also improved the trails, cared for the grounds, and served the public in various ways. An estimated 6,000 persons made use of the picnicking, bathing, and hiking possibilities during the

season. To increase the usefulness of the bathhouse, a cookstove was installed. This made it possible for winter sports groups to enjoy the social room with its fireplace and the checking room with the stove. For the 1936 season, attendance was estimated at 8,900 during the same period as 1935. Repairs entailing extra labor were necessitated by a washout in the reservation road while general improvements of paths, beach and picnic area were made by the caretaker during the season. Arrangements for improving the two miles of town road leading to this area are imperative. The present condition of this road discourages attendance at the reservation.

Kingston Lake Park covers 44 acres in the village of Kingston. The whole area has been developed for recreation and is heavily used. The second season for public use was 1935. As before, a caretaker and life guard were hired. Arrangements here make the park particularly useful to organized groups for outings and picnics. In all, about 37,000 persons attended during the season. By co-operation with the CCC, a refreshment booth was erected and the concession let to a resident of the town. At the beach a model water equipment layout was arranged—the bathing area was enclosed by a float line; a shallow water raft was provided for children and one in deeper water for diving; first aid and life saving equipment were arranged for efficient use. At the bathhouse a clothing checking system was installed and a cookstove added to extend the useful season of the bathhouse. During the 1936 season (May 15 to December 1) this Department carried out necessary improvements from emergency funds as CCC help was not available. A Boy Scout council center was laid out by the caretaker available to all groups and a number of new fireplaces were built for picnickers. Many groups such as churches, granges, and fraternal orders held outings during the season.

A portion of the area was made available to the local Firemen's Association for their two day carnival. Attendance totalled 53,000.

Hampton Beach. In 1935, the general appearance of State land by the Central Beach was improved by planting ornamental shrubs by the flag pole and nearby plots. Two dozen large rubbish containers were placed along the beach and signs urging their use were placed on posts at 200 foot intervals.

Monadnock reservation in Jaffrey is one of our oldest



*More than 6,000 campers enjoyed the Monadnock Reservation,
near East Jaffrey*

Photo by Forestry Department

supervised recreational centers. Each summer since 1930 a caretaker has been in charge of the camping area developed on the eastern slopes of Monadnock Mountain. Beside camping and picnicking, the reservation has foot trails which give access to the entire mountain. During the winter many skiers and snowshoers use this area. Records are not kept of persons using these trails

but at the camp ground an estimated 16,000 campers and picnickers came during the season. About 4,800 camper-nights were recorded. (A camper-night means one person camping for one night). The 1936 season extended from May 25 to October 15. A refreshment concession was let to the caretaker's wife and proved popular with the public. An increased number of camping sites were provided by the CCC for the 1936 season. Permits issued to campers made more accurate attendance records possible. Campers came in 400 automobiles from 13 states outside of New Hampshire. Total attendance estimated at 46,300, included many organized picnic parties. First aid items and supplies for the comfort buildings were furnished as well as tools for the care of the grounds.

Moose Brook Park, 755 acres situated two miles west of Gorham, is under development by the CCC. By 1936, a picnic area, bathing pool, bathhouse, and parking area were ready for public use. A combination caretaker-life guard was engaged from the last of June until after Labor Day. It was necessary to provide general equipment including a clothing checking system for the bathhouse. First aid supplies, a raft, and life rings were furnished at the pool. The total estimated attendance, 17,000, included picnickers, bathers, and campers. Swimming classes were held by the life guard. A refreshment concession was let to his wife. Further improvements by the CCC including camping sites will make for greater enjoyment and wider use of the park next season.

Peterborough State Park consists of 12 acres in Peterborough. There have been provided through the efforts of several agencies, a cement pool and bathhouse, parking area, service roads, and general landscaping. This pool 40 feet by 150 feet, is complete with modern equipment which cleans, purifies, and circulates the capacity of 275,000 gallons of water. Con-

siderable work was done by this Department to make the park useful for the 1936 season. At the bathhouse, a clothing checking system was installed; foot baths provided as a sanitary precaution at the shower baths; cleaners, disinfectants, and first aid items supplied. Special equipment was purchased for the chlorination and filtration plant and professional services were engaged to place it in working condition. The town of Peter-



The first out-door bathing pool, Peterborough State Park, developed principally by CCC labor

Photo by Forestry Department

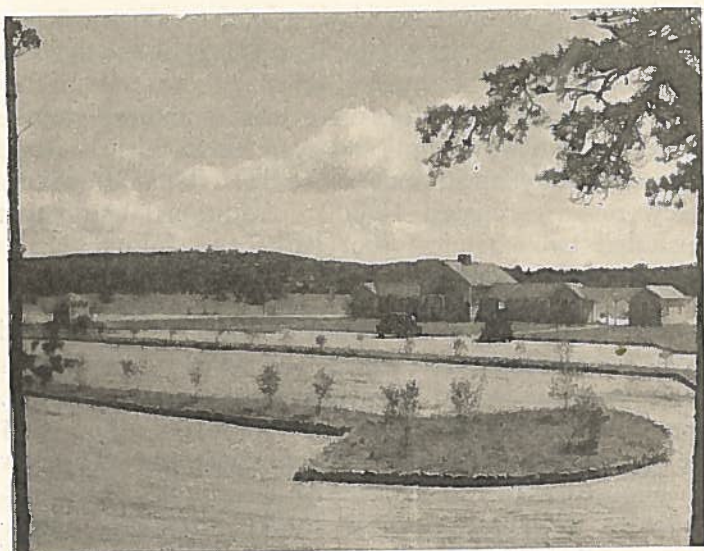
borough provided the water and electricity used during the season. The advice and counsel of the State Board of Health was frequently sought and their co-operation is gratefully acknowledged. Working jointly with the CCC, a flood lighting system for the pool and parking area was installed. The personnel consisted of a caretaker, woman assistant, life guard, and an operator for the chlorination and filtration plant. By June 27 every-

thing was ready for public use and on July 4 formal opening exercises were held. Attendance for the season was estimated at 9,100. The personnel co-operated closely with the public regarding the best hours for the use of the pool and arranged for several water sports events.

Wadleigh Park in North Sutton covers 52 acres of wooded land by Kezar lake. Picnicking and bathing are available and a baseball field with bleachers provides for other sports. The second season under this Department began May 25, 1935 and extended to October 25. A caretaker and life guard were engaged and the general supplies and equipment provided. The public buildings here differ from the one central bathhouse at other centers. They consist of a large one-room central building, called the pavilion, and two separate buildings with dressing booths. At the pavilion, provisions have been made for a refreshment booth and for clothing checking. These concessions are let to the caretaker's wife. At the beach, a life guard's tower was built and the bathing area enclosed with float lines. The old water platform was made into two floats, one provided with a diving board. The 1936 season covered approximately the same period as 1935. The personnel were again engaged and in addition to the regular supplies and equipment a knapsack fire pump and two chemical foot baths were provided. Attendance was about 30,000 for each season.

Wellington Beach in Bristol is on a wooded peninsula of over 70 acres which extends into Newfound Lake from the westerly shore. This Department has provided supervision here each summer since 1931. For the 1935 season (May 27 to October 15) a caretaker was engaged and was assisted by a life guard for the bathing season. Supplies, equipment, water layout, clothing checking, and refreshment concession were provided as at other centers. The general and widespread

interest in the natural beauties and usefulness of this area brought some 38,000 visitors during the season. The greatest attendance for one day was estimated at 5,000. For the 1936 season, covering a similar period, 41,000 visitors were estimated, 6,100 during one day. This indicates an increasing responsibility for the personnel. During heavy week-ends an assistant life guard was engaged and extra police aid provided.



Bathhouse and parking area. Wentworth Beach, Wolfeboro

Photo by Forestry Department

Wentworth Beach Park on Lake Wentworth in Wolfeboro, was developed by filling a swampy shore area and creating a beach about one-quarter mile long. A combination caretaker-life guard was engaged for the second season, 1935, from June 22 to October 15. Clothing checking was installed at the bathhouse and was patronized better, in proportion to attendance, than at other centers. Supplies and equipment were of the

sort generally provided. Bathing facilities were improved by erecting a diving tower. Local enthusiasm in water sports enlisted the aid of this Department in holding a water sports meet with suitable ribbons for awards. Attendance was estimated at 6,600 for the season. The combination man began the 1936 season May 30 and helped carry out improvements such as grading, filling, planting of trees and shrubs, and building a concession booth in the bathhouse wing. The refreshment concession was let to a local resident. A new and larger diving raft was built and the old one devoted to children's use. The combination man was able to furnish instructions in life saving and swimming despite increased duties in both branches of his work. A second successful water sports meet was held. Total attendance grew to an estimated 10,800. Additional equipment included two chemical foot baths and folding chairs for the social rooms.

White Lake Park in Tamworth covers 250 wooded acres by the Lake for which it is named. Provisions have been made for campers, picnickers, and bathers. Since 1932 a caretaker has been employed. For 1935 he was on duty from May 27 to October 15. The new bathhouse was furnished with regular supplies and equipment as well as a clothing checking system. Other equipment included a diving board. Development of the whole area was under way by the CCC and a part of the camping ground was ready for this season. About 500 campers and a general attendance of 19,000 were estimated. During the same period in 1936 this grew to 1,200 campers and 22,000 general attendance. For this season a life guard was provided in addition to the caretaker. It was necessary for him to live in a tent which the Department furnished together with utensils and equipment. He gave instructions in swimming and aided the caretaker as well. At the bathhouse, a refreshment concession was added to the clothing checking

privilege let to the caretaker's wife. Grateful acknowledgment is made of the gift of a children's water slide which added to the enjoyment of the beach. Further improvements by the CCC including special provisions for trailer campers will make this park more useful by another season.

On the north side of Kearsarge Mountain Reservation (2,383 acres in the towns of Wilmot, Andover, Warner, and Salisbury) is the Winslow Site. An auto road from Wilmot Flat leads to the parking area and picnic grounds developed here. By 1936 the public use had increased so as to necessitate supervision and control to prevent abuse. A caretaker was engaged for two months. About 1,500 visitors were reported, indicating the necessity of extending this service next season.

Recreational Features on Other State Areas

In addition to the supervised recreation centers, the following improvements have been made for public use of other State lands:

Belknap Mountain Forest, Gilford, has an automobile road extending 1.3 miles up the slopes to a parking and picnic area. Foot trails lead on to the forest fire lookout tower on top and extend over other sections of the mountain.

Binney Pond Forest, New Ipswich, has a camping and picnic area just off Wapack Trail on the west shore of the pond, one-half mile in from the highway.

Cardigan Mountain Reservation in Orange and Alexandria, is accessible from both the villages of Canaan and Alexandria. An auto road on the west slope leads to a parking area; from here trails lead to the fire lookout station and other sections of the mountain.

Cathedral Ledge Park in Conway and Bartlett, has

Honey Brook Forest in Marlow, Acworth, and Lempster, provides for picnicking at a small grove beside the highway (Route No. 10).

Merrimack River Forest, Boscawen, is on the Daniel Webster Highway and contains a small camp ground with opportunities for picnicking as well.

Milan Hill Park in Milan is a fire lookout station site. An auto parking space, and camping ground are being developed by CCC.

Miller Park in Peterborough is at the top of Pack Monadnock Mountain and is reached by an auto road from highway Route No. 101. A picnic area, parking space, shelter, and comfort facilities have been provided.

Pawtuckaway Reservation in Nottingham and Deerfield contains three low mountains. Several miles of auto roads, parking areas, many hiking trails, picnic sites, a camping ground, and ski slopes have been provided. Development is still going on under the CCC.

Pillsbury Reservation in Washington and Goshen has a camping and picnicking ground near the main highway, opposite Butterfield Dam.

Pulpit Rock Reservation in Bedford has a one-half mile entrance road leading to a picnic area. Trails lead to the interesting rock formation from which the name is derived.

Strawberry Hill Forest is at the edge of Bethlehem village. From the parking area at the foot of the hill, trails lead to the birch grove on top and to the picnic area nearby.

The following list shows the ski trails developed on State lands and maintained by this Department. A count made by the CCC at ten of these trails over six week-ends in 1936 showed 9,800 visitors who came in 2,200 automobiles (1,300 of these cars from other States). It is desirable to improve these trails, particularly to make them ever safer for the sport. Already six emergency toboggans equipped with mattresses, ropes, and first aid kits have been placed at CCC Camps near the heavily used trails. It is hoped that State trails

may become models where safety is concerned. In such matters as refined surfaces, uniform directional signs, uniform hazard markers, first aid caches, emergency toboggans, by-pass foot trails, etc., the advice and co-operation of organized winter sports groups will be enlisted.

| <i>Reservation</i> | <i>Name of Ski Trail</i> | <i>Class*</i> | <i>Length</i> |
|--------------------|--------------------------|---------------|---------------|
| Franconia Notch | Taft | E | 2.1 miles |
| " " | Bald Mountain | N-I-E | 1.1 " |
| " " | Fleitman | N | 1.5 " |
| " " | Cascade Brook | N | 1.5 " |
| Kearsarge Mt. | North Slope | I | 1.3 " |
| Oardigan Mt. | Dukes | I | 2. " |
| " " | Alexandria | I-E | 1.7 " |
| " " | West Side | N-I | 2.5 " |
| Monadnock | Monadnock | I-E | 2. " |
| Hemenway | Great Hill | I | .3 " |
| Merriman | Maple Villa | I-E | 2.5 " |
| Harriman-Ohandler | Mink Run | I-E | .75 " |
| Pawtuckaway | Middle Mountain | N | .75 " |
| Forest Lake | Dalton | I | 1.5 " |
| Fox | Fox | I | .5 " |

* I—Intermediate, N—Novice, E—Expert.

Intervale Slope—An excellent open slope developed adjacent to Maple Villa Trail is 1,500 feet long, 500 feet wide with 350 feet vertical descent.

Skiing is possible also on the auto roads in the following State areas: Belknap, Cathedral Ledge, Kearsarge (South side), on Mt. Willard Road in Crawford Notch, and the road leading to Miller Park.

RECREATION CENTERS—STATISTICS Summer Season

| | 1934 | 1935 | 1936 | 1937 | (estimated) |
|--|---------|-------------|-------------------|------|-------------|
| No. Supervised Centers | 8 | 10 | 13 | 16 | |
| " Bathing Beaches | 7 | 9 | 11 | 12 | |
| " Picnic Areas | 6 | 7 | 9 | 14 | |
| " Camp Grounds | 3 | 3 | 5 | 7 | |
| " Caretakers | 6 | 6 | 10 | | |
| " Life guards | 4 | 4 | 7 | | |
| " Combination | 1 | 3 | 3 | | |
| " Other Personnel | | | 1 Mechanic | | |
| | | | 1 Woman assistant | | |
| Total Personnel | 11 | 13 | 22 | | |
| Cost of Labor | \$2,270 | \$6,046.32 | \$8,700 | | |
| Cost of Supplies and Equipment | 2,473 | 3,289.23 | 1,400 | | |
| Cost of Overhead . . . . . | .... | 2,164.45 | 1,400 | | |
| Total Cost | \$4,743 | \$11,500.00 | \$11,500 | | |
| Summer Attendance | 150,000 | 198,000 | 298,000 | | |

WORK PROJECTS AND EXPENDITURES UNDER CHAPTER 150, LAWS OF 1933, EXTENDED BY CHAPTER 141, LAWS OF 1935



HIS brief description indicates the more important work done, except blister rust control and water hole construction described elsewhere in the report, and a table following shows the distribution of costs during 1935 and 1936. Reference is made to pages 57 to 84 of the last biennial report concerning previous work and costs.

Cathedral Ledge Auto Road

There has been a great increase in the number of cars using the Cathedral Ledge auto road during the past two seasons. The upkeep of the road has not been excessive but \$350.00 have been expended for labor in cleaning out ditches and resurfacing the upper portions. Log hand rails have been erected at dangerous places.

Mt. Willard Road—Crawford Notch

In order to hasten the completion of the Mt. Willard road in Crawford Notch, a crew of unemployed from the relief roll of Bartlett was used during the spring and summer of 1935. These men cut out a right of way and began the surfacing of one-half a mile of new road laid out to avoid the steep grades of the original survey. A fund of about \$2,100.00 was spent on this work.

Forest Lake

Much difficulty has been experienced by those using the entrance road to Forest Lake during the late spring. The original road was at times impassable and at its best barely serviceable. Some effort was expended on

the road at the time the reservation was acquired in 1933. In order to still further improve the road, a crew from the relief rolls of Whitefield and Dalton was employed during the spring of 1935. The road was raised in many places by putting in a fill of stone and surfacing with gravel. Turnouts were located at necessary curves and ditches dug to drain off surface water. About \$2,500.00 was expended in wages.

Intervale Ski Slope

Following arrangements made with Chester A. Emerson of Intervale for the transfer of land to the State, work began in September, 1936 to clear the ski slope. A crew of 15 men from the relief rolls of Conway and Bartlett spent about two months in cutting trees and burning the brush. Certain large hemlocks on the upper slopes were saved. An Adirondack open shelter was built of spruce logs half-way up the slopes for a shelter and observation point for visitors. A fireplace was located near the entrance. The total expense of this work was about \$1,800.00. A Pabst tramway has been built just to the east of the State tract on land owned by Mr. Emerson.

Wentworth Beach

Early in 1935, the town of Wolfeboro secured approval for a WPA project for much needed filling of swamp land at Wentworth Beach. The allotment of funds for this project was not sufficient to complete the work and the Department continued the filling by the use of nearly \$3,500.00 of emergency funds. Work was done during the months of May and June, 1935 with a crew of relief men and trucks from Wolfeboro and Ossipee and was continued the following winter in order to obliterate an unsightly swamp hole and make the area serviceable for parking and other public uses.

Camp Chipewas—Black Mountain State Forest

In the spring of 1934, the Transient Bureau of the Federal Government received permission from the State to locate and erect buildings on the Black Mountain State Forest to carry out their program of unemployment. Buildings to accommodate 200 men were erected which included an administration building, barracks, mess hall, recreation building, an infirmary, garage, carpenter shop, and woodshed. These transients were employed on many worth while projects such as road work, improvements to grounds, digging water holes, trails, wood cutting, tree planting, and forest fire protection. For two years this camp carried on its activities. In June, 1936, the Federal Government abandoned all transient camp work. The Department with the aid and support of Governor Bridges and Mrs. Abby L. Wilder, Administrator, New Hampshire ERA was successful in securing the continuation of the camp and work projects as a WPA project under Director W. P. Fahey of Manchester. Most of the cost has been paid by the Federal ERA and WPA agencies. The Department from emergency funds has supplied some material and labor not otherwise available to be used on the restoration of the Boardman Farm about one mile distant. On December first, the WPA stopped work and transferred the camp with all its equipment to the State. The National Youth Administration at once requested and received permission to use the buildings and equipment as a girls' camp under State Director Harold C. Bingham.

Kingston Lake

This recreational center was largely developed under CWA and FERA before being transferred to the Department. Since the CCC has not been generally

available, necessary additional work has been done from State emergency funds. This includes the construction of a caretaker's cabin, rebuilding part of the entrance road, repairing the parking areas, levelling a baseball field, and planting ornamental trees and shrubs.

Peterborough Pool

When this project was turned over to the Department for completion and operation, funds were used to supervise a town WPA project on grading slopes and preparation of parking area. Later in 1935 and early in 1936 the Department used its funds with those of the CCC for materials and skilled labor to complete the work and make the Pool available for public use during the 1936 season.

Hemenway Reservation

Work on this reservation has in the main been done by the CCC. State funds have contributed to the planning, skilled labor and materials for the restoration of the house and barn at the so-called Huckins place, which have been made available for rental purposes and as a community gathering place for both summer and winter use. Electric lights and running water have been installed. The barn contains an open space for gatherings and a large fireplace. During the season of 1936 a lease was granted to the Tamworth Outing Club.

Strawberry Hill

During 1935 supervision and local relief labor were employed from State funds on general forestry and recreational improvement work, including a parking space and trails to points of interest and a picnic area. Its public use will be chiefly for residents and visitors from Bethlehem and nearby towns.

Governor Wentworth Farm

While no State funds have been spent on this area during the biennial period, work has been done by the CCC and grateful acknowledgment is hereby given to Professor Laurence S. Mayo, donor of the land to the State, for a contribution of \$200.00 for the services of nearby unemployed persons in improving certain portions of the area, under supervision of the Department. This work has been accomplished.

Powow River

Local men needing work were employed on this tract to improve the recreational area and do woods work. The infield of the ball field was graded and twenty-five cords of wood resulting from the forest improvement work were turned over to the town. A total of \$459.40 was spent on these operations.

Franconia Notch

Work in Franconia Notch from January, 1935 to June, 1936 was principally completing construction of the Lafayette Lodge and Camp Ground and was handled jointly by the ECW and the State Forestry and Recreation Department. This construction provided three acres of camp ground with drinking water piped to all sections and two log toilet buildings with flush toilets. A main building called "Lafayette Lodge" also of log construction was completed at the entrance to the camp ground for the caretaker and public use. This building 64 feet by 50 feet with an interior court in the rear provided caretaker quarters, a large lounging room and fireplace, and flush toilets for the camper's use without charge. A community kitchen, laundry, and men's and women's showers were provided for public use at a small charge. A picnic area with accommodations for the public was provided

near a parking area by the main highway and several other less important pieces of work taken care of. The cost to the State for its share of this work was \$2,503.38 for labor, \$112.00 for team hire, and \$94.08 for materials and equipment, a total of \$2,709.47.

Nursery

The clean-up and reconstruction work which followed the fire in the Nursery barn in the fall of 1935 was handled by the Nursery crew after other seasonal work was completed. A large part of the equipment and material stored at the time of the fire was partly burned, scorched, or smoked, so that it was necessary to scrape and paint, clean, or rebuild before it was usable. All windows needed new glass and paint. Two hundred shipping crates were cleaned, painted, and lettered. The inside of the barn was sheathed, burned sections replaced, and other similar miscellaneous pieces of work were taken care of. The cost of this work was \$1,594.00, the principal part of which was labor.

Redstone Tract

In the spring of 1935 sixty-five hundred red pine were set in unplanted areas and in sections where the original plantings had failed to survive. This work cost \$49.18 and completes the planting on the Redstone Tract. The first red pines set in 1926 are now from five to eight feet tall and are growing rapidly.

Conway Common Land

During the spring of 1935 four thousand white spruce were used to fill in failed places on the Conway Common Lands at a cost of \$36.85. Most of the trees were planted on the south side of the Hurricane Mountain road. A few hundred were set in an area of scattered hardwood on the south slope of Hurricane Mountain.

Stockdale

During the spring of 1935 and 1936 \$472.68 was spent on repairs and improvements. The work included piping city water to the building, replacing windows and a section of the wall of the house where water had leaked in, painting sections of the buildings, shingling, putting on new barn doors, and replacing a section of the barn floor and supporting timbers.

Miscellaneous

During the year 1935 and 1936 small planting operations were carried out on the following tracts with costs as follows: Allen \$83.20; Blair \$72.60; Blue Job \$31.20; Mast Yard \$248.86, and \$25.19 was also spent on the Merrimack River Tract for releasing work. The trees planted are shown in the State land planting table.

EMERGENCY RELIEF OF UNEMPLOYMENT January 1, 1935—December 31, 1936

| CAPITAL FUND—TOTAL AVAILABLE | | | | | | |
|--|--------------------|--------------|---------------|------------------|------------------|--------------------------------|
| Balance of Appropriation on December 31, 1934—Section 7, Chapter 150, Session Laws of 1933, as amended | | | | | | |
| \$64,298.08 | | | | | | |
| <i>Name of Projects</i> | <i>Supervision</i> | <i>Labor</i> | <i>Trucks</i> | <i>Materials</i> | <i>Equipment</i> | <i>Other Costs Total Costs</i> |
| ADMINISTRATIVE | | | | | | |
| Office ..... | ..... | \$2,335.00 | ..... | \$19.73 | ..... | \$5.94 |
| Field ..... | ..... | ..... | ..... | ..... | ..... | 653.12 |
| FOREST FIRE CONTROL | | | | | | |
| Water Holes, in co-operation with towns ..... | ..... | 6,634.82 | ..... | ..... | ..... | 6,634.82 |
| WHITE PINE BLISTER RUST CONTROL | | | | | | |
| Co-operation with towns | \$1,000.00 | ..... | ..... | ..... | ..... | 1,000.00 |
| STATE RESERVATIONS | | | | | | |
| Allen ..... | ..... | 83.20 | ..... | ..... | ..... | 83.20 |
| Bellamy Park ..... | ..... | ..... | ..... | 18.58 | ..... | 18.58 |
| Black ..... | ..... | 175.55 | ..... | 21.13 | ..... | 196.68 |
| Blair | 19.00 | 53.60 | ..... | ..... | ..... | 72.60 |
| Blue Job | 4.00 | 27.20 | ..... | ..... | ..... | 31.20 |
| Cathedral and White Horse Ledges | 72.50 | 199.00 | \$60.00 | 16.70 | ..... | 348.20 |
| Conway Common Lands | 11.25 | 25.60 | ..... | ..... | ..... | 36.85 |
| Crawford Notch | 235.00 | 1,573.60 | 283.20 | 19.50 | ..... | 2,111.30 |
| Forest Lake | 167.50 | 1,614.89 | 643.50 | 93.53 | \$15.50 | 2,534.92 |
| Franconia Notch | 517.50 | 1,985.89 | 112.00 | 66.90 | 27.18 | 2,709.47 |

| | | | | | | |
|---|-------------------|-------------------|-------------------|----------------|-------------------|--------------------|
| Hemenway | 655.00 | ..... | 427.34 | ..... | 458.50 | 1,540.84 |
| Intervale Ski Slope | 207.12 | ..... | 44.57 | 17.01 | ..... | 1,786.75 |
| Kingston Lake | 80.00 | 192.00 | 444.17 | ..... | ..... | 1,443.12 |
| Mast Yard | 41.75 | ..... | ..... | ..... | ..... | 248.86 |
| Merrimack River ..... | ..... | 26.19 | ..... | ..... | ..... | 26.19 |
| Nursery | 251.35 | ..... | 175.89 | ..... | ..... | 1,583.92 |
| Peterborough Pool | 432.00 | 12.00 | 294.66 | ..... | ..... | 800.41 |
| Pillsbury ..... | ..... | ..... | 85.98 | ..... | ..... | 145.98 |
| Powow River | 69.50 | 7.50 | ..... | ..... | ..... | 459.40 |
| Redstone | 14.38 | ..... | ..... | ..... | ..... | 49.18 |
| Stockdale | 145.00 | ..... | 121.18 | ..... | ..... | 472.69 |
| Strawberry Hill | 117.50 | 67.00 | 4.95 | ..... | ..... | 937.45 |
| Wadleigh Park ..... | ..... | 770.68 | 127.88 | ..... | ..... | 199.03 |
| Wentworth Beach | 226.67 | ..... | 748.19 | ..... | ..... | 4,454.73 |
| OTHER PROJECTS | | | | | | |
| Forest Industries Survey ..... | ..... | ..... | ..... | ..... | 228.95 | 228.95 |
| Moth Control (Transfer to W. C. O'Kane) | 1,000.00 | ..... | ..... | ..... | ..... | 1,000.00 |
| Ski Trail Development | 270.68 | ..... | ..... | ..... | ..... | 270.68 |
| State Land Signs ..... | ..... | ..... | ..... | ..... | ..... | 249.50 |
| TOTAL EXPENDITURES | \$4,882.70 | \$2,147.88 | \$2,730.88 | \$59.69 | \$1,346.51 | \$34,701.18 |
| BALANCE UNEXPENDED | | | | | | \$29,596.90 |
| Percentage of Expenditures for Foremen and Workmen | | | | | | 82% |

FOREST FIRE CONTROL



THE prevention and suppression of forest fires is a departmental activity providing under State laws for the protection of all New Hampshire woodlands. This phase of forest conservation was a fundamental objective upon which the greatest attention was focused by interested citizens when efforts were initiated to establish a State forest agency. Nearly four-fifths of our land area is woodland upon which our whole population is directly or indirectly dependent for a livelihood, forest products, protection of water supplies, and recreational opportunities. This land can serve no more useful purpose than the growing of trees and adequate fire protection must be assured if proper management is to be maintained over the relatively long period required to produce mature crops.

Organization

Under the laws, the Department co-operates with all towns and cities; with the Federal Government under the provisions of the Clarke-McNary Law; with the railroads operating in the State; with the New Hampshire Timberland Owners Association; with adjoining states, and with other related agencies. Suppression organizations exist in every municipality and the State shares costs with them, excepting the case of Government fires on the White Mountain National Forest which are managed by the United States Forest Service and railroad fires which are a charge upon railroad funds.

Personnel

For administrative purposes, the State is divided into eight supervisory districts headed by the district

chiefs whose duties include the giving of assistance to the town organizations, supervision of the mountain lookout stations, investigation of fires, inspection of portable saw mills, and the correction of hazardous conditions.

More than 900 forest fire wardens and deputies function in the towns, not including State highway patrolmen, railroad section foremen, the personnel of the White Mountain National Forest, the patrolmen of the New Hampshire Timberland Owners Association, and numerous others who are appointed as deputy forest fire wardens, forming a grand total of well over 1,200 men. Once again, it is a pleasure as well as a duty to acknowledge our debt of gratitude to these men. Remunerated only when actually employed, they have never failed to give generously of their time, interest and energy to the task of controlling the fire problem. Year after year, they have accepted the responsibility of leading the protective forces in their communities and the accumulated experience they have thus acquired has gone far to achieve the fine record of effective protection which the State enjoys. The wardens and deputies of the regular town organizations, so-called, have each served an average of 11 years and 4 months.

During the biennium, two new associations of forest fire wardens and deputies were formed in Coos County and in the Pemigewasset Valley. There are now five such groups in the State, including the Hillsborough, Cheshire, and Rockingham County associations. As a result of the monthly meetings held in successively different towns throughout these regions, the opportunity to discuss mutual problems and to arrange for the greatest possible co-operation has been ever present. It is expected that two or three additional associations will be formed during the next biennium.

Lookout Stations

The detection of fires from the mountain lookout stations is an important part of the forest fire control service. Twenty-six stations are maintained by the State throughout the fire season and 11 stations by the Federal Government in the White Mountain National Forest. In addition, co-operative arrangements exist through which fires on either side of the Maine, Massachusetts, and Vermont boundaries are reported by stations maintained in New Hampshire or these neighboring states.

With the construction in 1935 of a modern steel tower on Mount Magalloway, the last of the open-platform towers was dismantled and all stations are now equipped with enclosed observation quarters, good maps and lookout glasses, modern telephone connection and comfortable cabins. During the biennium, garages were constructed on Hyland Hill, Rock Rimmon, Stratham Hill, Oak Hill, Belknap, and Green Mountain stations. In addition, a number of the cabins were equipped with lightning rods for the safety of the occupants during electrical storms, including Monadnock, Crotched, Cardigan, Kearsarge, Deer, and Magalloway Mountains. In the course of time, it is proposed to continue the improvement of lookout stations along these lines.

The following tabulation gives the record of smokes observed and reported by the State lookout stations, as well as a record of the visitors who called to enjoy the panoramas which are so impressive from these points of vantage. When it is realized that in addition to observing more than 6,500 smokes, of which nearly 1,900 were reported to suppression agencies, more than 150,000 visitors were reached with a message in behalf of forest fire prevention, the extreme value of these lookout stations cannot fail to be fully recognized.

FIRE LOOKOUT STATION STATISTICS

| Name of Station | Number of Smokes Discovered | | Number of Fires Reported | | Number of Visitors Registered | |
|---------------------|--------------------------------|-------|-----------------------------|------|----------------------------------|---------|
| | 1935 | 1936 | 1935 | 1936 | 1935 | 1936 |
| Agassiz | 2 | 3 | 2 | 3 | *12,000 | *12,000 |
| Belknap | 99 | 59 | 14 | 20 | 4,398 | 5,064 |
| Black Mt. | 95 | 75 | 11 | 12 | 846 | 580 |
| Blue Job | 217 | 93 | 11 | 19 | 1,160 | 1,203 |
| Cabot | 67 | 75 | 8 | 8 | 200 | 168 |
| Cardigan | 342 | 197 | 91 | 56 | 2,789 | 2,653 |
| Crotched | 209 | 151 | 34 | 18 | 2,492 | 2,220 |
| Croydon | 111 | 86 | 58 | 42 | 271 | 309 |
| Deer | 2 | 0 | 0 | 0 | 200 | 389 |
| Federal Hill | 112 | 77 | 66 | 54 | 1,093 | 998 |
| Green | 32 | 56 | 17 | 39 | 1,419 | 1,617 |
| Hyland Hill | 144 | 266 | 55 | 97 | 465 | 6,085 |
| Jeremy Hill | 353 | 225 | 154 | 92 | 3,106 | 3,817 |
| Kearsarge | 176 | 128 | 31 | 30 | 6,975 | 7,754 |
| Magalloway | 43 | 51 | 2 | 6 | 49 | 33 |
| Milan Hill | 112 | 50 | 12 | 8 | 2,158 | 3,119 |
| Monadnock | 39 | 75 | 36 | 67 | 12,893 | 10,878 |
| Oak Hill | 74 | 47 | 38 | 26 | 741 | 642 |
| Pawtuckaway | 226 | 198 | 71 | 54 | 3,257 | 3,832 |
| Pitcher | 31 | 33 | 12 | 19 | 1,860 | 1,959 |
| Red Hill | 11 | 49 | 7 | 7 | 2,470 | 2,455 |
| Rock Rimmon | 616 | 445 | 94 | 88 | 1,262 | 833 |
| Signal | 1 | 20 | 1 | 8 | 62 | 42 |
| Stinson | 57 | 64 | 7 | 1 | 1,155 | 1,336 |
| Stratham Hill | 408 | 147 | 83 | 62 | 5,792 | 4,604 |
| Uncanoonuc | 216 | 167 | 75 | 52 | 4,672 | 3,336 |
| Totals | 3,795 | 2,837 | 990 | 888 | 73,785 | 78,126 |

*Estimated.

Civilian Conservation Corps

The CCC has been of great assistance in forest fire control. Six Forest Service camps and three National Park Service camps have been available for direct fire suppression, although it has been our policy to use the CCC in this way only when conditions made its use imperative. Thus, existing town organizations have been kept up to the usual standards and the CCC has suffered less from interruptions of its work program. In other ways, however, and particularly in the construction of water holes, much valuable fire protective work has been accomplished. A detailed record of this work is given in one of the following tabulations.

Fire Fighting Equipment

During the biennium, a substantial change in policy has occurred in the handling of State-owned portable power fire pump units. Heretofore, these have been placed in the custody of the district chiefs, usually through arrangements made with local persons employed to transport and operate the units at fires. Agreements have now been made with organized fire departments to house, maintain, transport, and operate these pumps whenever and wherever called, at fixed rates. These charges include the time of the men and transportation of the unit but the equipment is furnished free of cost. Three new units have been organized during the biennium and located in Errol, Milan, and Rumney. Other units are located in North Conway, Exeter, Hudson, Keene, Epsom, and at the State Forest Nursery in Gerrish.

Continuing its policy of co-operating with towns in the acquisition of the smaller hand tools—particularly the knapsack-type pump tanks—the Department accepted orders from nearly 80 towns and nearly 350 pumps were thus distributed.

Water Hole Construction

The construction of water holes for fire protection received its greatest impetus when unemployment was at the peak and it was realized that this type of work was ideally suited to the task of providing useful work projects for the relief of the unemployed. Under Departmental supervision, nearly 600 such projects were completed during the two years ending June 30, 1934. During the present biennium, work was performed in 68 towns and 302 water holes were completed. The following table gives a detailed record of this activity.

WATER HOLE CONSTRUCTION FOR FIRE PROTECTION

Calendar Years 1935 and 1936

| Name of Town | Source of Funds | | | |
|---------------|-----------------|------|----------|------|
| | State and Towns | | C. O. C. | |
| | 1935 | 1936 | 1935 | 1936 |
| Alexandria | ... | ... | 1 | ... |
| Andover | ... | ... | 2 | ... |
| Atkinson | 2* | ... | ... | ... |
| Belmont | ... | 3* | ... | ... |
| Boscawen | 7 | ... | ... | ... |
| Bradford | 1 | ... | ... | 1 |
| Bristol | ... | ... | 2 | ... |
| Canaan | ... | ... | 5 | ... |
| Chester | ... | 2 | ... | ... |
| Claremont | ... | ... | 5 | ... |
| Conway | ... | 1 | ... | ... |
| Cornish | ... | ... | 1 | ... |
| Danville | 1 | ... | ... | ... |
| Dublin | ... | ... | 6 | ... |
| East Kingston | 1 | ... | ... | ... |
| Effingham | 3 | 2* | ... | ... |
| Enfield | ... | 2 | ... | ... |
| Epping | 1* | ... | ... | ... |
| Fitzwilliam | 1 | ... | ... | ... |
| Freedom | ... | ... | 2 | 1 |
| Fremont | ... | ... | 12 | ... |
| Goffstown | 5 | ... | ... | ... |
| Goshen | ... | ... | 2 | ... |
| Greenville | 1 | ... | ... | ... |
| Hancock | 7 | ... | ... | ... |
| Hanover | 11 | ... | ... | ... |
| Hooksett | 1 | ... | ... | ... |
| Jaffrey | ... | ... | 6 | 4 |
| Kensington | 4 | ... | ... | ... |
| Laconia | ... | ... | 1 | ... |
| Lempster | ... | ... | 4 | ... |
| Lyne | 3 | 3 | ... | ... |
| Madison | ... | ... | 2 | ... |
| Marlboro | ... | ... | 2 | 5 |
| Meredith | 3 | ... | ... | ... |
| Merrimack | ... | * | ... | ... |
| Millan | ... | 1 | ... | ... |
| Moultonboro | ... | ... | 2 | ... |
| New Boston | 1* | ... | ... | ... |
| Newbury | 4* | ... | ... | ... |
| New Hampton | ... | 3 | ... | ... |
| New Ipswich | ... | 1* | ... | ... |
| Newport | ... | ... | 6 | ... |
| Newton | ... | * | ... | ... |
| North Hampton | ... | 1 | ... | ... |
| Northwood | ... | 4* | ... | ... |
| Nottingham | 8 | ... | ... | ... |
| Orange | ... | ... | 1 | ... |
| Ossineo | ... | ... | 2 | 1 |
| Pittsburg | 2 | ... | ... | ... |
| Raymond | ... | ... | 3 | ... |
| Rindge | ... | ... | 7 | 5 |
| Rumney | ... | * | ... | ... |
| Sandwich | ... | 3* | 2 | ... |
| Sharon | ... | ... | ... | 8 |

| Name of Town | Source of Funds | | | |
|-------------------------|-----------------|------|----------|------|
| | State and Towns | | O. O. O. | |
| | 1935 | 1936 | 1935 | 1936 |
| Sutton | ... | ... | 1 | 2 |
| Swansey | 1 | ... | ... | ... |
| Tamworth | ... | ... | 4 | 1 |
| Troy | ... | ... | 8 | ... |
| Unity | ... | ... | 1 | ... |
| Walpole | 1 | 1* | ... | ... |
| Warner | ... | ... | 8 | 2 |
| Warren | 3 | ... | ... | ... |
| Washington | ... | ... | 1 | ... |
| Waterville | ... | 1 | ... | ... |
| Wilmot | ... | ... | 2 | 1 |
| Wilton | ... | ... | ... | 2 |
| Woodstock | 3 | ... | ... | ... |
| STATE LANDS | | | | |
| Annett | ... | ... | 12 | 2 |
| Curdigan | ... | ... | 17 | ... |
| Cusalis | ... | ... | 3 | ... |
| Davisville | ... | ... | ... | 1 |
| Harriman-Chandler | ... | ... | ... | 1 |
| Hubbard Hill | ... | ... | ... | 5 |
| Kearsarge | ... | ... | 4 | ... |
| Leighton | ... | ... | 1 | ... |
| Monadnock | ... | ... | 5 | 8 |
| Pawtuckaway | ... | ... | 2 | ... |
| Pot Holes | ... | ... | ... | 2 |
| Ragged Mountain | ... | ... | 2 | ... |
| Total | 75 | 28 | 147 | 52 |

*Unexpended balance of allotment available.

Review of Fire Conditions

The biennium under consideration opened with a seriously dry period in July, 1934, when more than the normal number of fires occurred, including a comparatively stubborn fire in Marlboro which burned 275 acres. A woodland "ban" was declared in the seven lower counties from July 26th to the 28th. August was also abnormally dry and fire occurrence was in excess of average. During the remainder of the fiscal year, however, approximately average conditions were encountered and the record of fires was therefore reasonably good.

During the fall of 1935, October witnessed a sharp precipitation deficiency with only three days on which more than .01 inch of rainfall occurred. Fires were numerous but the season was otherwise uneventful. The spring of 1936 opened with high temperatures in March and heavy rains which melted the snow cover, causing one of the most disastrous floods in New Hampshire history. A cool and wet month of April followed, with little fire occurrence, but a dry period developed during May and June, with high temperatures during which fire occurrence was comparatively frequent.

Fires of the Fiscal Years 1935 and 1936

The comparatively favorable weather conditions experienced during the biennium greatly facilitated the control of fires. While fire occurrence was 33% in excess of normal during the first fiscal period and 6% greater in the second, the area burned each year was very low, being 70% less during 1935 and 77% less during 1936 than the average of the previous 25 years. The average area burned per fire of 5.5 and 5.2 acres, respectively, is the best record ever achieved.

As to causative agencies, there were no substantial changes. Careless smoking caused the greatest number

of fires, followed by brush and rubbish burning as the second worst cause. An adequate means of curbing the former is still to be found, although there are reasons to hope that through Federal co-operation, a scientific approach to the problem will soon be developed. Brush burning is now subject to adequate regulation but some administrative difficulties remain to be overcome. Costs of 91 such fires were declared recoverable by the towns from the persons responsible.



Careless smokers are the greatest offenders, causing more than one-half of all forest fires

Photo by Forestry Department

Generally speaking, radical changes in the fundamental plan of control do not appear to be required. Cumulative progress has been steady from the first. It is therefore of great importance to consider carefully the cost of additional or different efforts in its relation to the worth of probable returns.

The following tables give summaries of fire occurrence by months, the record of 27 years with summary of averages, the annual record by counties, the railroad fire record, analysis of fires by causes, and a tabulation of fires showing separately the record of towns, railroads, and the White Mountain National Forest.

NUMBER OF FIRES BY MONTHS (Exclusive of Railroad Fires)

| FISCAL YEAR | | FISCAL YEAR | |
|----------------------|-----|----------------------|-----|
| Ending June 30, 1935 | | Ending June 30, 1936 | |
| July, 1934 | 132 | July, 1935 | 16 |
| August, 1934 | 47 | August, 1935 | 26 |
| September, 1934 | 9 | September, 1935 | 8 |
| October, 1934 | 2 | October, 1935 | 76 |
| November, 1934 | 1 | November, 1935 | 4 |
| December, 1934 | 2 | December, 1935 | 11 |
| January, 1935 | 0 | January, 1936 | 0 |
| February, 1935 | 0 | February, 1936 | 0 |
| March, 1935 | 33 | March, 1936 | 21 |
| April, 1935 | 106 | April, 1936 | 65 |
| May, 1935 | 148 | May, 1936 | 82 |
| June, 1935 | 8 | June, 1936 | 78 |
| Totals | 488 | Totals | 387 |

FOREST FIRE RECORD FOR TWENTY-SEVEN YEARS (Exclusive of Railroad Fires)

| <i>Year</i> | <i>No. Fires</i> | <i>Area Burned</i> | <i>Average Area Burned Per Fire</i> | <i>Damage</i> | <i>Average Damage Per Fire</i> |
|----------------|------------------|------------------------|---|----------------|--|
| 1910 | 272 | 9,038A. | 33.2A. | \$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 |
| 25 Years | 9,158 | 218,878A. | | \$1,644,510.00 | |
| 1935 | 488 | 2,667 | 5.5 | 15,122.00 | 30.98 |
| 1936 | 387 | 2,011 | 5.2 | 12,548.00 | 32.42 |
| 27 Years | 10,033 | 223,556A. | | \$1,672,180.00 | |

SUMMARY OF AVERAGES

| <i>Average</i> | <i>25 Years</i> | <i>1935</i> | <i>1936</i> | <i>27 Years</i> |
|---------------------|-----------------|-------------|-------------|-----------------|
| Fires Per Year | 366 | 488 | 387 | 371 |
| Area Per Year | 8,755 | 2,667 | 2,011 | 8,280 |
| Damage Per Year .. | \$65,779.40 | \$15,122.00 | \$12,548.00 | \$61,932.59 |
| Area Per Fire | 23.9 | 5.5 | 5.2 | 22.3 |
| Damage Per Fire .. | \$179.57 | \$30.98 | \$32.42 | \$166.67 |

FIRE RECORD FOR FISCAL YEARS 1935 AND 1936 (Exclusive of Railroad Fires)

| County | Year | Number of Fires | Total Acres Burned | Average Area Per Fire in Acres | Total Damage | Average Damage Per Fire | Total Cost of Fighting | Average Cost of Fighting Per Fire |
|--------------|------|-----------------------|--------------------------|---|-----------------|-------------------------------|------------------------------|--|
| Belknap | 1935 | 18 | 196 | 10.9 | \$420.00 | \$23.33 | \$315.60 | \$17.53 |
| | 1936 | 23 | 194 | 8.4 | 885.00 | 29.78 | 481.75 | 20.95 |
| Carroll | 1935 | 28 | 271 | 9.7 | 1,552.00 | 59.00 | 1,212.09 | 43.29 |
| | 1936 | 58 | 102 | 4.4 | 541.00 | 23.52 | 504.61 | 20.95 |
| Cheshire | 1935 | 53 | 737 | 12.7 | 3,470.00 | 59.83 | 4,588.44 | 78.77 |
| | 1936 | 45 | 177 | 3.9 | 751.00 | 16.69 | 1,458.57 | 32.41 |
| Coos | 1935 | 24 | 53 | 2.2 | 294.00 | 12.25 | 326.62 | 13.61 |
| | 1936 | 19 | 154 | 8.1 | 492.00 | 25.89 | 795.54 | 41.87 |
| Grafton | 1935 | 40 | 189 | 4.7 | 861.00 | 21.53 | 1,759.63 | 43.99 |
| | 1936 | 20 | 41 | 2.1 | 309.00 | 15.45 | 351.28 | 17.56 |
| Hillsborough | 1935 | 130 | 294 | 2.4 | 1,856.00 | 14.28 | 2,826.28 | 21.74 |
| | 1936 | 100 | 713 | 7.1 | 3,617.00 | 36.17 | 2,778.42 | 27.78 |
| Merrimack | 1935 | 54 | 183 | 3.4 | 780.00 | 14.44 | 2,737.97 | 13.67 |
| | 1936 | 41 | 160 | 3.9 | 3,030.00 | 73.90 | 507.25 | 12.37 |
| Rockingham | 1935 | 90 | 430 | 4.8 | 3,386.00 | 37.62 | 2,054.30 | 22.83 |
| | 1936 | 79 | 231 | 2.9 | 968.00 | 12.25 | 999.20 | 12.64 |
| Strafford | 1935 | 20 | 183 | 9.2 | 2,065.00 | 103.25 | 1,269.52 | 63.48 |
| | 1936 | 18 | 180 | 10.0 | 1,742.00 | 96.78 | 360.47 | 20.08 |
| Sullivan | 1935 | 26 | 131 | 5.0 | 338.00 | 13.00 | 757.05 | 29.12 |
| | 1936 | 19 | 59 | 3.1 | 413.00 | 21.74 | 290.87 | 15.31 |
| State Totals | 1935 | 488 | 2,667 | 5.5 | \$15,122.00 | \$30.98 | \$15,837.50 | \$32.43 |
| State Totals | 1936 | 387 | 2,011 | 5.2 | \$12,548.00 | \$32.42 | \$8,528.16 | \$22.04 |

RAILROAD FIRES FOR FISCAL YEARS 1935 AND 1936

| <i>Year</i> | <i>No. Fires</i> | <i>Total Area Burned</i> | <i>Average Area Per Fire</i> | <i>Total Damage</i> | <i>Average Damage Per Fire</i> |
|-------------|----------------------|----------------------------------|--------------------------------------|-------------------------|--|
| 1935 | 42 | 399 | 9.5 | \$1,376.00 | \$32.76 |
| 1936 | 68 | 261 | 3.8 | 850.00 | 12.50 |

TOTAL NUMBER OF FOREST FIRES, AREA AND DAMAGE
BY CAUSES

For Fiscal Years 1935 and 1936

| <i>Causes</i> | <i>Per Cent Total Number of Fires</i> | <i>Per Cent Total Area Burned</i> | <i>Per Cent Total Damage Caused</i> |
|---------------------|---|---|---|
| Railroads | 11.2 | 12.4 | 7.4 |
| Smokers | 50.5 | 54.6 | 52.3 |
| Burning Brush | 14.6 | 10.8 | 14.2 |
| Miscellaneous | 9.9 | 5.5 | 7.0 |
| Lumbering | 1.3 | 1.9 | 2.0 |
| Incendiary | 3.1 | 2.4 | 5.6 |
| Lightning | 3.1 | 7.3 | 3.3 |
| Camp Fires | 3.6 | 4.0 | 7.2 |
| Unknown | 2.7 | 1.1 | 1.0 |
| Totals | 100.0 | 100.0 | 100.0 |

COMBINED FOREST FIRE RECORD FOR FISCAL YEARS 1935 AND 1936

All agencies reporting

NUMBER OF FIRES

| <i>Year</i> | <i>Town</i> | <i>Railroad</i> | <i>White Mountain National Forest</i> | <i>Total</i> |
|--------------------|--------------------|-------------------|---|--------------------|
| 1935 | 488 | 42 | 6 | 536 |
| 1936 | 387 | 68 | 3 | 458 |
| Total | 875 | 110 | 9 | 994 |
| AREA BURNED | | | | |
| 1935 | 2,667 | 399 | ½ | 3,066 ½ |
| 1936 | 2,011 | 261 | ½ | 2,272 ½ |
| Total | 4,678 | 660 | 1 | 5,339 |
| DAMAGE | | | | |
| 1935 | \$15,122.00 | \$1,376.00 | 0.00 | \$16,498.00 |
| 1936 | 12,548.00 | 850.00 | 0.00 | 13,398.00 |
| Total | \$27,670.00 | \$2,226.00 | 0.00 | \$29,896.00 |

Portable Saw Mills


The following table giving portable saw mill operation statistics is published more to show the manner in which this comparatively important part of the lumber industry in our State has evolved rather than to cite the relation of portable saw mills to forest fires. At one time, the operation of these mills in the woods was a serious hazard but the steady increase in the use of more portable gasoline and oil engines has supplanted steam power to such an extent that whereas in 1925 steam mills operated approximately two out of three lots, gasoline and other power is now used in three out of four cases. This elimination of steam boilers in the production of power has resulted in greatly reducing fire hazard.

TABULATION SHOWING REGISTRATION OF PORTABLE SAW MILLS

| Year | Total No. Mills Registered | Power Used | | Total Number of Permits | Number of Permits | |
|--------------------|----------------------------------|------------|-----------------|-------------------------------|-------------------|-----------------|
| | | Steam | Gas & Others | | Steam | Gas & Others |
| 1925* | 163 | 116 | 47 | 244 | 163 | 81 |
| 1926 | 240 | 171 | 69 | 432 | 267 | 165 |
| 1927 | 254 | 177 | 77 | 459 | 265 | 194 |
| 1928 | 249 | 164 | 85 | 443 | 255 | 188 |
| 1929 | 248 | 145 | 103 | 440 | 207 | 233 |
| 1930 | 202 | 111 | 91 | 310 | 118 | 192 |
| 1931 | 149 | 77 | 72 | 273 | 82 | 191 |
| 1932 | 125 | 51 | 74 | 175 | 47 | 128 |
| 1933 | 141 | 69 | 72 | 298 | 106 | 192 |
| 1934 | 174 | 75 | 99 | 343 | 95 | 248 |
| 1935 | 143 | 60 | 83 | 276 | 68 | 208 |
| 1936 | 167 | 66 | 101 | 323 | 80 | 243 |
| 12 yr. average 187 | | 106 | 81 | 334 | 146 | 188 |

*Law in effect from July 1, 1925.

REFORESTATION

HE total number of acres set with forest planting stock during the past two-year period showed a considerable increase over any similar period of time for some years. This increase is noticeable in both private planting and in State land planting which has been carried on by E. C. W. and State funds. Two other groups which were expected to use increased amounts of trees, as both received them free, used smaller amounts than usual. These are the educational club groups made up of 4-H, Smith-Hughes, Boy Scouts, and Juvenile Grangers, and the towns and cities planting on municipal areas.

The plantings on State lands have greatly increased the prospective yield and potential value of 1,392 acres; the total acreage planted on State areas during the past biennial period. These areas with others previously planted should add greatly to the Department's income in future years if they can be properly managed. Such income cannot be realized or will be greatly reduced, unless money is made available for the proper handling of the State's forest crop. This work is not continuous on an area, but the best forestry practices recognize the necessity of control measures when certain conditions exist. When conditions such as the need of releasing plantations and the more desirable naturally stocked species exist they must have prompt attention if the more valuable species are to be established. Pruning and thinning must also be done at a time when the stand is at certain stages of growth if an increase in future returns is to be anticipated by improving the quality of the product.

All of this work has been taken care of for the past few years on most areas by E. C. W. and relief work groups. There are, however, areas that need attention

where these groups have not been able to work. With the abandonment of many relief work projects there is an increased responsibility which the State should not overlook and fail to assume.

The following table gives the detail of forest planting on State lands during the past two fiscal years:

PLANTING ON STATE LAND BY TRACTS, NUMBER AND SPECIES

| Tract | Acres Covered | White Pine | Red Pine | Scotch Pine | Norway Spruce | White Spruce | Ked Spruce | Balsam Fir | Black Spruce | Douglas Fir | Bar. berry | Chinese Elm | Dog. wood | Total |
|-------------------------|---------------|------------|----------|-------------|---------------|--------------|------------|------------|--------------|-------------|------------|-------------|-----------|-----------|
| Allen | 10 | | 3,425 | 6,575 | | | | | 2,000 | | 2,000 | | | 10,000 |
| Annett | 364 | 150,880 | 179,075 | | | 30,500 | | | | | | | | 364,455 |
| Benr Brook | 30 | 15,000 | 15,000 | | 500 | | 14,500 | 5,000 | | 5,000 | | | | 30,000 |
| Black Mountain | 25 | | | | | | | | | | | | | 25,000 |
| Blair | 6 | | 2,325 | 3,600 | | | | | | | | | | 5,925 |
| Blue Job | 5 | | | 5,000 | | 2,075 | | | | | | | | 5,000 |
| Cardigan | 2 | | | | | | | | | | | | | 2,075 |
| Cardigan Camp Site | | | | | | 160 | | | | | | | | 160 |
| Casalis | 22 | 14,200 | 6,900 | | | 9,600 | | | | | | | | 21,700 |
| Conway | 10 | | 625 | | | | | | | | | | | 9,600 |
| Conway Common Lands | 1 | | | | | | | | | | | | | 625 |
| Davisville | 19 | | 14,200 | 5,000 | | | | | | | | | | 19,200 |
| Duncan Lake | 66 | 1,800 | 20,100 | 12,100 | 10,800 | 12,800 | 6,375 | 900 | 1,100 | 1 | | 5 | 1 | 65,975 |
| Fox | | | | | | 113 | | | | | | | | 120 |
| Franconia Notch | | | | | | | | | | | | | | 10,400 |
| Harriman-Chandler | 10 | 5,000 | 175 | | | 5,225 | | | | | | | | 10,400 |
| Hemenway | 214 | 47,100 | 18,825 | 5,250 | 34,025 | 100,075 | 6,500 | | 2,000 | | 500 | | | 213,575 |
| Honey Brook | 56 | 32,000 | 18,000 | 5,800 | | | | | | | | | | 56,800 |
| Hubbard Hill | 20 | 20,000 | | | | | | | | | | 16 | | 20,000 |
| Hubbard Hill | 69 | 2,500 | 2,400 | | 7,375 | 41,075 | 10,000 | 4,450 | 750 | | | | | 68,566 |
| Kearsarge Mountain | | | | | | | | | | | | | | 100 |
| Kearsarge Mt. Camp Site | | 100 | | | | | | | | | | | | 100 |
| Kingsston Lake | | | 100 | | 10 | | | | | | | 25 | | 135 |
| Leighton | 9 | 9,000 | | | | | | | | | | | | 9,000 |
| Masconia | 10 | 5,000 | | | | 5,475 | | | | | | | | 10,475 |
| Marsmill | 4 | 3,750 | | | | | | | | | | | | 3,750 |
| Mast Yard | 28 | | 12,625 | 15,625 | | | | | | | | | | 28,250 |
| Milan Hill | 29 | 5,000 | | | 18,000 | | | 6,400 | | | | | | 29,400 |
| Monadnock | 14 | | | | | 8,900 | 4,900 | | | | | | | 13,800 |
| Moose Brook | 52 | 1,000 | 1,000 | | 17,250 | 16,500 | 1,350 | 5,000 | 1,000 | 8,500 | | | | 51,600 |
| Pawtuckaway | 108 | 51,000 | 80,500 | 11,000 | 5,000 | 7,000 | 9,425 | 7,725 | | 175 | 1,015 | | | 167,840 |
| Pillsbury | 10 | | | | | 5,000 | | | | | | | | 10,000 |
| Ponemah | 4 | | 4,000 | | | | | | | | | | | 4,000 |
| Ragged Mountain | 22 | 12,500 | 6,920 | | | | | 550 | 2,650 | | | | | 21,720 |
| Redstone | 7 | | 6,500 | | | | | 5,000 | | | | | | 6,500 |
| Walton Falls | 12 | | | | | 7,000 | | | | | | | | 12,000 |
| Wentworth Beach | | | 88 | | | | | | | | | | | 42 |
| White Horse Ledge | 5 | | 5,300 | | | | | | | | | | | 5,300 |
| White Lake | 61 | 3,900 | 46,875 | 9,750 | | | | | | | | | | 60,525 |
| Woodman | 28 | 28,000 | | | | | | | | | | | | 28,000 |
| Total | 1,392 | 407,730 | 443,808 | 79,700 | 92,960 | 252,102 | 53,050 | 35,025 | 9,500 | 13,676 | 3,515 | 46 | 1 | 1,991,113 |

FOREST NURSERY



THE State Forest Nursery has continued to grow and distribute trees during the past two years in the same manner and under the same policies as in previous years. A total of 2,980,642 trees were distributed during this time with nearly one-half of these used on State land. The balance was sold to private planters and given free to boys' and girls' educational groups and also for public land planting within the State.

Among the educational groups, members of the 4-H clubs and Smith-Hughes High Schools took advantage of this offer and 500 trees were allowed those whose ages ranged from nine to sixteen and 1000 trees to those whose ages were sixteen to twenty. 4-H clubs planted 80,250 trees and Smith-Hughes Schools 348,755 trees.

All municipalities were offered trees without restriction as to number and eight cities and towns took advantage of this offer and received 127,675 trees as follows: Manchester 70,000, Rochester 25,075, Hillsboro 20,000, Durham 5,000, Salmon Falls 3,500, Wilton 3,000, Greenland 1,000, and Lancaster 100.

The State Highway Department was assisted as in previous years by growing and caring for trees and shrubs needed in its roadside beautification program.

The Forest Nursery served as a receiving and distributing point and furnished storage for pieces of equipment and supplies for the Department recreational areas about the State. It also furnished the same service for handling forest fire fighting equipment which is purchased by the Department and resold to cities and towns at half cost.

A new and important addition to the Nursery equip-

ment and service is a fire truck which is available for call to any point in the State where a portable fire pump and hose can be of service in fighting forest fires. This truck equipped with two portable fire pumps, one a type N weighing 70 pounds and a type Z weighing 125 pounds, a half mile of 1½-inch hose, together with gas and oil, necessary equipment and two experienced men, can be had at a few minutes notice by calling the telephone central at Salisbury, New Hampshire.

A fire broke out in the Nursery barn on October 12, 1935 and considerable damage was done to the upper sections and to material in storage where the fire started. The fire was discovered soon after it started and the barn was saved by the prompt and efficient work of the Boscawen Fire Department. It was necessary to replace windows, sections of the floor, and some of the timbers and to strengthen others. Also, as this part of the barn is used as a work shop and for storage, it was sheathed to cover the smoked and charred interior and to reflect light. All lumber used in this work was salvaged from the Chocorua Lake blow-down on the Bowditch-Runnells tract.

The total output of trees from the Forest Nursery for forest planting since it was established in 1911 to 1936 inclusive, has been 15,383,446 trees. Of this amount 65.5% white pine, 15.5% red pine, 7.7% white spruce, 4.1% Scotch pine, 3.6% Norway spruce, 0.8% white ash, and 3% miscellaneous.

The following table shows the value of stock distributed by years and agency using same:

VALUE OF NURSERY STOCK PRODUCED

Year Ending June 30, 1935

| | |
|---|------------|
| Trees sold to private planters..... | \$1,021.04 |
| Trees given to 4-H and other juvenile clubs | 1,225.14 |
| Trees given to towns | 717.40 |
| Trees used on State lands | 4,949.15 |
| | <hr/> |
| | \$7,912.73 |

VALUE OF NURSERY STOCK PRODUCED

Year Ending June 30, 1936

| | |
|---|------------|
| Trees sold to private planters | \$2,720.60 |
| Trees given to 4-H and other juvenile clubs | 921.97 |
| Trees given to towns | 832.95 |
| Trees used on State lands | 3,624.67 |
| | <hr/> |
| | \$8,100.19 |

NURSERY OUTPUT: FALL 1934—SPRING 1935

| Age of Stock | White Pine | Red Pine | White Spruce | Red Spruce | Norway Spruce | Douglas Fir | Scotch Pine | Balsam Fir | Black Spruce | Total |
|-----------------------------|---------------|-------------|-----------------|---------------|------------------|----------------|----------------|---------------|-----------------|-----------|
| 5 yr. transplants | 17,400 | 68 | 52,447 | 13,585 | 10 | 14,236 | 8,910 | 2,325 | .... | 108,971 |
| 4 yr. transplants | 103,250 | 47,825 | 95,283 | 1,025 | 10,433 | 625 | 18,700 | 100 | .... | 277,241 |
| 3 yr. root pruned seedlings | 306,873 | 913,436 | 139,236 | 31,784 | 29,100 | 100 | 70,050 | 21,475 | 6,500 | 907,504 |
| 2 yr. seedlings | 130,000 | .... | .... | .... | .... | .... | .... | .... | .... | 130,000 |
| | 557,523 | 361,329 | 276,960 | 46,344 | 39,543 | 14,951 | 97,660 | 23,900 | 5,500 | 1,423,716 |

NURSERY OUTPUT: FALL 1935—SPRING 1936

| Age of Stock | White Pine | Red Pine | White Spruce | Red Spruce | Norway Spruce | Scotch Pine | Balsam Fir | Black Spruce | Total |
|-----------------------------|---------------|-------------|-----------------|---------------|------------------|----------------|---------------|-----------------|-----------|
| 5 yr. transplants | 9,639 | 17 | 34 | 2 | 12,389 | 1,250 | .... | 10 | 23,241 |
| 4 yr. transplants | 75,550 | 192,775 | 56,700 | 3,875 | 33,575 | 8,275 | 20,500 | 2,000 | 393,850 |
| 3 yr. root pruned seedlings | 532,150 | 78,150 | 152,285 | 4,900 | 21,800 | 42,100 | 1,500 | 2,500 | 885,335 |
| 2 yr. seedlings | 145,000 | .... | 100,000 | .... | 10,000 | .... | .... | .... | 255,000 |
| | 812,339 | 270,942 | 308,969 | 8,777 | 77,764 | 51,625 | 22,000 | 4,510 | 1,556,926 |

EMERGENCY CONSERVATION WORK IN NEW HAMPSHIRE



AN ACT for the Relief of Unemployment through the Performance of Useful Public Work and for Other Purposes," was approved by President Roosevelt on March 31, 1933. From this authority the President organized the Civilian Conservation Corps. This new organization, headed by Robert Fechner, who was appointed by the President as Director of Emergency Conservation Work, consisted of an Advisory Council made up of the War, Labor, Interior and Agriculture Departments. A gigantic task lay ahead of these agencies in planning the groundwork for the establishment of some 1500 camps throughout the United States in which would be housed approximately 300,000 of the unemployed youth of America.

The various states were requested to submit work programs, and based on its requirements, the State of New Hampshire received a quota of five camps. These were in addition to those allotted the Federal Forest Service in the White Mountains.

Establishment of Camps

Camp Pillsbury, S-51, occupied by the 122nd Company, was set up June 5, 1933, in Goshen, five miles south of Newport on State land near the Pillsbury Reservation. Alban J. Keenan was Camp Superintendent, succeeded by W. L. McCarten and John H. Keenan.

Camp Pawtuckaway, S-52, was established June 12, 1933, on town owned land in Deerfield and was assigned to the 123rd Company. Floyd L. Cram was the Superintendent.

Camp Hemenway, S-53, manned by the 117th Company, was set up June 5, 1933, in Tamworth on the Hemenway Reservation. John H. Flagg is Superintendent.

Camp Cardigan, S-54, was established on June 16, 1933, in Danbury, and was occupied by the 126th Company. It has been supervised by W. L. McCarten, John H. Keenan, and at present by Ira G. Davis.

Camp Monadnock, S-55, assigned to the 118th Company, was set up in Rindge, June 5, 1933. Martin G. Ferry is Camp Superintendent.

Equipment

The many work projects set up for the CCC Camps necessitated the purchase of small tools, such as axes, picks, saws, shovels, rakes, pruners, wheelbarrows, etc. While authority to buy such equipment had been received, no provision had been made to provide for the necessary transportation of enrollees to and from the projects. Ultimately, however, the Forestry Department was granted permission to temporarily hire trucks, with or without drivers.

In September, 1933, the Washington Office purchased automotive equipment for ECW Camps, and 17 Chevrolet and Ford dump trucks, 7 Chevrolet rack-body trucks, and 5 Chevrolet pick-up trucks were supplied camps supervised by the Department.

During 1934, establishment of a new camp, and increased need of transportation at others, necessitated more equipment, and the Department received 16 Chevrolet trucks, equally divided between rack-body and dumps. To facilitate road construction, one air compressor drill was also furnished.

The addition of five new camps during 1935 called for further automotive and road construction equipment. Chevrolet, Dodge, Ford and Reo trucks in the number of ninety were received from the Government

Forest and Park Service, some being newly purchased, while a portion was transferred from other states. Assigned to road work were 4 Chevrolet, 2 Dodge, 2 Ford, and 25 Reo dump trucks. Largely for the transportation of crews, 26 Chevrolet and 2 Reo stake-body cars were received. For lighter duty 18 Chevrolet and 1 Ford pick-up trucks were supplied.

To speed up road, trail, and other construction 11 caterpillar tractors and 10 road graders were delivered. Two of the tractors were ultimately transferred to Vermont and one to New York. Six air compressors were also included in the road equipment.

For the purpose of moving tractors and other heavy equipment over the road, an International Truck and semi-trailer was received in 1936, and was used for about one year, finally being transferred to New York. Four Reo dump trucks were added to camp equipment and a used Hudson Sedan assigned to office and general field travel.

At the present writing 4 Chevrolet and 6 Ford dump trucks, 6 Chevrolet stake-body, and 4 pick-up trucks are being held for condemnation or replacement.

New Camps Established

Camp Warner, S-56, is located on State land about three miles north of Warner Village along the old road leading to Mount Kearsarge. It was set up on September 14, 1935, and is occupied by the 1147th Company. George S. Wilson is the Camp Superintendent.

Moose Brook Camp, SP-1, is situated two miles from Gorham Village on Moose Brook State Park, and was first occupied on May 14, 1934, by the 392nd Company, Veterans, transferred from Rutland, Vermont. It was succeeded by a Junior Company, the 1129th, on August 8, 1935, the Veterans returning to Vermont.

Bear Brook Camp, SP-2, is located on the Bear Brook Reservation, in Allenstown, and was occupied by the 1123rd Company on October 16, 1935. James Cass is the Camp Superintendent.

Bellamy Park Camp, SP-3, was established on the property of the Strafford County Farm, June 29, 1935. This company was transferred November 1, 1935, to the Pawtuckaway Camp, in Deerfield, which had been abandoned as a State Forest Camp. William S. Bailey was the first Superintendent. The position is now held by Sumner W. Watson.

Camp Claremont, S-57, was set up as a Gypsy Moth camp on September 3, 1935, being occupied by the 1185th Company, and is located in Unity, about six miles from Claremont. Sidney T. Hancock is the Camp Superintendent.

Connecticut Lakes Camp, P-58, was established on September 4, 1935, on private land near the lower extremity of First Connecticut Lake, in the town of Pittsburg. It is occupied by the 1146th Company. W. L. McCarten is the Camp Superintendent.

Side Camps

As the Emergency Conservation Work developed it appeared that many desirable projects were situated at a distance too great for the established camps to handle them efficiently. Consequently, smaller units, known as "Side Camps," were set up in the fall of 1933. Such camps consist of 25 enrollees and a foreman who is responsible to the superintendent of the main camp.

From the 126th Company, in Danbury, the first side camp was established in October, 1933, at Lafayette Clearing, in the Franconia Notch State Reservation. Projects included the development of an overnight camp ground and picnic area west of the Pemigewasset River, trail and roadside improvement,

Enrollees from the 117th Company, at Tamworth, were transferred to a site in the Crawford Notch Reservation on October 23, 1933. Improvement and development of camp grounds, building of foot trails to several summits, and a road up Mount Willard, terminating in a parking area, constituted the major programs.

On November 6, 1933, a side camp was established just outside of Laconia, near Opechee Lake, with men from the 123rd Company at Deerfield. Improvement of Opechee Park as a recreational center, rebuilding a road up Mount Belknap to a parking area, erection of a bathhouse and improvement of the bathing beach at Endicott Rock numbered among the principal projects.

Uncompleted projects adjacent to the old Pillsbury Camp appeared to warrant the opening of a side camp on February 3, 1936, on the site of the old 122nd Company, in Goshen. The unit was made up of enrollees drawn from the 118th Company, in Unity.

In the following pages will be found a brief description of Emergency Conservation Work by the several camps during the last biennium.

Camp Pillsbury, S-51

Situated adjacent to the Dartmouth College Highway, two miles south of Mill Village, Goshen, and about four miles north of the Pillsbury Reservation, a forest of nearly 3,000 acres, this camp was among the first to open early in June, 1933 and was the first to be abandoned on October 26, 1935. Since the bulk of its work was described in the previous biennial report, only a small portion remains to be given.

Pillsbury Reservation.

Truck trail construction was continued, thus connecting the Fletcher Pond road with the Entrance highway close to the Ranger Headquarters. A right of way three miles in length was cleared and a rough grade established on $2\frac{3}{4}$ miles. Maintenance work was conducted on both the Fletcher Pond and Entrance roads, and a small parking area developed on the former. The Butterfield Dam was completed when a cement spillway was poured and grading of the slopes effected.

In co-operation with the U. S. Biological Survey, a nursery to grow food plants for game was originated. A survey and census of game was continued in the southern portions of the reservation and feeding areas for ruffed grouse were developed. At the Ranger Headquarters repairs were made to game pens and to the Carley Pond dam.

Forest stand improvement cuttings were conducted on 183 acres, and to reduce a fire hazard, brush was burned on $3\frac{1}{2}$ acres adjacent to a roadside. Reforestation of $5\frac{1}{2}$ acres of poorly stocked and cut-over land was completed.

Fox Research Forest.

On the westerly extremity of this experimental forest one mile of road was constructed. A new woodshed was built and general repairs and maintenance carried on at the Forester's Headquarters. Reforestation of 28 acres was completed. New projects included experimental planting, nursery development, a forest inventory, and other investigative activities.

Other Forests.

On the Honey Brook State Forest, one-quarter of a mile of truck trail was constructed. Forest improve-

ment practices and burning of brush were conducted on 31 acres, and 51 acres were reforested. Control of the White Pine Weevil was carried on over 429 acres.

For the purpose of connecting the Pitcher Mountain Fire Lookout Station with the Marlow telephone line, $3\frac{1}{2}$ miles of pole line were built. On the Dodge Brook State Forest three water holes, for fire protection, were constructed.

On the Sunapee Town Forest dangerous brush and slash was burned over 23 acres, and forest improvement practices continued on 55 acres. A foot trail, 2,200 feet in length, was developed and a foot bridge constructed.

Miscellaneous Work.

Along the principal roads of Bradford, Henniker, Hillsboro, Newbury, Sutton, and Warner, Gypsy Moth eggs were creosoted.

White Pine Blister Rust control was conducted on the Dodge and Honey Brook State Forests, and upon 3,484 acres of private lands in the towns of Acworth and Unity.

In the interests of fire protection, 13 water holes have been constructed on private lands in the following towns: Claremont, 2; Goshen, 2; Lempster, 1; New-
port, 7; and Washington, 1.

Camp Pawtuckaway, S-52

Just off the Deerfield-Raymond highway, in the former town and only about five miles from the well-known Pawtuckaway Mountains, this forest camp was well placed. Although not far from the cities of Concord and Manchester, it is situated in a region that has reverted surprisingly fast to a wilderness.

Pawtuckaway Reservation.

A country road leading off the Deerfield-Raymond highway to this reservation was graveled for five miles, and roadside brush cut in the interest of fire hazard reduction. Construction of the forest road leading from Round Pond Hill to the Nottingham road was completed. This construction, two miles in length affords shorter access to the reservation from the east and north. For the convenience of persons desiring to climb to the forest fire lookout station, on South Mountain, a parking area was developed near the Ranger's Station. Considerable improvement to the reservation's forest trails was effected, and general repairs made to the Ranger's Station. Forest improvement was conducted on 130 acres, and brush burned to reduce the fire hazard. On areas aggregating 163 acres, reforestation was conducted.

Kingston Lake Park.

Situated a short distance from Kingston Village, this State recreational area has proved a popular one. Crews from the Pawtuckaway Camp took over the development of this park, on which construction was first undertaken by CWA. Since that time projects have included the further development of a picnic ground with four fireplaces and many tables and seats. Another diving raft was constructed, and the bathing beach improved. A concession booth was built, and the caretaker's quarters were connected with a water system. An additional parking area was laid out near the bathhouse, and the main parking area improved by guard rails being installed where needed.

Endicott Rock Park.

Situated at the southern extremity of Lake Winnepesaukee, near "The Weirs," improvements to this popular bathing beach and historic spot, were made by the Laconia Side Camp. With the exception of the interior finish, enrollees built a bathhouse, 18 feet by 30 feet, with two wings, each 14 feet by 70 feet. Grading for the bathhouse site, and the necessary parking area were additional accomplishments. The CCC crews also put in 300 feet of stonewall along the beach to protect it from rough water and ice action.

Other Forests.

Upon the Belknap Mountain road, in Gilford, completing and resurfacing, maintaining drainage and sloping of all banks was carried on. Slash, deadwood, and debris along the right of way were removed in order to decrease the forest fire hazard.

At Rock Rimmon Lookout Station, in Kingston, a mile of long abandoned road was improved. On the Woodman Forest, in Deerfield and Northwood, forest improvement work and burning of slash on 26 acres was carried on, and 17 acres were reforested. Maintenance and improvements were conducted on the Deerfield Town Park and 1,000 trees were planted.

At Camp Foster, in Bedford, assistance was given in the construction of two buildings; one 20 feet by 38 feet, the other 10 feet by 16 feet. A water pipe line was also re-laid and repairs made to the sleeping cabins.

Miscellaneous Work.

In the spring of 1935, Gypsy Moth control was conducted along principal highways in Candia, Deerfield, Epsom, Hooksett, Raymond, Center Harbor,

Moultonboro, Laconia, Gilford, and Meredith. White Pine Blister Rust control was carried on in the towns of Deerfield, Epsom, Kingston, Nottingham, and South Hampton over areas aggregating 7,683 acres.

Water holes were dug in the following towns: Fremont, 9; Laconia, 1; and Raymond, 2; a total of 12.

Camp Hemenway, S-53

This camp is located on the Hemenway Reservation, three miles from Tamworth Village.

Crawford Notch Reservation.

The principal work project is the reconstruction of the Mt. Willard carriage road for a distance of one mile, which includes the relocation of .7 of a mile to permit a more favorable grade. On this project, sub-basing and graveling have been completed. At the Willey Cabins, general repair work on the Rest Room has been done, and a camp ground of two acres has been developed. Seven miles of foot trails have been completed and maintained to places of interest, including Arethusa Falls and Flume Cascades. Twenty-five acres of forest improvement work has been done on the reservation. Burning brush for fire hazard reduction has been carried out on this same area and for six miles the roadside has been beautified by the elimination of unsightly and dead trees. During the floods of 1936, the side camp assisted the regular highway crew in the repair of the main road in the Notch. Nearly 700 man-days were used in removing debris from the road, filling washouts, and repairing culverts.

White Lake Reservation.

The principal work on this reservation included enlarging of the camp ground, construction of a ten acre

picnic ground, and the building of three miles of truck trails. Additional improvements include the construction of 20 fireplaces, 24 tables, a shelter in the picnic area and a number of swings, seesaws, water slides, and rafts. About 600 small trees and shrubs were transplanted for the obliteration of old roads and there were also 30 acres of underplantings, 8 acres of maintenance plantings, and 10 acres of forest improvement.

Hemenway Reservation.

The principal work on this reservation has consisted of the remodeling of the Huckins House, the laying out of parking areas, lawns, and a new entrance driveway, and the replanting of trees and shrubs. Other work completed includes sub-grading of the Great Hill road for about three miles, a ski trail about one-half mile in length on Great Hill, $1\frac{1}{2}$ miles of combined power and telephone line, 110 acres of forest planting, and 72 acres of forest improvement.

Cathedral Ledge Reservation.

On this reservation in North Conway, 160 rods of fence were built along the entrance road. Other work included maintenance of the road to the summit, construction of two dirt toilets on picnic grounds, and partial completion of guard rails for the protection of the public at the summit of Cathedral Ledge. Ten acres of improvement cuttings were made, yielding 25 cords of wood. This same area was reforested in the spring of 1936.

Other Forests.

On the Green Mountain Reservation in Effingham, one-half mile of truck trail with turn-outs, and two parking areas have been completed. In Ossipee, on the Huckins Tract, two miles of fire lanes were built and forest improvement work carried on. At Duncan

Lake, forest improvement constituted the principal project, 225 cords of wood being removed over 77 acres. A heavy accumulation of brush was burned over 20 acres, and the area reforested in the spring of 1936. On the Merriman Reservation in Bartlett, a foot trail has been improved and maintained for one mile. At the Conway Common Lands, fifty acres of improvement cuttings were made and 11 acres of plantations restocked. One mile of foot trail was cleared from the public road to the summit of Black Cap Mountain. On the Redstone Tract, release cuttings were conducted on twenty acres and a fire trail adjacent to the State road brushed out. At the Bowditch-Runnells Tract a large blow-down of pine trees was cleaned up. About 50,000 feet of lumber resulted and has been used in building construction on the Hemenway Reservation. At the Governor Wentworth Farm, in Wolfeboro, the caretaker's cottage has been completed, an old well cleaned, and a trench excavated for a pipe line to the cottage. A small wooden bridge and culvert were renewed and a parking area 75 feet by 100 feet constructed.

During the flood of 1936, several crews assisted in the repairs to roads in Freedom, Sandwich, and Tamworth. A total of 24 water holes were constructed in the following towns: Tamworth, 9; Freedom, 6; Ossipee, 4; Sandwich, 3; and Moultonboro, 2. White Pine Blister Rust control was conducted on areas aggregating 2,736 acres.

Camp Cardigan, S-54

This camp is located one-half mile off the State Highway near the village of Danbury and about equidistant between two important forest reservations. On the Canaan side of the Cardigan Reservation a parking

area and picnic ground were enlarged. The entrance road of $1\frac{3}{4}$ miles has been completed and maintained to the old hotel site. A town road to Mt. Cardigan, known as the Burnt Hill Road, leading from East Grafton to Cardigan, was widened and improved for a distance of $1\frac{1}{3}$ miles. On the Alexandria side of Mt. Cardigan, one-half mile of road was improved.



Bridge over Smith River, Hill-Alexandria town line, built by the Danbury CCC camp after great flood of March 1936

Photo by Forestry Department

A log bridge was constructed on the reservation and three springs improved. General improvement cutting on Mt. Cardigan resulted in 135 cords of fuel for camp use. Planting of 2,075 spruce trees was completed. Boundary surveys to the extent of 15 miles were rerun on the reservation.

Kearsarge Mountain.

The mountain road extending from the Four Corners on the Sutton Road to the foot of Morgan's Hill has been improved with the co-operation of the town of Wilmot. The distance is one mile in length; the remaining 2.5 miles, previously improved, has been kept in repair for the traffic up the mountain. Fifty-eight acres of forest on this reservation have been improved. To facilitate yarding of wood, three miles of sled road have been built. Planting of 46,875 seedlings was completed. Four water holes were constructed reducing the fire hazard on Mount Kearsarge. A boundary survey of the entire reservation of 771 acres was made and a ski trail and telephone line was maintained. Other projects carried on were minor repairs to the half-way house, packing supplies to the lookout tower, and servicing the water supply for the picnic area. An additional parking area, with creosoted hemlock guard logs, has been provided for tourists.

Franconia Notch.

With a detail of twenty enrollees from the base camp in Danbury, many improvements have been carried on at the Franconia Notch Side Camp. An addition has been made to the Lafayette camp ground and picnic area, and individual camp sites laid out. An improvement of the entrance to the Lafayette camp ground was made. The water system has been serviced and an electric light plant installed. Lafayette Lodge, recently built of spruce logs, has a 64 foot front with wings extending back to form a court in the rear. It provides toilet, bathing, and recreational facilities to the campers. A large rustic table, with spruce stumps for a base and with a top made of half logs, was constructed for the rest room. Other rustic furniture has been added which gives the room a proper atmosphere. A new ranger station of spruce logs is practically complet-

ed. The Taft and the Cascade Brook ski trails have been maintained and a new trail, known as Bald Mountain, has been cut out and developed for a slalom run. A parking area of one-half an acre has been built for the winter use of skiers at the top of Three Mile Hill. Foot bridges at The Basin were rebuilt, roadside clean-up for 2.5 miles was performed, and a barrier at Echo



*Parking Area in Franconia Notch State Reservation developed
for use of winter sports enthusiasts*

Photo by Forestry Department

Lake is being developed to screen an abandoned sand pit. In emergency work men were detailed to co-operate with the State Highway Patrol in the installation of culverts made necessary after the flood of 1936. Enrollees from the side camp were instrumental in finding an elderly woman who was lost in the Forest Lake region near Whitefield.

Wellington Beach.

A rustic portal was built at the entrance of the park. Parking facilities have been increased by three acres of reclaimed swamp land. A foot trail around the lake to Hornets' Cove provides an interesting walk. A rough stonewall of 200 feet has been built along the shore of Newfound Lake to prevent further beach erosion and for the protection of trees. Six new open fireplaces have been constructed. A float and diving platform were built. Numerous structural improvements and additions have been made to the caretaker's cabin and bathhouse.

Welton Falls.

One-half mile of truck trail leading to this tract has been resurfaced. Trails to the extent of 1,800 feet have been maintained, and a foot bridge and one water hole are under construction. Planting of 7,000 white spruce and 5,000 fir balsam have been made. Forest improvement consisted of cutting on 11 acres and weeding of one acre, which yielded 100 cords of fine wood. Fire hazard reduction has been practiced to the extent of 12.5 acres.

Mascoma.

In the protection of Norway spruce on this tract, weevil control was effected over 38 acres. Planting of 5,475 white spruce and 5,000 white pine was completed.

Ragged Mountain.

Forest improvement was the main project on this tract and 35 acres were covered with a yield of 180 cords of hardwood. To enable the proper hauling of this wood, 1.5 miles of sled road were brushed out. Planting was done by setting out 15,000 white pine and 7,000 red pine trees.

Miscellaneous Work.

The Wilmot road leading to the Kearsarge Reservation was repaired, using 96 man-days of labor, 63 loads of gravel, and 12 loads of stone. A temporary bridge with a center span of 75 feet and a base of rock and cribbing was thrown across Smith River after the flood at a point halfway between the towns of Bristol and Danbury. The distance from the far side of each abutment was 100 feet. This span replaced a steel and concrete structure which was undermined and completely demolished by high water. About 100 logs used in cribbing were procured from the Kearsarge State Reservation. A total of 517 man-days and 190 loads of rock were used in construction. Depot Street in Canaan was also repaired with an expenditure of 43 man-days and gravel to the extent of 59 loads.

Gypsy Moth control work was done along 53 miles of road in Alexandria, Bristol, Hill, Franklin, Andover, Danbury, and Bridgewater. In Enfield and Lebanon, 6,271 acres have been covered, maintenance work was done on 902 acres by burlapping, and 320,000 egg clusters were destroyed. White Pine Blister Rust control was completed on 4,771 acres in the towns of Danbury, Grafton, Orange, and Wilmot. Water holes were constructed as follows: Alexandria, 1; Andover, 2; Bristol, 2; Canaan, 5; Orange, 1; and Wilmot, 2.

Camp Monadnock, S-55

This camp is located on the Annett State Forest, in Rindge, $3\frac{1}{2}$ miles from East Jaffrey Village.

Annett Reservation.

Two and one-half miles of truck trail have been rough graded, necessary culverts installed, and a gravel base put in. A picnic area located near Hubbard Pond Dam has been completed with the necessary fireplaces

and picnic tables. Forest improvement work was conducted on 820 acres yielding 1,500 cords of firewood. Nearly 350,000 trees were planted during the spring of 1935 and 1936, on 668 acres. One mile of roadside was cleaned up.

Casalis Reservation.

A truck trail, two miles in length, has been constructed from a point on the Peterborough-Sharon Road through the reservation, terminating on the main Peterborough-Wilton Highway. A new well has been partly completed, which will supply the Casalis house with water. Forest improvement work has been carried out on 114 acres with 105 cords of firewood resulting from the operation. Planting consisted of 21,700 trees being set out on 76 acres.

Monadnock Reservation.

The construction of 2½ miles of ski trail and a ski shelter with fireplace, tables, and seats have made this a year-round recreational area. The camp ground has been developed with the addition of 28 new fireplaces, 13 new picnic tables, and 3 drinking fountains. Two new rest rooms containing flush closets, lavatories, and showers were built with necessary septic tanks and dry wells, also a cement and stone incinerator. A total of 11 miles of foot trails have been improved and maintained. From The Ark to the lookout station, 2.6 miles of new telephone line have been built. Forest stand improvement was conducted on 35 acres providing 16 cords of firewood. On 25 acres of State land, 13,800 trees were planted and 6,700 trees on land owned by the town of Jaffrey.

Peterborough Pool.

A bathhouse consisting of a main building and two wings and containing flush toilets, lavatories, showers, and necessary dressing booths was constructed. This

building was wired and lights installed. A septic tank and filter bed to take care of sewage from the bathhouse have been built. A storage building, 12 feet by 22 feet, was also constructed.

A cement walk 602 feet in length was constructed around the swimming pool terminating at the bathhouse. Woven wire fence, 6 feet high and 836 feet in length, was strung about the pool. A drinking system of 1,210 feet of water pipe, 6 bubblers, and 4 faucets for hose connection was laid along the fence line around the swimming pool. To facilitate night swimming 10 poles with 16 flood lights were erected. In order to support a bank adjacent to the pool 289 feet of stone retaining wall was constructed.

A considerable amount of filling and grading was necessary, both in the vicinity of the pool and the parking area. A total of over 29,000 yards of earth, gravel, and rock were used. Around the pool and the islands within the parking area 14,000 square yards were graded and loamed. On the outside limits of the parking area and around the islands 2,000 feet of stone curbing was installed. Along the roadway 500 feet of 4 foot woven wire fence was constructed, with posts of galvanized pipe being set in concrete. After grading 4.4 acres of land was seeded and sodded. The grounds were beautified through ornamental planting.

Miller Park.

This reservation of three acres is located on the summit of South Pack Monadnock and has been developed as a recreational area. A truck trail $1\frac{1}{2}$ miles in length was completed. A picnic area of $2\frac{1}{2}$ acres and a parking area of one-half an acre have been finished. Seven picnic tables have also been built. A rest room and an Adirondack shelter, 12 feet by 20 feet, of unique design with its floor and walls built of native stone have been completed.

Other Forests.

On the Kimball Forest, in Mason, improvement cutting was conducted on 5 acres, yielding 11 cords of wood, and pruning was conducted on 3 acres. On the Leighton Forest, in Dublin, 28 cords of wood were obtained in the improvement of 12 acres. Thinning was conducted on 4 acres and 10 acres were reforested with 9,000 5-year white pine transplants. The Marshall Forest, in New Ipswich, had improvement cuttings on 1 acre yielding 2 cords of wood, and 3,700 5-year white pine transplants were set out on 4 acres. On the Ponemah Forest, in Amherst, 4,000 5-year red pine transplants were set out on 8 acres. Improvement cutting on 32 acres, yielding 40 cords of wood was undertaken on the Pot Holes Forest in Gilsom. Weeding operations on lands of the town of Jaffrey, near Bullet Pond, were carried on over $41\frac{1}{2}$ acres.

Warner Camp, S-56

Located just north of Tory Hill, and three miles from Warner Village, this camp was established principally for the purpose of rebuilding the old Toll Road leading up the southern slopes of Mount Kearsarge.

Kearsarge Reservation.

Preparatory to construction work a survey of the old toll road was made in order that sharp curves might be modified and grades reduced to the federal specification of 13 per cent. Roughly constructed, in 1873, for horse-drawn vehicles, the rebuilding of a road suitable for automobiles has required much labor and many refinements. On the $1\frac{1}{4}$ miles so far completed, 15 large cement culverts have been installed, 20 cuts and fills made, and surfacing called for 2,700 yards of

gravel. At certain locations realignment of the road necessitated the dynamiting of ditches out of solid ledge. The boundaries of this reservation have been surveyed and marked and the entire tract of 1,545 acres type-mapped. Forest improvement work has been undertaken and 3,950 spruce trees planted.

Fox Research Forest.

An old shed, connected with the house, was remodeled into offices. The lumber used was sawed from trees cut on the forest. For the storage of records, a stone and cement fireproof vault was constructed under these offices. The two fish rearing pools were cleaned out and the dams repaired.

On the west tract one-half mile of truck trail was constructed and one-eighth mile finished on the Colby lot. Forest improvement was conducted on 26 acres and brush burned along one-half mile of truck trail. Three acres of land were reforested with 4,800 trees.

Near the administration headquarters a large scale model of the entire forest was moulded in the soil, and planted with trees common to the Fox Forest.

Harriman-Chandler Reservation.

Boundary lines were surveyed and marked, and the entire area type-mapped. Brush was cleared from $2\frac{1}{2}$ miles of foot trails. A ski trail was widened, rocks and stumps removed, and generally improved throughout its length. Access to the reservation was improved by the construction of six-tenths of a mile of truck trail.

Through thinning and weeding 350 acres of hardwood were improved and 1,000 cords of wood salvaged. On $7\frac{1}{2}$ acres 4,345 trees were planted. Many out of state visitors using this reservation have commented favorably on the condition of its trails and woods.

Davisville Forest.

In order to reduce the fire hazard a general thinning of the Scotch pine was made, and a water hole constructed. Experimental pruning on two sample plots was completed. The boundaries of this forest were marked and 625 trees planted.

Flood Relief.

This camp contributed 1,835 man-days in reconstruction of town roads in Hopkinton, Hooksett, Warner, and Webster.

In White Pine Blister Rust control 2,835 acres were covered in Warner. Three enrollees mapped 7,463 acres prior to the eradication work. A total of 15 water holes were constructed; 10 in Warner, 3 in Sutton, and 2 in the reservation.

Camp Claremont, S-57

Situated in the western extremity of Unity, six miles from Claremont, this camp was established for the purpose of destroying heavy Gypsy Moth infestations along the New Hampshire side of the Connecticut River. Results of this campaign by towns are briefly described.

Charlestown.

In the control program, 7,617 acres were scouted and 327 acres heavily infested were cleaned of litter which provided shelter for moths and egg clusters. Trapping of caterpillars and moths was accomplished by banding with burlap 53,570 trees. As a result over 500,000 caterpillars were killed. Painting with creosote destroyed over 250,000 egg clusters. The camp supplied 28 man-days searching for lost persons.

Claremont.

Areas scouted for Gypsy Moth totaled 340 acres. Three water holes were dug. Searching for lost persons occupied 108 man-days.

Cornish.

Fire protection was the only project conducted in this town. Two water holes were constructed; one, located near the St. Gaudens' Memorial, has a concrete core dam and spillway.

Langdon.

In Gypsy Moth control 5 acres were scouted and 1,145 egg clusters creosoted on 9 additional acres.

Unity.

During the burlapping season more than 16,000 caterpillars were killed, and an equal number of egg clusters creosoted. Blister Rust control was conducted over 5,715 acres of private forests. Two water holes were constructed, one in the camp area.

Honey Brook Forest.

During the spring period of 1936, 10,000 white pines were planted. Weevil control was put into effect on 595 acres of pine plantations by destroying infested leaders. Improvement cuttings were made on 26 acres, 55 cords of wood resulting, while slash was burned on 12 acres to reduce the fire hazard.

Hubbard Hill Forest.

White Pine Blister Rust control was carried on over the entire forest of 680 acres and on adjacent private lands totaling 1,572 acres. On poorly stocked, cut-over lands, 20,000 white pine were planted in the spring of 1936. From 75 acres of improvement cuttings 250 cords of wood were obtained. Deadwood and slash were cleaned up along 2 miles of woods roads and upon 37 acres. Five water holes were constructed at strategic points throughout the forest.

Pillsbury Reservation.

Projects on this forest were conducted by a detail of men quartered at a side camp in the buildings of the old 122nd Company, in Goshen.

Road construction included maintenance of the main entrance highway, three-tenths of a mile being rebuilt due to a change in the alignment of the Washington-Hillsboro State Highway. This also necessitated the relocation of one mile of pole telephone line upon the forest. A new water supply was provided and piped to the caretaker's cabin. Construction of the Fletcher and Frog Pond truck trails required the placement of thirty reinforced concrete culverts. Brush and dead wood for a distance of one mile along the road was cleaned up to reduce fire hazard.

Flood Relief.

Following the spring flood of 1936, assistance was given surrounding communities through 1,104 man-days of labor. In Unity, 9 culverts were replaced and on 900 feet of highway clay was removed and rocks filled in to render the road passable. Removal of silt over one-half mile of highway was effected in Walpole. In East Walpole, a mile of badly gullied main road was restored and surfaced with gravel. Similar road repairs were conducted on one-half mile of highway in Westmoreland.

Connecticut Lakes Camp, P-58

Located near the foot of First Connecticut Lake, in Pittsburg, the principal project of this camp is the construction of nine miles of low service truck trail to Third Lake and the Canadian Border. Preliminary surveys of the right of way were made by the State Highway Department.

Construction work has included cutting of lumber and brush burning on $4\frac{1}{2}$ miles. Over this distance 78 concrete culverts, 16 feet in length and varying in diameter from 15 to 24 inches, have been installed. More than 31,500 yards of gravel sub-base have been hauled for considerable distances, and ditch sloping has totaled over 11,500 yards. Due to the rough character of the terrain, drilling and blasting of ledges was a daily occurrence and many long and deep fills were necessary.

At Moose Falls dam, 140 feet in length, originally built to impound water for spring drives, the old logs in the dam and bridge have been removed and burned. A new bridge will be constructed with stone abutments and log stringers, surfaced by heavy planks.

Repairs were made to the telephone line connecting the Deer Mountain Lookout Station. A telephone right of way was also cut out leading from the highway near First Lake to the so-called Depot Camp on Perry Stream, a distance of ten miles.

A crew of 25 men from this camp are stationed at the Brunswick, Vermont camp, near North Stratford, and are engaged in the Coos-Essex County timber survey, in co-operation with the U. S. Forest Service and the State of Vermont. Surveys and timber estimates have been made by this crew on 7,027 acres in Northumberland, Lancaster, Stratford, and Stark.

Moose Brook Camp, SP-1

Established primarily for the development of Moose Brook State Park, two miles west of Gorham Village, this camp has also carried on many projects on other public lands in the region.

Moose Brook Park.

The entrance road into this reservation has along its approach a massive granite wall constructed from ma-

terial collected on the park area. Planting of trees and other native shrubs, in addition to the natural growth, has added much to this gateway. A short distance from the entrance a log-crib dam was constructed on Moose Brook, producing a swimming pool 200 feet by 125 feet. Adjacent is a bathhouse, 70 feet by 35 feet, which includes two locker and dressing rooms, sanitary facilities, and a large community room with a stone fireplace. Nearby, and adjacent to the pool, picnic areas and playgrounds are arranged, with parking facilities for 75 automobiles, and a water system has been installed. At the junction of Moose and Ice Gulch Brooks, a short distance from the main swimming pool another crib-dam was constructed. The pond thus formed is about 200 feet square and was constructed as a warming pool. Owing to its shallowness, it has proved ideal for bathing by young children. Opposite the warming pool and across the town highway a camp ground with tenting floors and fireplaces has been laid out with accommodations for about 75 over-night parties.

Nearly three miles of park roads have been constructed, giving access to the entire area. From the so-called "Perkins Field," and at other points along these roads, impressive views are obtained of the northern peaks of the Presidential Range. From this field a truck trail extends to the northern extremity of the park and may be used as a bridle path and prove of value in case of fire.

Improvements of the park area include 5 miles of foot trail, $1\frac{1}{2}$ miles of bridle paths, the cutting of vistas, boundary surveys, and type-mapping. About 1,000 trees and shrubs have been removed and replanted on appropriate sites. Forest improvement, tree disease control, and fire hazard reduction have been conducted over practically the entire area.

Milan Hill.

Leading from a new entrance three-quarters of a mile of road has been completed to a parking area, 300 feet by 60 feet, with rock foundation and gravel surface. Seven-tenths of a mile of truck trail leads to a partially completed camp ground on the south side of this reservation. Walks and trails have been laid out joining picnic and camping areas and to other points of interest. A fence surrounding the entire property was rebuilt. A stone cabin was constructed and a well dug on land adjacent to the West Milan highway. Forest improvement and slash disposal have been carried on over the entire area of 128 acres and 30,000 trees set out.

Miscellaneous Work.

On the newly acquired Lead Mine Reservation, in Shelburne, boundaries have been surveyed and marked. Road surveys were made on the Forest Lake area in Dalton and boundary lines of the Dixville Notch property run out. In Berlin, Dummer, Gorham, Milan, and Shelburne blister rust control was conducted on areas aggregating 4,463 acres.

Bear Brook Camp, SP-2

The Bear Brook Camp is located in Allenstown and has for its principal work the park development of the Bear Brook State Reservation.

Initial work included leveling and grading of the camp site, construction of 1,200 feet of interior road leading to the camp, a parking area, and many walks. Buildings erected were a 12 stall garage, a combination automobile repair, tool room and blacksmith shop, an oil storage house, dynamite magazine, and a school house.

Approximately eight miles of foot trails along Bear Brook and Catamount Hill have been completed. At various points along these trails, vistas have been opened up and heavy log and plank seats conveniently placed. Along this system of trails eight foot bridges were constructed.

Throughout the area nearly 10,000 feet of truck trail and 3,000 feet of paved roads have been built, including necessary culverts, and guard rails. Three parking areas provide for the accommodation of 122 cars. Guard rails are being erected to control parking and to limit and indicate the boundaries of such areas.

Approximately 25 acres of public picnic ground development have been completed. A total of 30 fireplaces, 20 tables and benches, and 10 log and plank seats were built. All undesirable landscape features have been obliterated in the so-called "First Day Outing Area," by filling in old cellar holes, grading pits, ridges, and pot-holes, and spreading a top soil of loam for seeding. On five acres of this outing area, fireplaces and tables have been constructed. To serve as a screen between the playfields and picnic areas, 2,500 small trees and shrubs were transplanted.

About two acres of public camp ground development have been put in shape for use through the removal of brush and stones. Plans call for facilities which will permit trailer camping on this site.

Miscellaneous Projects.

Four miles of roadsides and 110 acres have been cleaned of slash. During the fall and winter about 500 acres were scouted for Gypsy Moth and 210,000 egg clusters creosoted. In the spring of 1936, planting was done on thirty acres of cutover lands. Thirty-two rods of split rail fence have been constructed to separate public lands from the "Old Allenstown Meeting House" property. Co-operating with the State Fish

and Game Department during the trout fishing season two enrollees patrolled Bear Brook to make a census of the catch taken. Preliminary construction of a granite arch bridge over Bear Brook on the Allenstown-Deerfield road has been started. Blister rust control was conducted on 2,593 acres.

Camp Pawtuckaway, SP-4

Originally a forest camp, it was reoccupied on November 1, 1935 by the Bellamy Camp from Dover.

Pawtuckaway Reservation.

Roads previously constructed have been widened and improved. About five miles of foot trails were laid out to points of interest. Over seven-tenths of a mile of new ski trail on the slopes of North and South Mountains were built and nine-tenths of existing ski trail on Middle and South Mountains were improved.

Bellamy Park, Dover.

A foot bridge with stone and concrete piers was built across Bellamy River just above the swimming pool. This span is 55 feet long. The bathhouse is almost completed and the beach has been completely graded and sanded. The ball park has been finished and the surrounding slopes made to blend with the landscape. The existing terraces and foundation walls, which were remnants of an old demolished mill structure, were utilized for the construction of a terrace wall 210 feet long, and for the construction of stone piers to be used in building a foot bridge at this point. Two hundred rods of boundary fence have been built. Parking accommodations for 200 cars have been provided at points near the beach, the bathhouse, and the ball field. Guard rails have been constructed around all of these areas.

Endicott Rock (The Weirs).

A wall with steps leading to the beach has been improved along 250 feet of the lake shore. A bathhouse 100 feet long, fully equipped, has been completed and the whole area graded and planted with shrubs and trees. A parking area with a turn-around, accommodating 90 cars, surrounded by guard rails has been constructed.

Belknap Mountain.

On the westerly side of this mountain $1\frac{1}{2}$ miles of auto road have been completed. A parking area to accommodate 50 cars has been built on a flat surface at the end of the road. Two miles of ski trails have been cut on the slopes of Belknap and Piper Mountains.

New Hampshire State University Lands.

The University of New Hampshire has supervision of 500 acres of State land in Durham which are being used for demonstrational and experimental purposes. Approximately 200 acres of this tract have been improved and fire hazard reduction work carried out.

Miscellaneous.

A total of 40 acres on the Woodman tract have been improved. Ten acres were planted with white and red pine seedlings. A total of 2,153 acres were covered in White Pine Blister Rust control in Epsom and Deerfield.

SUMMARY OF CONSTRUCTION WORK
STATE FOREST CCC CAMPS
CALENDAR YEARS 1935-1936

| Camp | Buildings Constructed or Repaired | Dams & Water Holes | Water Systems | Roads & Truck Trails | | Foot Trails | Ski Trails | Parking Camping Areas | Telephone and Power Lines |
|---------------------------------|---|--------------------------|------------------|----------------------------|------|----------------|---------------|-----------------------------|------------------------------------|
| | | | | Number | Feet | Miles | Miles | Number | Miles |
| S-51 Pillsbury | 2 | 18 | 0 | 4.7 | 0 | .4 | 0 | 2 | 3.5 |
| S-52 Pawtuckaway | 4 | 12 | 2 | 4.8 | 0 | 0 | 0 | 6 | 0 |
| S-53 Hemenway | 9 | 24 | 0 | 7.5 | 1.5 | 9 | .5 | 6 | 1.5 |
| S-54 Cardigan | 5 | 34 | 0 | 4.1 | 3.8 | 1.3 | 0 | 6 | 0 |
| S-55 Monadnock | 9 | 86 | 1,210 | 6 | 0 | 11.4 | 2.5 | 6 | 2.9 |
| S-56 Warner | 2 | 17 | 0 | 2.45 | 0 | 2.5 | .75 | 2 | 0 |
| S-57 Claremont | 0 | 12 | 0 | .3 | .7 | 0 | 0 | 0 | 1 |
| S-58 Connecticut Lakes | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Totals | 31 | 203 | 1,212 | 33.85 | 6.0 | 24.6 | 3.75 | 28 | 8.9 |

SUMMARY OF FOREST IMPROVEMENT WORK
STATE FOREST CCC CAMPS
CALENDAR YEARS 1935-1936

| Camp | Forest Improvement | Products | | Fire Hazard Reduction | | Reforestation | | Blister Rust | | Moth Control | | Boundary Surveys | | Type Mapping | Flood Work | Man-days |
|--------|--------------------|----------|-------|-----------------------|-------|---------------|----------|--------------|--------|--------------|-------|------------------|-------|--------------|------------|----------|
| | | Acres | Cords | Bd. Ft. | M. | Acres | M. Trees | Acres | Acres | Acres | Acres | Miles | Acres | | | |
| S-51 | Pillsbury | 266 | 600 | 0 | 30 | 0 | 84.5 | 51,300 | 4,405 | 1,678 | 0 | 0 | 0 | 0 | 0 | 0 |
| S-52 | Pawtuckaway | 156 | 700 | 0 | 75.8 | 0 | 179 | 188,840 | 7,683 | 690 | 9.7 | 0 | 0 | 0 | 0 | 0 |
| S-53 | Hemenway | 304 | 1,250 | 50 | 55 | 0 | 284 | 284,150 | 2,736 | 1,550 | 0 | 0 | 0 | 0 | 700 | 700 |
| S-54 | Cardigan | 143 | 1,265 | 0 | 2.5 | 4.5 | 110 | 84,436 | 4,771 | 6,271 | 15.1 | 771 | 869 | 869 | 869 | 869 |
| S-55 | Monadnock | 1,069 | 1,708 | 0 | 0 | 0 | 423 | 423,275 | 10,133 | 8,500 | 0 | 0 | 0 | 0 | 2,412 | 2,412 |
| S-56 | Warner | 408 | 1,000 | 0 | 20 | 0 | 54 | 53,625 | 2,895 | 0 | 0 | 1,940 | 1,836 | 1,836 | 1,836 | 1,836 |
| S-57 | Claremont | 134 | 342 | 0 | 49 | 0 | 40 | 35,000 | 4,715 | 15,079 | 0 | 0 | 0 | 0 | 1,104 | 1,104 |
| Totals | | 2,480 | 6,865 | 50 | 232.3 | 4.5 | 1,174.5 | 1,120,026 | 37,278 | 33,768 | 24.8 | 2,711 | 6,921 | 6,921 | 6,921 | 6,921 |

WHITE PINE BLISTER RUST CONTROL

By The Civilian Conservation Corps

Season of 1935:

During the spring and summer of this calendar year enrollees of eight camps of the Civilian Conservation Corps were engaged in the control of the White Pine Blister Rust. Of this number five State forest camps were included and one park camp. For a short period crews were made available from two National forest camps. Control measures conducted by State camps were on both public and private lands. Out of a total enrollment of 1,000 men the five State forest camps provided a daily average of 154 enrollees. These men were employed for a total of 83,965 man-hours on this project.

The Moose Brook Camp, located in Gorham, carried on eradication work for the protection of some splendid ornamental white pines growing along the main entrance to this State park and around the environs of the swimming pool. A re-working of white pine areas in the towns of Berlin and Milan was also undertaken. A daily average of 17 men were used whose time aggregated 3,660 man-hours.

Control measures conducted by the two National forest camps were confined wholly to the White Mountain National Forest. These camps provided a daily average of 47 enrollees with a total of 9,325 man-hours.

CCC BLISTER RUST SUMMARY

State Forest, State Park, and National Forest Camps

| Camp | Initial | | | Re-eradication | | |
|-------------------|-----------|--------------|-------------------------|----------------|--------------|-------------------------|
| | No. Towns | Acre- age | Ribes De- stroyed | No. Towns | Acre- age | Ribes De- stroyed |
| Cardigan | 1 | 3,850 | 143,715 | .. | .... | .... |
| Hemenway | 2 | 2,618 | 85,901 | 1 | 118 | 39 |
| Monadnock | 6 | 2,396 | 240,793 | 8 | 1,555 | 57,881 |
| Pawtuckaway | 3 | 4,799 | 182,538 | 4 | 2,884 | 69,316 |
| Pillsbury | 3 | 3,484 | 264,094 | 3 | 921 | 26,416 |
| Moose Brook | 1 | 42 | 26,985 | 2 | 400 | 40,411 |
| Wildwood | 3 | 274 | 17,091 | 1 | 68 | 10,154 |
| Gale River | 1 | 286 | 490,830 | 1 | 64 | 47,850 |
| | 20 | 17,707 | 1,451,947 | 20 | 6,010 | 252,066 |

Season of 1936:

Due to the closing of the Pillsbury Camp in Goshen, late in the fall of 1935, proposed control measures in nearby towns had to be given up in 1936. An enlarged program on State recreational areas by the Hemenway (Tamworth) Camp, also eliminated blister rust control by this camp for the season. However, the establishment of a moth camp in Unity, six miles from Claremont, permitted control work being conducted in another group of towns. Furthermore, a new forest camp in Warner provided labor and thus these two camps offset the loss of men from the Pillsbury and Hemenway Companies.

From the four State forest camps there was a daily average of 96 enrollees detailed to blister rust control, and during the period of May to early September 48,536 man-hours were devoted to this project.

In October, 1935, a new park camp was established on the Bear Brook State Forest in Allenstown, while during the following month, the Pawtuckaway Camp was transferred from jurisdiction of the Forest Service to that of the National Park Service. Projects in blister rust control were approved by the National Park Service at both camps, as well as at Moose Brook in Gorham. A daily average of 58 enlisted men were employed from these three companies whose time on this project aggregated 33,953 man-hours.

The U. S. Forest Service, with State headquarters at Laconia, made available a 12-man unit from the Warren Camp, the crew foreman and necessary transportation being furnished by the State Forestry and Recreation Department. Control measures were conducted in the town of Wentworth. An average of 12 men were employed daily and their labor totaled 18,552 man-hours.

For the entire season of 1936, control measures by all camps of the Civilian Conservation Corps were as follows:

CCC BLISTER RUST SUMMARY

State Forest, State Park, and National Forest Camps

| Camp | Initial | | | Re-eradication | | |
|-------------------|--------------|--------------|-------------------------|----------------|--------------|-------------------------|
| | No. Towns | Acre- age | Ribes De- stroyed | No. Towns | Acre- age | Ribes De- stroyed |
| Cardigan | 1 | 921 | 63,535 | .. | ..... | ..... |
| Claremont | 1 | 2,463 | 44,552 | 1 | 2,252 | 68,865 |
| Monadnock | 2 | 1,026 | 143,534 | 4 | 5,156 | 240,005 |
| Warner | 1 | 844 | 81,031 | 1 | 1,991 | 177,178 |
| Bear Brook ..... | .. | ..... | ..... | 3 | 2,593 | 56,932 |
| Moose Brook | 1 | 1,962 | 88,828 | 3 | 2,059 | 119,793 |
| Pawtuckaway | 2 | 1,412 | 38,480 | 1 | 721 | 6,121 |
| Warren | 1 | 1,387 | 76,038 | .. | ..... | ..... |
| Totals | 9 | 10,015 | 535,998 | 13 | 14,772 | 668,914 |

Pine and Control Area Mapping:

On page 144, of the 1933-1934 Biennial Report, a brief statement appeared in reference to a special mapping program that had been inaugurated at certain CCC Camps. This project had for its objective the production of type maps indicating the distribution of white pine by certain classifications, the location of all drainage, woods roads, trails, stonewalls, and fences. Such maps have been found to be of great value in the control program. Apart from this, enlisted men so trained would be schooled in and learn a trade that should prove of value to them on their return to civilian life.

In selecting the personnel for these mapping units it was not always possible to determine in advance whether an enrollee would prove adaptable and proficient. As men were tried out and found to be misfits, new material was requisitioned and thus training was continued until satisfactory mappers were produced. Often men were secured who gave initial promise of

developing into excellent mappers, but who were eventually lost to the project owing to transfers to other work, or since they had requested a discharge on account of having secured employment in civilian life.

The majority of these young men assigned to this project possessed no previous knowledge or experience in any type of surveying land of forest areas. Neither were they familiar with woods conditions and few, if any, knew one species of tree from another. Instruction in pacing distances, the use of a compass and protractor, tree identification, and estimating of forest types were some of the principal courses given in the field and at camp by the technical foreman in charge of blister rust control. Quality rather than quantity was continually stressed and continuous checking has indicated that quality maps have resulted.

During the calendar year of 1935, pine and control area mapping was conducted at but one camp and only in the late winter and early spring months. A transfer of this camp from Forest Service supervision to the National Park Service in the fall brought about a situation which prohibited the continuance of the project for the time being.

The following tabulation indicates accomplishments made in this program for the periods prior to the present report and those for the years of 1935 and 1936.

PINE AND CONTROL AREA MAPPING

October 1933—December 1936

| <i>Period</i> | <i>No. Towns</i> | <i>Man Days</i> | <i>Acreage Mapped</i> |
|----------------------------------|----------------------|---------------------|---------------------------|
| October 1933-December 1934 | 6 | 604 | 8,117 |
| January 1935-May 1935 | 7 | 311 | 6,534 |
| January 1936-December 1936 | 7 | 1,366 | 13,566 |
| | | 2,281 | 28,207 |

WHITE PINE BLISTER RUST CONTROL

In Co-operation with Towns

Town Co-operative Control—1935:

At their first annual meeting in March, 41 towns appropriated \$10,700 for the purpose of continuing eradication of wild and cultivated ribes (currant and gooseberry bushes), the plants which are the carriers of the White Pine Blister Rust disease. Of the above towns, 28 continued initial control measures and 13 re-checking of white pine areas first worked ten or more years ago. Town funds were increased 25 per cent from the regular State appropriation for blister rust control. In addition the State furnished necessary tools and other field equipment. Supervision of all blister rust control is handled by district leaders paid by the Federal Bureau of Entomology and Plant Quarantine.

The men employed on the town co-operative program were secured through application to local town officers. Wages paid the town crews conformed to the established local rate voted at town meeting. A total of 366 men received employment on these co-operative projects and worked an aggregate of 32,323 hours.

Federal Relief Funds—1935:

During the early spring of 1935, an allotment of funds from the Public Works Administration was made through the Bureau of Entomology to the Forestry and Recreation Department. Control work was conducted in 16 towns where the relief load was heavy and eradication of wild ribes essential. Labor was obtained through requisitions made to the National Re-employment Service, and only men having been on relief rolls prior to November were eligible. The funds available permitted employment of 165 men for the period of May 10th to June 29th, or a total of 13,299 hours.

It was understood that with the advent of the new fiscal year, commencing July 1st, additional Federal relief funds would be forthcoming, but it was not until late in July that authorization was received which permitted a resumption of the emergency relief program. Had not plans already been perfected, and an organization available, it would have been almost impossible to have given employment to any considerable number of relief cases before the control season had terminated. However, even though somewhat retarded by employment restrictions, at the end of two weeks over 600 men were at work in 57 towns and cities. Control measures were terminated October 10th, and for the entire period employment totaled 136,022 man-hours. Where necessary, transportation for these workers was furnished from Federal funds.

In the following table will be found a summary of accomplishments in initial and re-eradication control for Town, Public Works Administration, and Works Progress Administration programs.

SUMMARY—TOWN, STATE, AND FEDERAL

| <i>Project</i> | <i>No. Towns</i> | <i>Initial</i> | | <i>No. Towns</i> | <i>Re-eradication</i> | |
|----------------|----------------------|----------------------------|----------------------------|----------------------|----------------------------|----------------------------|
| | | <i>Acreage Covered</i> | <i>Ribes Destroyed</i> | | <i>Acreage Covered</i> | <i>Ribes Destroyed</i> |
| Town | 28 | 19,231 | 589,428 | 16 | 15,001 | 255,659 |
| PWA | 13 | 9,697 | 291,138 | 4 | 2,265 | 82,595 |
| WPA | 38 | 44,308 | 1,187,133 | 27 | 34,137 | 848,325 |
| Totals | | 73,236 | 2,017,699 | | 51,403 | 1,186,579 |

Pine and Control Area Mapping—1935:

During the spring of 1935, an allotment of \$1,000 was made from Section 7, Chapter 150, for the purpose of continuing mapping of prospective control areas. This project was conducted in 14 towns by 12 men during the months of April, May, and June. A total of 18,338 acres was mapped at an average cost of 6.7 cents per acre.

Following the conclusion of the ribes eradication season, a portion of the Works Progress Administration allotment was authorized for pine and control area mapping, and also to provide winter employment for a limited number of relief workers. This program was carried on in 31 towns by 55 men during October, November, and December. The areas mapped aggregated 53,059 acres, the average per acre cost being 15.9 cents. This marked difference in mapping costs between the State and Federal programs was due in part to less experienced men and also to weather conditions.

Town Co-operative Control—1936:

Reports from town officials indicated that 33 towns appropriated a total of \$7,800 for blister rust control. Of this number, 17 were for the continuation of initial work and 16 for re-working of old areas. As has been the customary practice, all town co-operative crews, with the exception of the foreman, were made up of men recommended by town authorities, and were paid approved town rates. A total of 291 men were employed and their labor aggregated 24,445 hours.

Federal Relief Funds—1936:

The allotment of WPA funds made in August, 1935, carried over into 1936, and permitted the conduct of control measures from May 1st to September 15th. Application for the necessary labor had to be made through the Director of Labor, State Works Progress Administration. Approval was given from the Manchester WPA office and instructions forwarded to the several re-employment offices concerned to furnish the required number of men at certain designated points and time. The necessity of obtaining labor through several agencies naturally retarded the control program to some extent. However, by the end of a two-week period approximately 721 men had been put to work in 90 towns. For the entire eradication season a total

of 1,231 men were given employment for varying periods. Since funds provided for the employment of 880 men, the turn-over amounted to about 351 persons or 39.7 per cent. These continual changes in crew personnel added considerably to supervisory duties, retarded control measures, and increased the cost. On the other hand, however, irrespective of inexperience and slowness, checking of the work of these WPA crews indicated a good quality of eradication.

Transportation of WPA workers was, for the most part, paid by the Federal Government; men on the job owning cars being reimbursed either on a four cent a mile or owner-operator basis. Where such cars were not available, certain towns and counties generously furnished the necessary transportation.

While it has been, and still is, the purpose of the State and Federal Government to encourage the completion of *initial* control measures, the reasons for a greater volume of re-eradication work being conducted was due to the fact that emergency relief projects had to be carried on in regions where the need of employment was the most acute. It so happened that in these regions a majority of the towns and cities had completed initial control. The following table gives the results of all control measures for 1936.

SUMMARY—TOWN, STATE, AND FEDERAL

| Project | Initial | | | Re-eradication | | |
|-------------|-----------|-----------------|-----------------|----------------|-----------------|-----------------|
| | No. Towns | Acreage Covered | Ribes Destroyed | No. Towns | Acreage Covered | Ribes Destroyed |
| Town | 13 | 7,483 | 165,677 | 21 | 15,521 | 183,543 |
| WPA | 61 | 123,442 | 5,564,894 | 64 | 135,654 | 2,945,481 |
| Totals | | 130,925 | 5,730,571 | | 151,175 | 3,129,024 |

Pine and Control Area Mapping—1936:

This project, actually starting in October, 1935, was continued during the following calendar year up to the beginning of the eradication season, May 1st. For the first four months of 1936, and the last three, a total of 79 men were employed in 80 towns. The aggregate of all areas mapped was 302,873 acres. In addition, 48,486 acres were eliminated from mapping since such areas did not contain sufficient white pine to warrant future eradication work. The average cost of this survey was 9.2 cents per acre.

Similar mapping by members of the Civilian Conservation Corps was also conducted during 1936 from two camps, the results of which will be found in the chapter covering CCC blister rust control.

REGISTERED ARBORISTS



THE law requiring the registration of arborists has been in effect since 1929. It is administered by a board consisting of the State Forester, the Commissioner of Agriculture, and the Entomologist of the State Agricultural Experiment Station. Satisfactory ratings based on written examinations in pruning of orchard trees, pruning of shade and ornamental trees, spraying of orchard trees, spraying of shade and ornamental trees, and in treatment of cavities are required for full registration. Those engaged in some but not all of this work may be examined and registered in specific subjects and the certificates issued are indicated accordingly. All certificates are for a calendar year and the renewal fee is \$2.00. Since the law is intended to protect property owners from unprofessional practice by persons unknown to them, registration is not required of a person within the town of his legal residence. There are consequently many tree men who operate locally, whether competent or otherwise, without being registered. Professional arborists are desirous of having the law amended to subject all such persons to examination in order to bring about uniform standards of practice.

During the past few years the New Hampshire Arborist's Association, made up of registered arborists within and from outside the State, has become quite well perfected. The Association holds at least two meetings annually and is active in improving the standards of its members and preventing illegal and unprofessional work. Officers elected for the year 1937 are as follows: Myles S. Watson, Newington, President; Ernest J. Chase, Keene, Vice-President; E. S. Colprit, Dover, Secretary.

The following 37 individuals and firms were registered under the State law during 1936:

Karl F. Amalia, F. A. Bartlett Expert Company, 4 School St., Manchester, Mass.

Baltzer & Salter, 179 No. Maple St., Florence, Mass.

F. A. Bartlett Tree Expert Company, 38 Newbury St., Boston, Mass.

E. L. Butler, Sutton, N. H.

Albert F. Caron, Milford, N. H.

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

Charles H. Colby, Milford, N. H.

E. S. Colprit, Durham Road, Dover, N. H.

Charles Dame, 51 Linden St., Rochester, N. H.

Davey Tree Expert Company, Kent, Ohio.

G. E. Ellinwood, 68 Rumford Avenue, Mansfield, Mass.

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

George L. Harkins, 19 Lyndon St., Concord, N. H.

C. E. Hewitt, Jr., Walpole, N. H.

Hill Brothers Nursery, R. F. D. 1, Hudson, N. H.

Donald R. Hill, North Chelmsford, Mass.

Jacoby Brothers, 141 Laurel St., Manchester, N. H.

George M. Keith, Dover, N. H.

Benn F. Marsh, 108 No. State St., Concord, N. H.

Lindsay L. McKee, 70 Thompson Park, Franklin, N. H.

Munson-Whitaker Company, 9 Fellsway East, Malden, Mass.

New England Forestry Association, E. E. Brissenden, Babson Park, Mass.

New England Forestry Service, Inc., 141 Milk St., Boston, Mass.

New England Tree Expert Company, Pawtucket, Rhode Island.

Northeastern Landscape and Garden Service Company, Peterborough, N. H.

Pollock and Halvorson, Box 183, Pittsfield, Mass.
M. L. Raymond, Wolfeboro, N. H.
Clifton E. Richardson, Peterborough, N. H.
James W. Ricker, 18½ Ely St., Littleton, N. H.
Herman T. Shepard, West Epping, N. H.
The State Tree Expert Company, 84 Leonard St.,
No. Attleboro, Mass.
John Tierney, 13 South St., Manchester, N. H.
R. M. Titus, Moultonboro, N. H.
W. F. Tuttle, Wolfeboro, N. H.
Myles Standish Watson, Newington, N. H.
Russell H. Welsh, 23 Linden St., Exeter, N. H.
Woodhead & Stickel, 85 Myrtle St., Waltham, Mass.
Glynn K. Young, 41 So. Main St., Concord, N. H.

FOREST INDUSTRIES AND MARKETS



MARKETING forest products in New Hampshire becomes each year more difficult, as the more accessible and larger blocks of timber are cut, and portable mills must be content with ever smaller set-ups, farther from lumber markets. In the North the pulp and paper industry has been experiencing difficult times. Wood prices have been low and pulp stumpage is still depressed. During 1936 an increase in lumber prices was reflected in great activity in milling and to some extent in higher prices for logs or stumpage, or willingness to accept lower quality. Coincident with the gradual exhaustion of high grade timber has been an increase in the total forest area.

The survey of wood-using industries by C. P. Cronk was published during 1936 by this Department. It shows that fewer large permanent mills are operating than formerly. The frequent change of set-up required of portables may, however, influence some of them to settle down as permanent mills, especially since motor trucks not infrequently bring logs 30 miles or more to them. Another trend which can be noted is the separation of the operating units from the business of holding forest land in permanent ownership. The tendency is more and more for lumber operators to own neither land nor mills, but to hire a portable to cut lots of stumpage which they purchase. A survey of all towns in the State conducted by the Society for Protection of N. H. Forests showed a surprisingly small amount of timber land held by lumbering interests. Pulp mills on the other hand still own considerable areas. Besides low prices and irregular demand for high grade timber a woodland owner is handicapped in the practice of forestry by the reduced outlet for low grade wood and

timber. The use of fuelwood has been on the decline because of the extending use of gas, oil, coal and electricity for heating, even in country districts.

Factories, brickyards and acid plants have curtailed wood consumption. White pine of boxboard quality has been practically unsalable until the past year when some improvement can be noted. In the northern part of the State poplar, the most rapidly growing tree, is less in demand for pulpwood than formerly. Concurrently with difficulties attending the marketing of low grade wood products, the forest area of the State has steadily increased by the reversion of old pastures and hayfields to forest, and the increment of wood of cordwood quality has probably never been as great since the time of settlement.

Markets for forest products may be summarized as follows:

1. *Pulpwood.* Spruce and fir and to a limited extent young sound hardwood, rough and peeled (and peeled poplar occasionally) can be sold at a profit only in a small part of the State, the southern part of Coos County, near enough pulp mills for cheap transport.

2. *White Birch Bolts.* Opportunities for marketing spoolwood are also limited to small areas near operating mills, or near railroads with short hauls to Maine mills.

3. *Sawlogs.* Saw timber of good quality can be marketed in almost any part of the State except in the extreme north and mountainous sections. In the working circle of pulp mills the tendency is to put all adaptable species into pulpwood which elsewhere would make sawlogs. White pine logs can often not be sold in those sections. Excepting areas near permanent mills opportunity for sale of logs is liable to be intermittent, depending on the chance location of a migratory mill and the condition of the outside lumber market.

4. *Cordwood.* Fuelwood continues to be sold by small operators and farmers at a price much too low to return a fair stumpage to the timber grower, after deducting operating costs. Many are content to get the equivalent of wages only for the wood, thus practically giving away the product they have paid taxes on while it was growing.

5. *Minor Products.* Poles and piling of red pine, spruce and oak continue to command a relatively high price and stumpage prices for timber suitable for these assortments have averaged about double the going price for sawlogs of the same species. Fence posts also often bring as high a price as the entire tree for cordwood or lumber. Christmas tree stumpage has increased with the scarcity of properly shaped trees and due to the effect of co-operative marketing in Coos County. Poplar for excelsior and sawdust for wood flour can be sold in a limited area near plants manufacturing these products. Fir tips, greens, ferns, forest herbs, cones, seeds, bark, etc. are handled in small quantities by some collectors.

Values of Standing Trees for Lumber

The current market prices paid for stumpage have been converted to the value of one tree in Table I. This shows what one tree of various sizes is worth today as it stands growing in the forest in reasonably accessible locations. The average number of years required for the tree to attain this size has been taken from standard yield tables, allowing for the most favorable soil conditions, such as obtained on not over 10% of the forest area (Table II).

TABLE I
VALUES OF STANDING TREES AT CURRENT STUMPAGE
PRICES
Best Sites
Value of one tree (dollars)

| D.B.H. | Red Spruce @ \$3 cd. | White Pine @ \$4 per M bd. ft. | Paper Birch @ \$4 cd. | Poplar @ \$1 cd. | Mixed hardwood @ .50 cd. |
|--------|-------------------------|--------------------------------------|-----------------------------|---------------------|--------------------------------|
| 5 | .10 | .04 | .10 | .02 | .012 |
| 6 | .12 | .08 | .20 | .04 | .025 |
| 7 | .15 | .13 | .27 | .05 | .05 |
| 8 | .30 | .20 | .40 | .10 | .06 |
| 9 | .45 | .27 | .57 | .15 | .07 |
| 10 | .60 | .40 | .80 | .20 | .08 |
| 15 | 1.00 | 1.33 | 1.00 | .40 | .20 |
| 20 | 1.50 | 2.66 | 2.00 | ... | .33 |

TABLE II
Years required to grow these trees on best sites in fully
stocked stands

| D.B.H. | Red Spruce | White Pine | Paper Birch | Poplar | Cordwood |
|--------|------------|------------|-------------|--------|----------|
| 5 | 35 | 25 | 30 | 18 | 35 |
| 6 | 45 | 30 | 35 | 24 | 45 |
| 7 | 55 | 35 | 40 | 27 | 50 |
| 8 | 65 | 40 | 50 | 30 | 60 |
| 9 | 70 | 45 | 60 | 35 | 65 |
| 10 | 80 | 50 | 75 | 40 | 75 |
| 15 | 100 | 70 | 80 | 60 | 90 |
| 20 | 150 | 100 | 100 | 80 | 100 |

Improving markets for forest owners

The scattered nature of timber holdings and irregularity of utilization make it extremely difficult for the stumpage owner to find the best market, and for operators and industries to locate their raw material. A satisfactory solution will entail either the formation of co-operative associations of stumpage sellers in each area tributary to the same industry or market as has already been done in part of Coos County near the largest pulpwood consumers, or incentives must be offered for

permanent wood-using industries to locate in areas where surveys shall have shown a permanent supply of timber available. Such incentives might well include long-time contracts from stumpage owners to supply such timber as could be cut under sustained yield from their holdings. Large private or public holdings should act as "back log," in each case for the mill, and all possible lesser holdings added. The purchaser would be guaranteed a continuous supply and stumpage owners would be assured of a steady market. The survey would no doubt have to be provided by a public agency. Such a study is now in progress in Coos County. Much educational work would also be required. Meanwhile an exchange bulletin, listing all purchasers of logs, wood, and stumpage, giving prices paid if possible, and a list of individuals and concerns offering products for sale would fill an immediate need. This should be kept up-to-date monthly or quarterly, including the locations of all portable mills.

WOODLOT MANAGEMENT



ARM woodlots continue to represent an important part of the forests of the State. The 1934 Census gives 676,286 acres in woodland pasture and 597,540 acres in unpastured woodland, a total of 1,273,826 or 28% of the total forest area. There are also numerous small forests with probably a much larger aggregate area belonging to property not listed as farms by the Census. It is safe to say that small holdings are the backbone of forest resources of the State.

Woodlots are still a necessity to farms in New Hampshire where wood is the predominant fuel in country places. They furnish also structural timber for use on the farm, and an important source of additional cash income from sale of wood and timber and work for men and horses during the winter. Woodlots are also of obvious importance where maple sugar is made and as windbreaks for farm buildings, to furnish shade on edges of pastures, and as protection for water supply. Game management is practiced on farm woodlots in other parts of the country and should be added to the list of woodlot uses. A well-tended forest adds much to the setting for overnight camps, picnic grounds and roadside stands, now frequently operated by farms.

ESSENTIALS OF GOOD WOODLOT CARE

The measures required to keep woodland in good growing condition, and to produce quality timber consist of more than watching the trees grow. The condition of woodlots varies so greatly that no detailed instructions can be given applicable everywhere. Each acre often needs different treatment. The following principles are believed to be generally applicable in New Hampshire.

1. *Protection from fire.* This should be self evident. A forest is a productive unit like a garden or a factory. No one would think of trying to raise vegetables without protecting them from destruction, or manufacture cloth in a building unprotected from fire. Forestry is emphatically *not* 95% fire protection as is often stated. Forestry cannot be practiced until fire protection is reasonably adequate. It begins where fire protection leaves off.

2. *Protection from disease and insects.* White Pine Blister Rust must be eliminated if investment is contemplated in improving existing white pine or establishing new stands. The White Pine Weevil is almost equally destructive of values in some cases. Silvicultural control of this and Gypsy Moth is sometimes advisable.

3. *Elimination of grazing.* Pastured woodlots grow up understocked—with too few trees per acre to grow straight. The trees are usually very branchy, white pines suffer from weevil, and spruces from root rots. All kinds of tree diseases tend to be more serious following pasturage, possibly because of direct damage to roots and trunks caused by cattle. Occasionally pure stands of pine and spruce have resulted from grazing whereas otherwise hardwoods would have predominated. The quality is nearly always lower in such pasture stands, however, and as a general rule grazing is inadvisable.

4. *Keep cut-over land productive.* Fully stocked stands of species of trees which are suited to the soil and climate which can be expected to grow the type of products desired by the owner can only be insured by a conscious effort to conserve advance growth in logging, free it from overtopping weed trees like gray birch and soft maple, and in rare cases, plant spots which are not coming up naturally to thick stands of seedlings. In the first ten to twenty years numerous "trainers"

are desirable to crowd the trees from the side and make them grow straight, but they should not be allowed to overtop trees selected for the final crop.

5. *Elimination of "wolf tree" types.* Older or larger spreading, branchy, or defective trees of all species should be cut or girdled where they stand in or over timber of younger age or smaller size. The sooner such unpromising trees are removed the better.

6. *Selection and care of crop trees.* As soon as the timber crop has reached a height of 10 to 20 feet or a diameter of 2 to 4 inches, depending on the species and site, it is well to see that a sufficient number of "crop trees" well spaced over the area are free from interference from their neighbors and have sufficient growing space. This may be done by thinning lightly around each tree, selecting about 300 per acre, if possible, which represents a spacing of about 12 feet by 12 feet. The trees selected should be medium sized, straight for the first log length, free from injuries or decay, and with well-formed crowns. It is best not to select the largest trees, since these may develop into wolf trees. Pruning of the crop trees only can now be attempted if they are pines, otherwise they are best left unpruned and the shade of trainers relied upon to kill off the side branches. Pines should never be pruned of green branches more than one-half their height at once, nor in general over 17 feet high, which will insure one clear 16 foot log. Pruning should be completed before the trees reach six inches in diameter. Subsequent care consists in frequent light thinning to provide each tree more growing space as needed.

Planning Woodlot Operations

After deciding what kind of treatment the different stands in a woodlot are going to require, the first step is to outline briefly in a simple written program what

work should receive preference, and how it is to be distributed so that each stand will receive the right kind of cutting at the proper time—just as garden crops need weeding at one time of the year, thinning at another and harvesting at another. One would not think of reversing the order of the operations in gardening, neither should it be done in the forest. Yet one frequently sees immature crop trees harvested and weed trees left; whole stands harvested before they are mature, and productive forest turned into weeds. The well-known practices of gardening and agriculture should be applied more to the forest.

Annual or periodic sustained yield? One of the first decisions to be made is whether some wood or timber shall be cut every year, or a larger amount taken at intervals of, say ten years. Some firewood is usually wanted every year on a farm, but several years supply can be cut at once if desired. Most farm woodlots should aim at a small annual cut, if for no other reason than that the owner usually will want to do some work every year himself, rather than hire extra help for a larger operation at less frequent intervals.

Forest management reduced to simple terms

Assuming some work will be done in the woods every year, the next step will be to divide up the woodlot into a number of approximately equal parts, so that one part may be thinned or weeded each year, and to insure getting over the entire area at frequent enough intervals to insure proper care of the growing stands. Let us suppose a 100-acre woodlot be divided into ten parts. Then ten acres would be cut through each year. This 10 acres in any one year might consist of 2 acres clear-cutting of old saw timber, 1 acre thinning and 7 acres weeding cutover land. The important thing is to plan so that no part will be neglected, and that there will be some wood left to cut each year, resulting in a steady income.

The woodlot owner can ascertain roughly the number of acres he has in different aged timber, and adjust his cuttings so as to work gradually to a condition consisting of equal areas for each age group up to the oldest it is planned to retain. The age to which timber should be allowed to grow before being harvested will depend on the purposes of the woodlot and the kind of trees. Generally timber should not be kept much over 60 years. On a 100-acre lot, this would mean 100 60ths equals $1\frac{2}{3}$ acres mature timber to be cut each year or $16\frac{2}{3}$ acres every 10 years.

If the woodlot is very small, or easy to drive around in, some scattered mature trees can be cut here and there over the whole area every year. In this case one can tell whether too much or too little is being cut by counting or measuring all the trees over say ten inches in diameter every few years. In well-managed forests, the number of such trees should not decrease, but rather increase.

GAME MANAGEMENT ON PILLSBURY RESERVATION



WILDLIFE is becoming more generally recognized as an integral part of the forest, and foresters are called upon to consider the effects of forestry operations upon the game and wildlife populations. Game management is the application of the principle of sustained production of birds and animals. Forest lands are the natural habitats of many species of wildlife, and silvicultural practices executed in the interests of forest stand improvement greatly affect the welfare of the animal inhabitants. Whether or not these cover changes affect the wildlife beneficially or adversely depends on circumstances. As yet there is little available information on cover manipulation and the importance of various stand conditions. An experiment along this line was started in 1933 on the Pillsbury State Forest in Goshen and Washington under a co-operative agreement with the Forestry and Recreation Department, Fish and Game Commission, and the U. S. Bureau of Biological Survey. The status of the experiment will be summarized briefly in the following paragraphs.

The Pillsbury Game Management Study

The Pillsbury Reservation of 3,034 acres containing 8 lakes and ponds and a variety of forest types was the gift of Mr. Albert E. Pillsbury in 1920. It was later made a game sanctuary for which it is well adapted. A ranger resides on the forest the year round. In January, 1934, Mr. J. Paul Miller, a biologist from the Biological Survey began work, fitting up living quarters, office and laboratory in an old house on the property, which was renovated by the CCC. Existing dams at the outlets of North and Mill Ponds were repaired and

a new dam to replace the old Butterfield Dam along the highway was constructed by the CCC. A small dam was also built on a brook in the south end of the reservation. A lookout tower was built on a centrally located hill, where it commands a view of all but one of the ponds. A small nursery was developed for raising shrubs and cuttings suitable for game food. Near it a root cellar for storing seeds, cuttings, etc. was made. Several animal pens were also constructed. A raccoon, an albino porcupine, and several pairs of ruffed grouse were kept there and observations made of their food preferences. The main projects undertaken were first, a weekly game inventory, and second, attempts to develop the best possible grouse cover under existing conditions.

The Game Inventory

Systematic work on a continuous game survey was begun in 1934 and continued until the end of 1935 when it was interrupted temporarily. A team of five CCC enrollees was given training and used to do the actual cruising. On four days each week they traversed the area on compass lines and reported on special forms all signs of game observed. In a limited area they followed a system of compass lines 500 feet apart, marked by blue painted spots. Lines were numbered consecutively north and south and designated by letters east and west, thus making a grid of 500 foot squares. Upon noting signs of any kind of game the observer could locate the point on a map. Notes were made of time of day, forest type, etc. Each man in rotation was detailed to plot the previous day's "catch" in the office. Thus maps of the distribution of grouse especially, gradually began to show concentrations at certain points at various times of the year. By laying transparent forest type maps and maps of forestry operations over these census maps, cover preferences of various species became readily apparent.

Development of Grouse Cover

Approximately 600 acres formerly a pasture, but over one-half stocked with spruce, pine and hardwoods was selected for the experiment. Old apple trees were pruned, and the promising ones grafted to improve bearing. Dense forest on the lower slopes was opened by cutting corridors and lanes along the borders of which food producing plants were saved and released. Many of the larger trees were pruned to give space and light. Desirable softwood reproduction and merchantable timber was allowed to remain. At the same time escape cover was provided by brush piles and dense clumps of tree reproduction.

Relation of Forest Improvement Cutting to Game

The areas covered by CCC crews in girdling hardwoods, thinning and weeding all types and ages of stands, planting conifers, and clearing up slash for fire protection have been amply large on the Pillsbury Reservation to furnish material for study. From observations made to date most of these operations may be deemed temporarily beneficial to game in so far as they open up the forest canopy, encourage shrubs, and diversify the forest age class and type.

The work was temporarily interrupted in 1936 following Mr. Miller's assignment to other work. Mr. John Pearce, another member of the Biological Survey has been assigned to the project.

Use of CCC labor on this project has enabled the development of the area far beyond what would otherwise have been possible. Although there is considerable work which might yet be done, Mr. Miller feels that the work has now progressed to a point where, although only a limited amount of such help may be available in the future, the project deserves very close observation in which to follow through to determine the results

of such operations as have been investigated up to the present time. The area should be most productive in ultimately deciding many important factors affecting the correlation of forest and wildlife management and both the Survey and the Forest Service are much interested in furthering the work now under way.

FOREST RESEARCH



FOREST investigations described in the last biennial report have been continued and some new projects added. The increase of administrative work and supervision of relief projects has seriously curtailed the time which could be devoted to new research.

The research work of the Department, built up around the Fox Research Forest in Hillsboro, finds itself confronted with the problem of carrying a continually growing load of detailed work with what is now an inadequate staff. This consists only of one assistant forester and the services of a stenographer forenoons but five days a week. Temporary, unskilled labor is employed in maintenance and repair work around the buildings. The research is practically all of such a character that far more than the initial manipulation and field measurements are involved. Every cutting and planting operation calls for subsequent cultural care in varying degree, as well as the recurring measurements and analysis of the data. The present staff can barely keep the present projects alive and take the data at the proper time, not to mention being able to carry them through to final fruition. If this is to be done, at least one trained assistant forester and one or more high-grade forest laborers will be required.

Permanent sample plots, of which 91 are now maintained by the Department have all been remeasured when due, at five-year periods. Sample plot experiments run over a long period of years, the results becoming more noticeable with each remeasurement. The following statements are based on preliminary results only, pending full analysis of the data.

Progress reports on sample plot investigations

(a) Girdling hardwoods to increase growth of conifers. A series of 16 one-acre plots were remeasured in the fall of 1934, ten years after establishment. They were laid out and the hardwoods girdled following removal of all the merchantable softwoods. The effect of killing the large hardwoods has been to stimulate enormously the growth of young hardwoods and shrubs, which now offer intense competition to the young conifers. The plots were laid out in groups of three, one girdled by notching, one by peeling, and the third untreated. The competition of hardwood bushes on the girdled plots is probably responsible for the similarity of growth on girdled and control plots.

Individual trees released by girdling grew at a much accelerated rate compared with those not so released. Balsam fir grew almost twice as fast as spruce in all cases. Heavy cutting always results in stimulating the growth of fir. Several other areas in both northern and southern New Hampshire are under observation, but insufficient time has elapsed to justify conclusions.

(b) Effect of weeding on growth of young spruce and fir.

Several plots were established under a variety of conditions from 1924 to 1926 to test the effectiveness of weeding out small sprouts and hardwoods as a means of releasing young spruce and fir. Hardwoods and bushes were lopped with a machete or light axe. Similar plots were tagged for control. All plots were in areas which had been clear cut for both hard and softwood from five to eight years previously. Costs of the operations (small experimental areas) varied from \$0.65 to \$3.50 per acre, with an average of \$1.92 per acre, based on a wage rate of 35c per hour.

In many of these experiments the weeding has resulted in bringing a larger proportion of conifers into a

dominant position as compared to control areas. In some cases this approximates a change to a pure conifer type. As in the case of girdling, weeding has stimulated balsam fir to a greater extent than spruce.

(c) Thinning

Several plots which were first thinned ten years ago have been remeasured in 1935 and 1936. Young stands twenty to forty years old when treated, had suffered practically no losses, and were again in need of thinning; older stands frequently had sustained losses from wind-fall, sometimes equal to the increment. The surviving trees invariably had grown faster on the thinned plots. Figures alone often fail to give a proper picture of the results of these experiments. Thus a thinned plot, with the growth concentrated on a few healthy fine quality trees may show a total increment during the period inferior to a crowded control plot where a large volume of wood is present, but the better trees are being choked out by weeds and the growth is scattered over a large number of less valuable trees.

(d) Effect of planting in ploughed furrows

Plantations on land with a heavy sod cover suffer severely from the competition of grass, weeds and moss until the trees are large enough to form a closed canopy. In order to break up the sod and remove it from close competition during the first year, ploughing single furrows about six feet apart was tried. Trees were planted in the furrows and in the sod midway between the furrows using a straight planting spade known as the Speedy Seedling Setter. All planting was done by the same crew and on the same day, using the same lot of stock. Owing to the extremely hot and dry spring and summer of 1934 the results may be taken as an example of the effect of extreme conditions. Growth the first year was slightly more rapid in the furrows. There was little difference in survival the

first year. Red spruce showed the greatest difference, and with this species both growth and survival were distinctly better in furrows.

In the fall of 1936 the last year's growth of the same trees were again measured, and a much greater difference was found in favor of the trees in ploughed furrows. An average of one inch greater height growth was found for trees in ploughed furrows in 1936, in the third growing season. This is hardly significant, but in individual species such as red spruce, the difference was appreciable, and the survival was much superior. The reasons for better results after ploughing are believed to be (1) competition of grass is reduced, (2) water is conserved in the furrows on dry sites, and (3) the soil is broken and better aerated, facilitating root penetration.

Trees should be planted on top of the furrow on wet ground. This was done in some Brown Company experimental plantings from 1925-1927. Up to the last remeasurement in 1935 the results show that total differences are slight, and vary from place to place.

Comparison of results of spring and fall planting.

Another measurement was made in the fall of 1936 of a large series of rows planted in the fall of 1933 and spring of 1934 with the same stock. An average of all species shows about 10% better survival with spring planting and about 7% better height growth from fall planting. The trees were planted on a rich loam hay-field in an exposed location. Red pine and Scotch pine showed much better survival and growth with spring planting, confirming results previously reported (1926 Biennial Report p. 108-109). White pine, on the contrary, gave best results with fall planting and the spruces about the same, usually with somewhat greater growth after fall planting. Fall planting must be done early to be successful and there is risk of frost-heaving and

freezing of buds. The greater observed growth in fall planting can be explained in that the trees are ready to start growth with the coming of spring and are subject to no disturbance at that time.

Source of seed experiments.

About 20 lots of trees from different origins, which had been grown in the nursery since 1931 were set out in three series of plots, each plot .1 to .05 acre in area. Scotch pine, Norway spruce, and European larch were the only species of which a series of origins were available, but it is planned to test native species as soon as seed can be obtained. Measurements of height growth of the different plots in 1936 showed wide variations. Almost 200 different lots of seed are now being tested in the experimental nursery.

Seed-spotting.

Experiments have been carried on for three years at Hillsboro, and for several years previously elsewhere in New Hampshire on methods of reforesting land by sowing the seed directly on the spot where the trees are to be grown. The results to date are not good enough to recommend this practice instead of planting nursery-grown trees. Good survival is frequently obtained for the first year or two only to have the seedlings later succumb to one or more of the severe conditions of their environment. It should be remembered that an enormous mortality among freshly germinated seedlings occurs in Nature.

Seedlings which become established by direct seeding grow faster than planted trees during the first years. The average height of 17 Scotch pines established by direct seeding on an open pasture near Berlin, N. H., was 2.0 feet and the largest was 2.9 feet high after five growing seasons. Transplants grown in the nursery would be only half as large at this age, and would have been only just set out. These trees are now grow-

ing over one foot each year. Experiments will be continued and an investigation made of the causes of seedling loss in each case.

Nursery fertilizers

Observations on over 100 small plots in transplant beds at the State Forest Nursery showed that castor pumace and bone meal were about equally effective in improving weight and size of trees growing in the light Merrimack sand. Six different fertilizers were tried, with and without white arsenic as grub control. Samples of soils from the plots have been tested for acidity, nitrate and ammonia nitrogen and phosphorus. In nearly every case fertilized plots had a deeper green needle color than unfertilized plots and produced more vigorous plants.

Miscellaneous projects

Phenological observations have been continued as in the past in co-operation with the Northeastern Forest Experiment Station, and dates of Gypsy Moth egg hatching for the Bureau of Entomology and Plant Quarantine. Reports on the influence of forests on floods were prepared at the request of the N. H. Flood Reconstruction Council.

Survey of Forest Research in New Hampshire

A survey of forestry investigations under way in New Hampshire was undertaken in 1935 as part of a study made for the National Research Council for the purpose of co-ordinating research in various fields. The results showed 74 projects under investigation by 8 federal, 2 state and 4 private organizations. An inventory of permanent sample plots showed a total of 528 such areas under observation to determine the effect of different treatments and conditions. The subjects under investigation included the effect of climate on tree growth, various methods of raising trees in nurseries, and meth-

ods of planting. The most extensive and important experiments deal with the effect of weeding, thinning and girdling, and methods of cutting suited to obtaining the maximum growth in different types. A large group of projects are devoted to methods of protecting forests from fire, insects and fungi, and to markets and products. The survey is of interest in showing the variety of work now being done in the State, and provides a useful directory for persons desiring to study the results of investigations.

Research Fellowships

Five fellowships of \$150 each were awarded, two in 1935 and three in 1936. Miss Helen E. Hazard spent the summer studying the vegetation of pure white pine stands on different soils. A key was made by which the difficulty of reproducing white pine can be forecast by the composition of the forest floor vegetation. A summary of the report has been mimeographed and the complete paper has been submitted to a technical journal for publication. Mr. A. Heaton Underhill made a survey of water acidity in streams and ponds. His report is being mimeographed by the Planning and Development Commission. In 1936 Mr. Alan A. Beetle completed a local flora of the Fox Research Forest and deposited herbarium sheets of all 436 species collected. The herbarium now contains 660 sheets. Mr. Livingston Lansing is engaged in a study of forest fire records and weather conditions with a view to forecasting the nature of the fire season. Dr. Richard G. Wood, of Randolph, N. H., is writing a history of lumbering in New Hampshire.

Disease and Insect Control

Dutch Elm Disease

New Hampshire continues free from this serious disease which has caused such great damage in New Jersey,

and vicinity of New York City. There has been only slight extension of the zone of infection during 1936, and provided an uninterrupted control campaign can be carried on, the outlook is bright for stopping the infection. Meanwhile a careful watch must be kept for elms showing suspicious wilting of leaves in midsummer.

Gypsy and Brown Tail Moths

Direct control work of these pests has been continued by the State Department of Agriculture, the towns, and by CCC crews. Severe defoliation by Gypsy Moth almost always occurs in stands having a high percentage of gray birch, aspen or oak. By eliminating such favored food species or reducing their proportion in the stand, permanent protection can be obtained which is not possible by painting egg clusters. The late spring frosts in 1936 apparently killed many eggs about to hatch.

Tent Caterpillars

The forest and eastern tent caterpillars have been abundant recently and have caused serious defoliation of hardwood stands and maple sugar orchards. They are now believed to have passed the peak of their cycle of abundance in New Hampshire.

Miscellaneous diseases and insects

An introduced sawfly, which has killed enormous amounts of spruce in Canada, appeared in New Hampshire in 1935, but has since done no damage and has not increased. Second growth stands of pasture spruce have suffered frequently from root rots. Control measures have not been worked out. A number of bark cankers are prevalent in second growth hardwood stands and to some extent in conifer plantations. The mountain ash sawfly, fir bark louse, larch case bearer, elm leaf beetle, and eastern spruce bark beetle may be mentioned as insects which have caused damage during the past two years.

Forest Protection Handbook

The number of inquiries and complaints reaching the Department in recent years has shown a need for authoritative information on the control of destructive insects, fungi and other causes of injury to forest and shade trees. Late in 1935 the co-operation of forestry departments, agricultural experiment stations and forestry associations in the other New England states was enlisted in a joint undertaking to issue a series of leaflets on the most important subjects. With the aid of Federal agencies ten such leaflets were published in 1936 through the Massachusetts Forest and Park Association. The edition of 8000 copies of each leaflet has been purchased by the organizations in this region for distribution in response to inquiries, and additional subjects are planned for 1937.

Forests and Floods

The disastrous spring flood of 1936 again directed attention to factors influencing runoff at the headwaters of the principal rivers. Then, as in 1927, the bulk of the water came from exceptionally heavy rainfall, but the ground was covered with a deep snow layer. In the open the snow was melted rapidly by the warm wind, and the melt water added to the flood runoff; but in the forest the wind movement was greatly reduced and the snow shaded and protected from the rain. The snow was reduced in depth but absorbed great quantities of rain which would otherwise have run off and increased the flood, and after the flood was over snow remained in the forest. It was a striking example of the superiority of high forest over all other forms of soil cover in reducing flood runoff. Densely wooded as the State is, the forest could not alone prevent a great flood; but without forest the flood would have been unbelievably greater.

The Fox Research Forest in Hillsboro

The Caroline A. Fox Research and Demonstration Forest, maintained under the provisions of the Fox Trust Fund as described in the last Biennial Report (pp. 164-180) has continued operation as a demonstration of small-scale sustained-yield management. Several improvements have been made to the buildings including installation of central steam heating plant, improvements in fire protective equipment, and remodeling of one wing of the building to serve as offices. The latter was done by CCC, using lumber cut on the forest. A fireproof vault for records was also built by the CCC. During 1936 a sample slow combustion German wood-burning stove was obtained by co-operation with the Connecticut Forest and Park Association and used as a demonstration of the use of wood fuel. A new fence was built around the nursery and the watering system enlarged. The spring house was also cleaned and repaired. Improvements in the forest include about one mile of new truck trail built by CCC and five gates at the entrances to the forest roads.

Forest Operations

During the last three seasons, logging has been carried on by contract, supplementing wood sold on the stump and that cut by CCC for relief purposes. Logs have been sold landed on the road to a local mill operator, and the cordwood to local wood dealers and customers in Massachusetts, as a demonstration of marketing. The policy has been to put into cordwood only those trees or parts of trees unsuitable for sawlogs, but frequently it has been found that as high or higher stumpage could be obtained for cordwood. Most of the cutting has been confined to selection cuttings and thinning, and only rarely have small areas been cut clean. It is planned to complete sanitation and improvement cuttings throughout the forest in five years, after which light thinnings

will be made at intervals of five to eight years in young stands, and reproduction cuttings will be made in older timber. The cuttings since management began have been as follows:

ANNUAL CUT FOX FOREST (July 1—June 30)

| | 1933-34 | 1934-35 | 1935-36 |
|--|----------|-----------------------------|------------------------------|
| Cordwood Stumpage Sales | 200 | 91.18 | 74.26 |
| Contract Logging: | | | |
| Cordwood Cords .. | ... | 110.62 | 109.65 |
| Hardwood logs, bd. ft. | ... | 29,504 | 11,917 |
| Softwood logs, bd. ft. | ... | 7,761 | 9,500 |
| Relief Crews: | | | |
| Cordwood cords: | | | |
| CWA | 247.0 | | |
| SRA | 42.0 | 65.59 | |
| CCC | 4.0 | 218.16 | 64.00 |
| Totals | 493 cds. | 413.75 cds & 37,265 bd. ft. | 247.91 cds. & 21,417 bd. ft. |
| Av. cut per acre per year for forest as a whole: | | | |
| (cords) | 1.35 | 1.30 | 0.75 |

Demonstrations of Forestry

Miniature Forest

A scale model of the Fox Forest about 100 feet long was constructed in 1936. It was moulded in the soil with the same horizontal and vertical scale, and planted with thousands of small trees of different sizes to represent different age classes and types. The whole model can be viewed from a 10 foot steel tower. This affords a bird's eye view of conditions as they are on the ground and enables the visitor to visualize how the forest is being managed.

Herb Garden

A demonstration herb garden was established in the nursery by the State Department of Agriculture Medicinal Plant Project, showing valuable drug plants which can be grown profitably in New Hampshire. Many occur naturally in the forest and can be classed as forest by-products.

Field Day

Field days have been held in August for three years, at which time excursions were made through the forest and informal talks given. Attendance was about 150. A special exhibit was arranged in the Forestry Museum at this time.

Lectures and publications

Several lectures and papers have been given before societies and organizations and numerous technical papers and notes were published during the two years; among these were an illustrated folder on the Fox Forest, and a mimeographed publication on flood control issued by the New England Regional Planning Commission.

THE LUMBER CUT—1934-35



INCE 1932, which was the low point in lumber production, the cutting has shown a marked increase. The following table herewith submitted will indicate the lumber cut from 1932 to 1935 inclusive:

| Year | Cutting between 100 M & 250 M | | | | Cutting between 250 M & 500 M | | | | Cutting between 500 M & 1000 M | | | | Cutting over 1000 M | | | | Out of Hard Woods | Out of Hemlock | Out of Spruce | Out of Pine | Total Cut |
|------|----------------------------------|----|----|----|----------------------------------|--|--|--|-----------------------------------|--|--|--|------------------------|--|--|--|----------------------|-------------------|------------------|----------------|-----------|
| 1932 | 14 | 14 | 17 | 15 | | | | | | | | | | | | | 8,600 M | 8,185 M | 6,553 M | 38,917 M | 62,255 M |
| 1933 | 23 | 23 | 22 | 28 | | | | | | | | | | | | | 16,578 M | 5,364 M | 8,023 M | 60,057 M | 90,022 M |
| 1934 | 21 | 25 | 21 | 32 | | | | | | | | | | | | | 14,169 M | 11,698 M | 14,168 M | 67,897 M | 107,932 M |
| 1935 | 22 | 21 | 14 | 31 | | | | | | | | | | | | | 18,920 M | 6,000 M | 13,838 M | 59,560 M | 98,318 M |

It will be noted from the above table that the number of operators cutting more than one million feet per year have increased 100% since 1932. It may also be seen that about 66% of the cutting is now being done by about 30 of the larger operators. The trend shows 45 small operators in 1932, increasing to a peak of 68 in 1933, and then falling off to 57 in 1935.

It may also be noted that the amount cut in 1934 was over 72% of that of 1932, while there was a slight decrease between the 1934 and 1935 production. This decrease follows the general trend as shown by the U. S. census report of lumber cut in all states.

Lumber formerly used almost exclusively in box manufacture is now recommended for roof and side boarding, and is said to be equal, if not superior, to that coming from outside New England. This fact, and the increase in the use of building material, should

greatly promote the use of native lumber, especially the so-called "box-board" grade. Such a policy ought to aid materially in increasing the stumpage value of low grade pine.

Successful New Hampshire lumbermen have to-day for the most part adopted the policy of securing a market before operating. The old practice of timber cutting and chancing on a probable purchaser resulted in the downfall of many of the earlier operators.

STATE APPROPRIATION ITEMS

This is a statement of Department appropriation items. A detailed financial statement of appropriations and revenues, special funds, and State funds available to this Department for unemployment relief are contained in the reports of the State Comptroller and State Treasurer.

JULY 1, 1934—JUNE 30, 1935

| | <i>Appropriation</i> | <i>Expenditure</i> | <i>Reserved for Bills Payable</i> |
|-----------------------------|----------------------|--------------------|-----------------------------------|
| Administration | \$15,385.00 | \$15,384.90 | ..... |
| Nursery | 7,570.00 | 7,568.19 | ..... |
| Reforestation | 1,375.00 | 1,375.00 | ..... |
| District Chiefs | 7,066.00 | 7,065.38 | ..... |
| Lookout Stations | 9,965.00 | 9,964.11 | ..... |
| Prevention of Fires..... | 2,950.00 | 2,949.73 | ..... |
| Forest Fire Bills to Towns | 7,500.00 | 6,927.77 | \$572.33 |
| White Pine Blister Rust.... | 4,865.00 | 4,849.03 | ..... |
| Forest Fire Equipment..... | 1,000.00 | 999.55 | ..... |
| Recreational Development | 4,950.00 | 4,947.97 | ..... |
| | <u>\$62,626.00</u> | <u>\$62,031.63</u> | <u>\$572.33</u> |

JULY 1, 1935—JUNE 30, 1936

| | <i>Appropriation</i> | <i>Expenditure</i> | <i>Reserved for Bills Payable</i> |
|-----------------------------|----------------------|--------------------|---|
| Administration | \$15,770.00 | \$15,769.78 | ..... |
| Nursery | 7,018.00 | 7,017.93 | ..... |
| Reforestation | 1,475.00 | 1,474.87 | ..... |
| District Chiefs | 7,005.00 | 7,004.59 | ..... |
| Lookout Stations | 9,960.00 | 9,785.71 | \$173.36 |
| Prevention of Fires | 2,100.00 | 2,098.59 | ..... |
| Forest Fire Bills to Towns | 7,500.00 | 3,668.19 | 2,000.00 |
| Forest Fire Equipment..... | 1,000.00 | 999.79 | ..... |
| White Pine Blister Rust.... | 4,650.00 | 4,447.64 | ..... |
| Recreational Development | 11,500.00 | 11,499.88 | ..... |
| Federal Emergency Program | 5,000.00 | 2,499.67 | 2,500.00 |
| | <u>\$72,978.00</u> | <u>\$66,266.64</u> | <u>\$4,673.36</u> |

