PUBLIC DOCUMENTS

OF THE

STATE OF MAINE

BEING THE

REPORTS

OF THE VARIOUS

PUBLIC OFFICERS
DEPARTMENTS AND
INSTITUTIONS

FOR THE TWO YEARS

JULY 1, 1924-JUNE 30, 1926

STATE OF MAINE

SIXTEENTH BIENNIAL REPORT

OF THE

FOREST COMMISSIONER

1925-1926

STATE OF MAINE

December 1, 1926.

To His Excellency, Ralph O. Brewster, Governor of Maine:

I have the honor to submit herewith my biennial report for the years 1925 and 1926.

NEIL L. VIOLETTE,

Forest Commissioner.

Forest Service

Forest Commissioner NEIL L. VIOLETTE, Augusta, Maine.

Forest Entomologist HENRY B. PEIRSON, Augusta, Maine.

Blister Rust Agent WALTER O. 'FROST, Augusta, Maine.

District Supervisors

GEORGE A. FAULKNER, Winter Harbor, Maine.

BRYANT E. JONES, Augusta, Maine.

REX E. GILPATRICK, Davidson, Maine.

GEORGE H. GRUHN, Augusta, Maine.

Professor of Forestry JOHN M. BRISCOE, Orono, Maine.

Assistant Professors of Forestry

C. W. L. CHAPMAN, Orono, Maine.

GILBERT I. STEWART, Orono, Maine.

Bookkeeper LILLIAN J. COLEMAN

Stenographer ADRIENNE THEBERGE

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Maine Forests

Everyone knows in a general way the value of Maine forests,—the largest forest area in the East, in one economic unit; but how many of our citizens know what is actually being done and planned for in the way of protection and perpetuation? It is a well known fact that no other New England state has such a wealth of forest resources. Besides the nearly ten million acres incorporated in the Maine Forestry District, there are some five million acres outside of this District in organized towns and in connection with agricultural lands. In fact about 78% of the total area of the State is wooded. Forest products constitute over 50% of the total freight tonnage, originating in Maine and are, therefore, the mainstay of the transportation system, and almost as great a percentage of the entire capital invested in manufacturing industries, is in the wood using industries. More than one million cords of pulp wood alone are cut in Maine each year, and the pulp and paper industry leads all others in the value of its products, the number of its employees, and the amount of its payroll. In addition to furnishing raw materials for the leading industries of the State, the forests of Maine are of vast importance in protecting and conserving the water supply and the development of water power which is so essential to many of our industries; in preventing floods and by regulating stream flow. They provide food and shelter for the inland fish and game of this vast forested region. Without forests there would be no fish and game, and this resource alone is worth several millions of dollars annually in attracting visitors and tourists to Maine.

Maine "The Playground of the Nation," as a recreation center could not exist without her forests, and the demand for recreational uses of the forests is increasing annually, as many of the recent developments on a large scale in this State during the past few years will testify. In short it is an established fact that no other single resource has such an important influence, both direct and indirect on the general prosperity of the people, in helping to stabilize agriculture and business prosperity in general.

For purposes of administration the State is divided into two grand divisions, the one in the north known as the Maine Forestry District, and the other, all lands outside the Forestry District.

MAINE FORESTRY DISTRICT

The Maine Forestry District is an organized area including most of the woodlands in the eight northern counties of Maine. These lands are largely in unorganized towns. It includes about 9,700,000 acres. Forest fire protection in this District is organized and supervised by the Forest Commissioner, whose office is in the State House at Augusta. Fire protection within this District, including fire fighting, is organized and paid for by the State through an assessment secured by a special tax of 2¼ mills on the dollar on all property within the District. Any adjoining town or plantation may at any time by vote of its inhabitants become a part of the Forestry District.

OUTSIDE FORESTRY DISTRICT

Responsibility for the protection of the 5,000,000 acres of forest land outside of the Maine Forestry District rests upon the municipal officers of each town or plantation.

Selectmen are ex-officio forest fire wardens with authority to appoint deputy wardens. It is unlawful to burn brush or blueberry land except under written permit from the Forest Commissioner, countersigned by a selectman. All fires of one acre or more in area must be reported by selectmen to the Forest Commissioner on forms furnished by him. Forest fire signs for posting in schools, camps, sawmills, and elsewhere are furnished by the Forest Commissioner without charge to selectmen and timberland owners. Selectmen are authorized to suspend portable sawmill licenses in time of drought and to suspend or revoke them for violation of the slash laws.

The State cooperates with municipal officers in the enforcement of the slash laws and in the maintenance of fire lookout towers, but cannot contribute toward the cost of fire fighting. The duties of the Forest Commissioner include the maintenance of lookout stations, and of railroad and other patrols, the enforcement of the laws requiring the burning of slash along highways and rights of way, the control of brush burning, including the burning over of blueberry lands, and the requirement of spark arresters in all locomotives, and the screening of smoking car windows. He is authorized to post signs and notices and to provide for educational work in forestry, and to provide planting

stock for prospective forest planters. He is authorized to license portable sawmills, and to prosecute for leaving fires unextinguished in the woods or allowing them to spread. He also has the authority to suspend licenses in time of drought, and to suspend or revoke them for violation of the slash laws or other forest fire laws; and in cases of emergency, he may by proclamation of the Governor, suspend the open season for fishing or hunting.

In carrying out all of these duties, he asks and needs the help and aid of all good citizens, and it is of the highest importance that the essential facts regarding the forests and their protection be known and appreciated by all, for the prosperity of the whole State is intimately tied up with their successful management.

The lumber and the pulp and paper industries are naturally most anxious to protect and to conserve the forest wealth, for it is from this source alone that they draw their raw materials. As a consequence there is little or no forest devastation in Maine as it is known in some of the other forested regions of the United States. Conservative cutting is the rule rather than the exception, and some provision is usually made for a future crop of trees on areas that are being cut, either by prescribing a diameter limit to the cuttings, or by cutting in such a way that another crop may be reasonably assured, as is being done by most of our landowners. Where this is impossible, as in the case of large burns, or where some other species is desired for the next crip, forest planting is resorted to in order to insure the future productiveness of the area. For this purpose large forest nurseries have been established by some of the larger organizations owning and operating forest lands in this State.

Educational work is provided for at the State University. Here provision is made for the technical training of technical foresters for the industries, and general information and instruction in forestry principles and practices is given—wide circulation by means of special classes, lectures, bulletins, circulars, news articles and radio talks.

The work of forest protection from insect and fungus diseases is in the hands of highly trained specialists in each of these branches, and everything is being done, in so far as funds available will permit, to furnish aid to citizens in the protection and care of their forested holdings, and to insure a better, quicker and more valuable wood crop.

The question of utilizing our vast hardwood resources is now receiving due consideration, and a special report on the available supply, location and best uses for these hardwoods is now about to be published, and will be sent free to all who are interested in this important branch of the subject. This problem is of double importance since it involves not only the conservative use of the present large supply of hardwoods, which have so far been neglected on account of the pressing demand for other species and the different methods of handling involved in their utilization; but also on account of the intimate connection between the removal of the hardwoods, and the securing of better reproduction of softwoods by natural methods of reproduction. The problem is therefore as important silviculturally as it is economically.

The forest fire problem is being handled with every effort to prevent fires from starting, rather than by applying exhaustive and expensive methods of suppression on actual fires after they have started. It is a case where an ounce of prevention is worth far more than a pound of cure, once the damage has started.

Very much of the success of the work of fire protection will depend from now on, upon the cooperation of the general public in helping to carry out the warnings and suggestions of the Department. Much time and attention has been given to the educational and publicity side of this work, and results are being felt in this respect, but there is still need for improvement and for further work along this line.

We have ample laws and regulations for handling the forest fire problem, and with the funds provided by special taxation and supplemented by the Federal Government, we may expect reasonably adequate protection in ordinary seasons. The service is well manned and trained for making these laws and regulations effective; and we are not so much in need of further laws or legislation as we are of perfecting the already existing organization, and of obtaining active, hearty cooperation on the part of all citizens in carrying out the letter and spirit of these laws and regulations.

A summary or substance of these forest fire laws follows, together with suggestions as to how every citizen may be of assistance in helping the Maine Forest Service to prevent forest fires:

SUMMARY OF FOREST FIRE LAWS

Whoever kindles a fire, on land not his own, without consent of the owner forfeits ten dollars.

If such fire spreads and damages the property of others, he is liable to a fine of from ten to five hundred dollars, or to imprisonment for not more than three years.

All camp cooking, and other fires must be totally extinguished before leaving, under penalty of a fine of fifty dollars.

Whoever with intent to injure another causes a fire to be kindled on his own or another's land, whereby the property of any other persons is injured or destroyed, is liable to a fine of from twenty to one thousand dollars or to imprisonment of from three months to three years.

Whoever for a lawful purpose kindles a fire on his own land shall do so at a suitable time and in a careful and prudent manner, and is liable to damages for failure to comply with this provision.

Persons engaged in driving lumber may kindle fires when necessary, but shall use the utmost caution to prevent them from spreading and doing damage, and if they fail to do so are subject to the foregoing liabilities and penalties.

The common law right to an action for damages done by fires is not taken away or diminished by any of the foregoing penalties.

Non-residents of Maine, while engaged in hunting or fishing on any unorganized or unincorporated township in the State, from May to November, inclusive, are prohibited from camping or kindling fires unless in charge of a registered guide, under penalty of a fine of forty dollars and costs for each offense.

Guides are prohibited from guiding or being employed at the same time by more than five non-residents in hunting, under penalty of a fine of forty dollars and costs for each offense.

All persons engaged in hunting on any of the woodlands in the State must use non-combustible wads in the loading of firearms.

During times of drought the Governor has authority to suspend the open season for hunting and fishing and to prohibit the carrying of firearms on the wild lands of the State. Violation of the closed season thus proclaimed is punishable by a fine of $100 and costs.

Fish and game wardens are ex-officio State fire wardens and are required to caution all sportsmen of the danger from fire in

the woods and to assist in other ways in forest fire protection.

Fire protection signs are distributed without charge by the Forest Commissioner to selectmen, timberland owners, and others. Tearing down, destroying, or defacing such signs is punishable by a fine of from twenty-five to fifty dollars.

The growth must be left uncut, or the slash resulting from cutting must be disposed of, within fifty feet of the right of way of a railroad or the center of the wrought portion of any public road.

Slash resulting from the construction and maintenance of railroads, highways; and power company, telegraph or telephone lines, must be disposed of in such manner that inflammable material is not left upon the ground.

Persons cutting forest growth adjacent to woodlands owned by another, outside of the Maine Forestry District, must dispose of the slash within fifty feet of the line of cutting on the side or sides toward such woodlands.

Written permit from the State Forest Service (available through chief forest fire wardens or the municipal officers of towns and plantations) is required prior to the burning of any slash or brush or for the burning of blueberry land adjacent to forest growth, except when the ground is covered with snow.

In case of failure to comply with the slash laws the Forest Commissioner shall notify the owner of the requirements, and if such owner within a reasonable time shall fail to dispose of the slash the Commissioner shall cause it to be disposed of at the expense of the owner.

It is unlawful, under penalty of a fine of not more than five hundred dollars, to erect or move a portable sawmill without a license therefor approved by the Forest Commissioner.

The Forest Commissioner, or forest fire wardens in organized towns, may at any time suspend or revoke the licenses of portable sawmills for violation of the slash laws and may further suspend such licenses in times of drought.

All grass, brush, and other inflammable material must each year be removed from railroad rights of way under proper care and at times when fires are not liable to spread beyond control.

Railroad fire patrols must be maintained at the expense of the railroads whenever and wherever the woods are, in the judgment of the Forest Commissioner, in a dry and dangerous condition.

All railroad locomotives must use spark arresters.

The windows of all smoking cars passing through the Maine Forestry District must, between May 1 and November 10, be fastened down or screened so as to prevent the throwing of burning matches or smoking materials from the windows.

Forest fire wardens and deputy wardens have authority to summon any persons to assist in the control and extinguishment of forest fires.

HOW TO PREVENT FIRES

Be careful with matches and smoking materials.

Do not throw lighted matches or burning tobacco from your automobile, or from a trolley or railroad car.

Break every match or roll it between your fingers before throwing away.

Throw cigar butts, cigarette stubs, or pipe heels into water or stamp them out on bare soil or rock.

Matches do not think with their heads. Cigars, cigarettes, and tobacco have no heads. Use yours.

Be careful with camp fires. Use the State camp site if possible.

Build every fire against a rock or cliff, in a pit, in a stone fireplace, or better still in a collapsible stove or other metal container.

Never build a fire against a log or a tree, or on leaves, moss, duff, or other inflammable surface litter.

Never build a large fire. Small ones are better both for cooking and warmth.

Never build a fire of any sort when the woods are unusually dry, or when the wind is strong.

All big fires come from small beginnings. Don't start anything you can't stop.

Never leave a fire unwatched, no matter how safe it seems. Sudden gusts are always possible and have often made apparently safe fires destructive.

Never leave a fire until it is completely out. Quench it with water if possible; if not, bury it with mineral soil. Never scatter

the embers or cover them with ashes or with soil containing vegetable material.

Never pass an untended fire, no matter how small, without putting it out. If it is too large to handle yourself, get help. Remember that a fire put out is a forest saved.

Do not forget that fire is always dangerous.

Teach others carefulness. Be careful yourself.

Remember that forest fires can never be prevented or controlled by laws alone. Still more necessary are an interested public opinion and an individual recognition of responsibility.

Maine Forestry District

FOREST FIRE PROTECTION IN MAINE FORESTRY DISTRICT

Seasons of 1925 and 1926

Ever since the establishment of the present forest fire protection system in this State, most of the money appropriated for that purpose has been spent in the detection and suppression of forest fires. During the last two years special attention has been given to the prevention of forest fires. It is vastly more important to prevent fires than it is to suppress them. It is only through education that the number of forest fires can be materially reduced. As over 70% of the fires are caused by human carelessness, it is only when the public gives heed to this fact, that it will be possible to overcome the costly menace to the forests of Maine. Hunters, fishermen, campers, motorists and all others who travel in the woods have this responsibility. Although the last two seasons were as dangerous as the two preceeding ones, the small area burned over, shows that the work of prevention has aleady helped and should be continued with more vigor. In line with this work several landowners have appointed special patrols for their lands, at their own expense. Special mention should be made here of the campaign of education carried on by the Great Northern Paper Company through all the newspapers of the State during the last fire season. This campaign has without doubt helped to reduce the number of fires and the work of this office. The rainfall of 1925 was fairly well distributed through the summer months, a condition just reversed in 1926. The absence of a general spring rain in 1926 left the woods in a very dangerous condition during the hot days of July and August. Furthermore very little rain fell from the 16th day of July to the 20th day of August. During that period all the big fires occurred, and were difficult to control and suppress. High winds prevailing at that time and the dryness of the ground below the surface added to the danger; and conditions became so serious that the Governor on August 7th issued the following warning:

"The Forest Commissioner reports that the situation in the woods of Maine at the present time caused by the prolonged drought is as threatening as it was in 1921 when the worst fires in the history of the State occurred. Thousands of men are now engaged in fighting forest fires in various sections of the State at very great expense to the State and to landowners. If this situation continues and rain does not come soon there is danger that thousands of acres of timberland will be burned and human life imperiled.

"It is greatly to be hoped that it will not be necessary to close the forests of our State to the public. Timberland owners have instructed their employees to work in cooperation with the fire wardens in every way.

"Under the advice of the Forest Commissioner and Chief Fire Warden I, therefore, appeal especially to motorists, campers, fishermen, guides and woodsmen to lend their cordial support in protecting the forests by refraining from building fires during this dry spell. Conditions are bad enough in the woods without adding in any way to the risk of a conflagration."

"Unless there is a change very soon for the better it may be necessary to forbid the public to enter the woods unless called there on business."

Comparison of Burned Area from 1923 to 1926:

1923	1924	1925	1926
62,407 acres	38,401 acres	2,328 acres	3,717 acres

FINANCES

The following tabulations show that the Department has been able to save in 1925, $37,412.78, and in 1926 $24,285.87, making a total surplus of $61,698.65. This surplus is set aside and will be used only in emergencies, which may occur in unfavorable years.

Season 1925: RECEIPTS

Balance on hand Jan. 1, 1925	$ 7,755.29	
1925 Assessment	165,572.27	
Interest on Deposits	157.43	
Federal Cooperation	23,424.14	
Miscellaneous	2,005.67	
Total Receipts		$198,914.80

DISBURSEMENTS

Chief Wardens	19,666.30	
Deputy Wardens	1,057.31	
Patrolmen	21,142.56	
Lookout Stations	47,621.32	
Fire Fighting 1925	10,802.85	
Fire Fighting 1921 and 1924	16.609.70	
Tools and Supplies	34,492.96	
Administration	6,287.97	
Miscellaneous	3,821.05	161,502.02
Balance on hand January 1, 1926		$37,412.78

EXPENDITURES BY WATERSHEDS

	St. John	Penobscot	Kennebec	Androscoggin	Machias	Totals
Chief Wardens	7,059.50	6,661.74	3,237.27	591.46	2,116.33	19,666.30
Deputy Wardens		161.02	489.66	7.50	399.13	1,057.31
Lookout Stations	10,446.49	14,693.17	10,538.25	3,513.41	8,430.00	47,621.32
Patrolmen	9,920.40	7,848.20	332.40	1,280.44	1,761.12	21,142.56
Fire Fighting	1,545.14	19,966.21	2,681.32	1,277.75	1,942.13	27,412.55
Tools and Supplies	8,387.31	10,876.05	9,787.72	1,565.46	3,876.42	34,492.96
Administration	1,531.88	1,240.46	1,164.18	1,077.29	1,274.16	6,287.97
Miscellaneous	1,384.61	1,041.31	841.33	138.24	415.56	3,821.05
Totals	$40,275.33	$62,488.16	$29,072.13	$9,451.55	$20,214.85	$161,502.02

FINANCES

Season 1926:

RECEIPTS

Balance on hand Jan. 1, 1926	37,412.78	
1926 Assessment	165,513.42	
Interest on Deposits	184.10	
Federal Cooperation	26,760.04	
Miscellaneous	1,539.68	
Total Receipts		$231,410.02

DISBURSEMENTS

Chief Wardens	19,217.48
Deputy Wardens	1,050.65
Patrolmen	19,468.57
Lookout Stations	51,162.74
Fire Fighting 1926	33,791.07
Tools and Supplies	35,868.34

Administration	5,525.57	
Miscellaneous	3,626.95	169,711.37
Balance on hand Jan. 1, 1927		$61,698.65

EXPENDITURES BY WATERSHEDS

	St. John	Penobscot	Kennebec	Androscoggin	Machias	Totals
Chief Wardens	6,883.46	6,420.02	3,040.28	1,068.62	1,805.10	19,217.48
Deputy Wardens		251.03	522.95	11.25	265.42	1,050.65
Lookout Stations	10,417.95	15,954.53	10,649.08	5,622.75	8,518.43	51,162.74
Patrolmen	10,202.53	6,812.14	506.78	1,028.43	918.69	19,468.57
Fire Fighting	2,971.74	25,666.39	2,607.47	1,704.45	841.02	33,791.07
Tools and Supplies	8,226.99	13,621.78	5,404.17	2,044.08	6,571.32	35,868.34
Administration	1,489.51	1,164.91	954.40	892.29	1,024.46	5,525.57
Miscellaneous	1,088.20	1,027.83	645.34	291.43	574.15	3,626.95
Totals	$41,280.38	$70,918.63	$24,330.47	$12,663.30	$20,518.59	$169,711.37

Supervision

In his report of 1922, Ex-Forest Commissioner Dana made the following suggestion and recommendation:

"The greatest need in the Forestry District organization today is to bring the office into closer and more constant contact with the field force. It is a physical impossibility for the Commissioner to keep in as close touch as is desirable with the thirty Chief Wardens and their subordinates in the nearly ten million acres included in the district. The present go-between the Commisssioner and the field force should be abridged by the addition to the Commissioner's office of four inspectors, one for each major watershed."

Agreeing fully with these suggestions, the department divided the district last season into three sub-districts; The East, comprising the Counties of Hancock and Washington; The West, comprising the Counties of Oxford, Franklin, Somerset and Piscataquis; and the North comprising the Counties of Penobscot and Aroostook, and a man was appointed for each district. These district supervisors were in the field most of the time working with the Chief Wardens in their districts, helping them to improve conditions, assisting them to combat fires and reporting to the office at least once a month the progress made and the improvements that should be made in the districts under their supervision.

The effectiveness of a forest fire organization spread out over ten million acres depends largely on the supervision that is given by the head of such an organization. The district employs about one hundred and seventy-five men steadily during the summer months with a monthly pay-roll of $20,000.00. In addition to this there are five hundred men commissioned as deputies who can be called upon at any time.

Improvements and Additions Made in St. John Watershed

1925	1926
MADAWASKA DISTRICT 9½ Townships	Fred C. Knowlen *Chief Warden*
New roof for Three Brooks Mt. tower Three Brooks Mt. tower painted Cross Lake camp repaired New boathouse at Cross Lake 1 new fire pump 1,000 feet hose 1 dozen pails 1 dozen forestry axes	Boathouse completed at Cross Lake 1 camp site (16, R. 4) on Calstrom farm New Ford truck 500 feet hose 2 flags 1 pair binoculars
FISH RIVER DISTRICT 14 Townships	W. B. McConnell *Chief Warden*
48 foot steel tower at Carr Pond Mt. Camp at Carr Pond Mt. Complete outfit for camp at Carr Pond Mt. 9 miles of telephone line to Carr Pond Mt. 3 public camp sites (Nashville Pl.; 15, R. 6; 14, R.6) Motor boat with tender 1 pair binoculars	2 public camp sites (15, R. 6; 14, R. 7) 1½ miles new line at Three Brooks Mt. Painted Carr Pond Mt. tower 1½ miles new line to DeBoulie Mt. setting 13 poles 2 miles new line at Fish River setting 19 poles 1 fire pump 1,500 feet hose 1 telephone
ALLAGASH DISTRICT 29½ Townships	Grover C. Bradford *Chief Warden*
60 foot steel tower at Musquacook Mt. Camp at Musquacook Mt. Rocky Mt. tower painted Rebuilt 4 miles of telephone line and set poles 1½ miles telephone line to Musquacook Mt. 1 fire pump 1,000 feet hose 1 pair binoculars 3 stoves 6 spreads 2 dozen shovels 2 dozen forestry axes	Running water into Musquacook camp Shingled Musquacook camp roof 16 miles of new line(copper weld) on Allagash River New camp at Castonguay settlement New Johnson motor for Allagash River Changed 6 miles of line to Rocky Mt. Changed 4 miles of line to Wallagrass portable mill New Ford truck 2, 7′ x 7′ tents 2, 7′ x 12′ tents 1, 18 foot canoe 1, 20 foot canoe

SEVEN ISLANDS DISTRICT
13 Townships

E. L. McKenney
Chief Warden

New storehouse at Chief Warden's camp
New stove
2 dozen forestry axes

Special repairs on the telephone line to Seven Islands; new poles, and placed wire on one side of the road.
1, 20′ canoe
12 spades
12 pails
12 grub hoes
2 telephones
1 Ford truck

UPPER ST. JOHN DISTRICT
18 Townships

W. J. McRae
Chief Warden

Repaired camp at Baker Branch
New roof on Southwest camp
Built Bedroom at warden's camp
1 dozen pails
1 dozen forestry axes

Constructed 16 miles new line
Cleared a road 40 miles from St. Camille to 8, R. 16
1, 20 foot canoe with Johnson motor
12 grub hoes
12 shovels
1 pair binocolars
2 telephones

AROOSTOOK WATERS DISTRICT
31½ Townships

Charles L. Weeks
Chief Warden

New camp at Oak Hill Mt.
Complete outfit at Oak Hill Mt.
2 public camp sites (7, R. 5; 8, R. 5)
2 canoes
1 new car
2 dozen shovels
2 dozen mattocks
2 dozen forestry axes
2, 30 foot tents

New 48′ steel tower at Squa Pan Mt.
3 new camp sites (8, R. 5; 9, R. 5; 9, R. 6)
15 miles of line from Squa Pan lookout to Squa Pan
Painted Squa Pan tower and house
Added cook room to Squa Pan camp
Added 17′ on garage at Chief's residence
Burned slash on telephone line on B. & A. R. R. in Aroostook
Cleared road from Oxbow Flat to Munsungan Lake
Cleared road from Round Mt. to American Realty Co. road
1 Johnson motor
1 Ford truck
2 pair binoculars
1 pump
1,000 feet hose

NUMBER NINE DISTRICT
11 Townships

James Cassidy
Chief Warden

15 miles of road swamped
27 miles of old road cleared out
1 fire pump
1,000 feet hose
2 dozen shovels
2 dozen forestry axes
1 dozen blankets

Cleared 32 miles of old road
Cleared 3 acres of slash at camp
1 dozen shovels
1 dozen spades

Penobscot Watershed

1925	1926
SEBOOMOOK DISTRICT 32 Townships	Errold F. Hilton *Chief Warden*
Russell Mt. tower painted Nulhedus Mt. tower painted Bedroom and porch built at Chief's camp 4 miles of telephone line connecting with Allagash Mt.	Cleared 2 acres of slash around Nulhedus Mt. tower New Ford car 3 telephones
PLEASANT RIVER DISTRICT 16½ Townships	A. H. Chase *Chief Warden*
All 3 towers painted	New line from White Cap Mt. to No. 4 Mt. (10 miles) Pump and 1,500 feet hose
KATAHDIN DISTRICT 19½ Townships	Thomas Griffin *Chief Warden*
Sleeping porch added to watchman's camp at Black Cat Mt. (9 x 14) Built wharf at Millinocket Lake (16 x 40) New Chevrolet truck 1 fire pump 1,000 feet hose 1 canoe 1 dozen mattocks	Camp site, 1, R. 7, Grindstone 3 miles new line Painted towers Pump One new motor boat (30') and Kermath engine Added section to boat house 1,500' hose 12 grub hoes 6 axes 1 telephone 18 blankets
EAST BRANCH DISTRICT 18½ Townships	John E. Mitchell *Chief Warden*
New camp at Burnt Mt. (14 x 14) Complete outfit for camp at Burnt Mt. Bedroom added at Spoon Mt. camp (12 x 15) 2 miles of road cut from Millemegassett Dam to head of Lake 1 fire pump 1,000 feet hose 1 canoe 1 double wagon 2 dozen mattocks 2 pair binoculars	17 miles of new line from Mt. Chase Camp at Seboeis Farm Storehouse at Seboeis farm (12 x 22) Lookout house at Mt. Chase repaired All camps painted and papered Cut trail for telephone line from Spoon Mt. to Aroostook River All trails painted red. Mt. Chase tower painted Beetle Mt. tower painted Spoon Mt. tower painted 1 bateau New Ford car 500 feet hose 1 stove 2 flags

CHESUNCOOK DISTRICT
16 Townships

Wm. J. Hodgins
Chief Warden

Repaired tower at Doubletop Mt.
1 mile new telephone line to Doubletop Mt.
New camp at Soubunge Mt.
Complete outfit for Soubunge Mt. camp
Built 2 miles telephone line at Chesuncook
Shingled camp at Chesuncook Dam
Added 400 feet covered wire at Spencer Mt.
1 public camp site (3, R. 12)
dozen forestry axes

½ mile new telephone line at Soubunge Mt.
Chief Warden's camp painted
New Ford truck
1 Evinrude motor
1 bateau

CHAMBERLAIN DISTRICT
25 ½ Townships

E. L. Foss
Chief Warden

New Chief Warden's camp at Tramway
Complete outfit for same
3½ miles of telephone line from Lock Dam to Chamberlain Farm
New telephone line from Chamberlain Lake to Round Pond, 9½ miles
Rebuilt line from Long Lake Dam to Round Pond, 8 miles
New trail from Chamberlain Lake to Allagash Lake, 9 miles
Recanvassed two 20 foot canoes
2 new canoes
1 Johnson outboard motor
2 pair binoculars

Camp at Tramway finished inside
All tools painted bright red
2 new Elto engines
1 tent (10′ x 12′) with fly
24 spades
24 axes
24 pails

PASSADUMKEAG DISTRICT
12 Townships

G. B. Lowell
Chief Warden

MATTAWAMKEAG DISTRICT
15 Townships

S. C. Cummings
Chief Warden

2 dozen pails

Tower painted
6 miles of telephone line replaced by new wire
1 pump and 1,500 feet hose
1 flag
12 axes

DAVIDSON DISTRICT
3 Townships

Rex E. Gilpatrick
Chief Warden

1 public camp site (2, R. 7)

1 public camp site (2, R. 6)
1 portable water boat

Kennebec Watershed

1925	1926
MOOSEHEAD DISTRICT 14 Townships	Frank P. Conley *Chief Warden*
1, 48′ foot steel tower at No. 4 Mt. All three towers painted Double floor for camp at Squaw Mt. 1 new car 1 public camp site (Gore A—2) 2 dozen shovels	New watchman's camp on No. 4 Mt. New watchman's camp on Kineo Mt. 1 dozen axes 2 dozen pails 2 dozen grub hoes
DEAD RIVER DISTRICT 17½ Townships	Ralph Wing *Chief Warden*
41 miles new metallic telephone line 2 public camp sites (Dead River Pl. and Bigelow Pl.)	New line from Ledge House to Carrabassett (6 miles) New telephone line to Basin Pond Mt. (8 miles) 1 barrel split insulators 4 telephones
CARRABASSETT DISTRICT 4 Townships	A. R. Henderson *Chief Warden*
Mt. Abram tower repaired	Mt. Abram tower rebuilt 1 new camp site (Jerusalem)
PARLIN POND DISTRICT 25 Townships	Ralph Sterling *Chief Warden*
12 miles of new telephone line 2 towers painted 1 tower repaired 2 public camp sites (Caratunk and West Forks)	Two new camp sites (Moscow and West Forks) Telephone line Troutdale to Baker Pond (3 miles) Sanitary toilets at all camp sites 2 dozen shovels 4 dozen pails 1 dozen grub hoes 3 flags 1 alidade
MOOSE RIVER DISTRICT 25 Townships	George G. Nichols *Chief Warden*
Tower at Kibbie Mt. recovered 5 towers painted New camp at Tumbledown Mt. 2 public camp sites (Moose River and Jackman) 1 pair binoculars 4 pair blankets 2½ dozen pails 2½ dozen shovels 2½ dozen mattocks	New 14 foot steel tower erected at Kibbie Mt. Bald Mt. tower painted Attean Mt. tower painted 1 new telephone 1 pair binoculars

Androscoggin Watershed

RANGELEY DISTRICT
27½ Townships

Peaslee, Murphy and King
Chief Wardens

New trail up Saddleback Mt. (4 miles)
14 lunch grounds
2 dozen shovels
2 dozen axes

New steel tower on Deer Mt.
Changed 2 miles of West Kennebago Mt. ground line to metallic line.
New camp and camp site at old Spec Mt. (Grafton)
New tower house at Saddleback Mt.
18 axes
24 pails
3 telephones
1 pair binoculars

St. Croix, Machias, etc. Watershed

UNION RIVER DISTRICT
5½ Townships

Anton R. Jordan
Chief Warden

Repaired 4 miles of telephone line

Constructed 7 miles of new line on Great Pond, Passadumkeag Mt. line
1 canoe

NARRAGUAGUS DISTRICT
8½ Townships

F. E. Patten
Chief Warden

All towers and camps painted
Camp site at Tunk Pond (T. 10)
1, 12′ x 14′ tent
1 pump and 1,500 feet hose

MUSQUASH DISTRICT
9 Townships

John J. Kneeland
Chief Warden

60 foot steel tower at Pirate Hill
¾ miles of metallic circuit line at Topsfield
11½ miles of telephone line from Lambert Lake to Tomah Stream
2 public camp sites partly complete
1 dozen mattocks
1 dozen shovels
1 dozen pails

Musquash Mt. tower painted
New pole line from Musquash Mt. to Topsfield
New camp at Pirate Hill
Camp site completed at Musquash Lake
Pump and 1,500 feet hose
2 telephones

ST. CROIX DISTRICT
10½ Townships

A. P. Belmore
Chief Warden

Tower and camp painted
Patrolmen's camp built at Clifford's Rips (Tomah Stream)
1 mile telephone line at No. 21 Pl.
1, 28 foot motor boat
1 stove
3 dozen forestry axes

Pocomoonshine Mt. camp painted
New telephone poles on the road leading to Grand Lake Stream
2 camp sites (Indian Town and Grand Lake Stream)
Ford car truck
1 canoe
24 pails

EAST MACHIAS DISTRICT
9 Townships

G. E. Hathaway
Chief Warden

Raised Cooper Mt. tower 18 feet

Cooper Mt. tower painted

MACHIAS DISTRICT
13½ Townships

Harry McReavy
Chief Warden

New roof on Tug Mt. camp
Rebuilt telephone line to Bald Mt.
2 public camp sites (Twp. 29 and 30)

Washington Bald Mt. tower painted
Wesley Mt. tower painted
New telephone line from Washington Bald Mt. to the Pines on Dobsis Lake (9 miles)
1 camp site completed (Twp. 30)
1 stove
1 canoe
3 telephones

Summary of Principal Improvements and Additions made in the Maine Forestry District

	IN 1925	1926
New telephone lines	83 miles	114 miles
Steel towers	4	4
Camps	8	5
Public camp sites	20	14
Automobiles	3	10
Pumps	6	7
Hose	6,000 feet	10,500 feet
Motor Boats	2	1
Canoes	7	7 and 2 Bateaux
Motors for canoes	1	6
Towers painted	16	14
Binoculars	8	6
Flags	5 dozen	2 dozen
Axes	10 dozen	12 dozen
Mattocks	10 dozen	3 dozen
Shovels	10 dozen	7 dozen
Pails	10 dozen	13 dozen
Tires	4 dozen	2 dozen
Tents	4	6
Stoves	6	6
Telephones	18	26
Test sets	4	5
Spreads	2 dozen	4 dozen
Barrels of split insulators	3	7
Barrels of batteries	2	5
Fire Signs	10,000	15,000
Fire Protec. Pamphlets	30,000	30,000

PUMPS

Portable gasolene pumps are the latest forest fire fighting equipment and the best adapted for our needs in this State on account of our numerous lakes and rivers, which make it possible to use them on practically all of our forest fires.

These pumps are of a portable type with a four to five horse power engine attached. The pump and engine with stretcher for carrying it weigh approximately one hundred and thirty pounds with an over all dimension of 31" x 11½" x 17". The pump is of the rotary gear type with a one and one-half inch intake and one and one-half inch discharge. The engine is a two cycle two cylinder type and will develop from seventy to one hundred and sixty pounds pressure in the pump. This throws a stream seventy-five feet at a capacity varying from fifteen to forty-two gallons per minute.

At present three types of pumps are being used, namely, the Northern, the Evinrude and Fairbanks-Morse. The construction and performance of these pumps is so much alike that it would hardly be worthwhile describing each in detail.

The department had seventeen pumps in use during 1926 and they were located as shown in the accompanying list. Each pump has from one thousand to fifteen hundred feet of hose with it. By 1928 it is planned to have each Chief Warden with at least one pump and fifteen hundred feet of hose.

St. John Watershed—	Allagash District	1 fire pump
	Fish River District	" " "
	Aroostook Waters District	" " "
	No. 9 District	" " "
	Madawaska District	" " "
Penobscot Watershed—	East Branch District	2 fire pumps
	Katahdin District	1 fire pump
	Pleasant River District	" " "
	Davidson District	" " "
	Mattawamkeag District	" " "
Kennebec Watershed—	Parlin Pond District	1 fire pump
	Carrabassett District	" " "
	Dead River District	" " "
St. Croix, etc., Watershed—	Machias District	1 fire pump
	Masquash District	" " "
	Narraguagus District	" " "
		17 fire pumps

The last of 1926 the Northern designed a new engine. This engine has four cylinders and is lighter than the two cylinder type. The department has tried one of these engines and so far it has proved satisfactory. If no weakness develops it is possible that any new engine purchased will be of this type.

The land owners in various sections have sixty pumps and they have been very liberal in their cooperation, allowing the Chief Wardens to use their equipment at any time.

Lookout Stations in the Maine Forestry District

Station	Opened		Closed		No. Fires	
	1925	1926	1925	1926	1925	1926
Allagash Mt.	June 21	June 20	Sept. 10	Sept. 1	9	39
Almanac Mt.	June 1	May 20	Sept. 12	Sept. 16	1	0
Attean Mt.	May 19	May 23	Sept. 13	Sept. 14	2	3
Aziacoos Mt.	May 17	May 14	Sept. 24	Sept. 26	5	7
Beetle Mt.	May 15	June 7	Sept. 21	Sept. 7	7	21
Bigelow	May 10	May 30	Oct. 10	Sept. 25	1	5
Black Cat Mt.	May 17	May 30	Sept. 16	Sept. 16	5	9
Boarstone Mt.	May 3	May 23	Oct. 1	Sept. 25	8	4
Boundary Bald Mt.	May 1	May 18	Oct. 1	Sept. 25	7	16
Burnt Mt.	May 28	June 13	Sept. 20	Sept. 10	4	19
Carr Pond Mt.	May 24	June 13	Sept. 14	Sept. 16	0	6
Coburn Mt.	May 12	May 28	Sept. 26	Sept. 28	18	31
Cooper Mt.	May 3	May 20	Oct. 5	Sept. 25	7	3
Deboulie Mt.	May 24	June 3	Sept. 2	Sept. 3	0	1
Depot Mt.	May 25	May 24	Sept. 9	Sept. 10	80 (Canadian)	6
Doubletop Mt.	July 13	June 14	Aug. 29	Sept. 3	0	9
Green Mt.	May 21	June 16	Sept. 22	Sept. 19	9	5
Hardwood Mt.	May 20	June 6	Sept. 30	Sept. 25	4	7
Hedgehog Mt.	May 20	June 1	Sept. 14	Sept. 15	3	3
Horse Mt.	May 17	June 7	Sept. 14	Sept. 9	8	34
Hunt Mt.	May 17	June 29	Sept. 17	Aug. 27	3	15
Kibbie Mt.	May 12	May 23	Sept. 26	Sept. 25	3	1
Kineo Mt.	April 30	May 17	Sept. 15	Sept. 27	1	11
Lead Mt.	April 9	May 23	Oct. 10	Sept. 25	17	12
Little Russell Mt.	June 10	June 2	Sept. 13	Oct. 15	11	15
Mt. Chase	May 17	June 7	Sept. 22	Sept. 28	32	28
Mattamiscontis Mt.	May 13	May 23	Sept. 19	Sept. 24	13	18
Moxie Bald Mt.	May 1	June 1	Oct. 6	Sept. 25	1	9
Mitchell Mt.	May 17	June 1	Sept. 16	Sept. 5	16	17
Mt. Abram	May 17	May 30	Sept. 17	Sept. 11	0	3
Musquash Mt.	June 1	May 23	Sept. 16	Sept. 25	0	4
Musquacook Mt.	May 26	May 30	Sept. 15	Sept. 5	0	5
No. 4 Mt.	May 1	May 30	Sept. 11	Sept. 10	1	16
No. 9 Mt.	May 10	May 30	Oct. 2	Sept. 18	8	9
Nulhedus Mt.	May 24	June 4	Sept. 15	Sept. 17	0	1

Lookout Stations—*Continued*

Norway Mt.	June 15	June 28	Sept. 16	Sept. 7	10	17
Old Spec Mt.	June 8	June 14	Sept. 15	Sept. 25	2	2
Otter Lake Mt.	April 23	May 30	Sept. 20	Sept. 11	8	10
Oak Hill Mt.	May 22	June 7	Sept. 24	Sept. 24	3	6
Passadumkeag Mt.	May 25	May 24	Sept. 23	Sept. 26	2	0
Pocamoonshine Mt.	April 27	May 19	Oct. 6	Oct. 8	11	1
Pirate Hill Mt.	June 1	May 30	Sept. 16	Sept. 25	2	3
Priestley Mt.	June 1	June 20	Oct. 3	Sept. 30	6	15
Round Mt.	May 23	June 6	Sept. 16	Sept. 13	3	7
Rocky Mt.	May 23	June 1	Sept. 15	Sept. 15	8	8
Ragged Mt.	May 3	May 21	Sept. 24	Sept. 18	15	19
Saddleback Mt.	May 24	May 20	Sept. 24	Sept. 28	0	12
Schoodic Mt.	April 29	May 21	Sept. 14	Sept. 12	4	3
Snow Mt.	April 27	May 23	Sept. 18	Sept. 25	0	1
Squaw Mt.	April 27	May 23	Sept. 23	Sept. 30	6	15
Squapan Mt.	May 16	June 6	Sept. 22	Sept. 13	9	31
Spencer Mt.	May 23	June 1	Sept. 26	Sept. 29	14	61
Spoon Mt.	May 19	June 13	Sept. 16	Aug. 27	10	28
Soper Mt.	June 7		Sept. 7		1	0
Soubunge Mt.	June 20	June 4	Sept. 22	Sept. 22	4	8
Tumbledown Mt.	April 23	May 17	Sept. 14	Sept. 18	3	1
Three Brooks Mt.	May 24	June 6	Sept. 19	Sept. 17	11	4
Tug Mt.	May 25	June 27	Aug. 15	Aug. 31	00	0
Washington Bald Mt.	May 10	June 1	Sept. 30	Sept. 18	8	3
Wesley Mt.	May 24	May 24	Sept. 16	Sept. 15	1	3
Whitecap Mt.	May 26	June 13	Sept. 15	Sept. 16	0	11
West Kennebago Mt.	May 31	June 1	Sept. 15	Sept. 15	1	9
Williams Mt.	May 16	May 21	Sept. 21	Sept. 25	7	21
*Deer Mt.						
*Flagstaff Mt.					443	685
*Pleasant Pond Mt.						
*Not opened in 1925-1926.						
Fires Reported by Patrolmen:					16	26
					459	711

Fire Record 1925

AROOSTOOK COUNTY

Location	Date	Area	Cause	Damage
T. 2, R. 3	April 9		B. Burning	
T. 7, R. 4	May 13	8	Unknown	$100.00
T. 14, R. 6	May 20	12	Children	100.00
T. 15, R. 7	May 21		Railroad	
Winterville Pl.	May 21		Railroad	
T. 15, R. 6	June 7	6	Burning Road Piles	12.00
T. 7, R. 3	June 5	½	Fishermen	
T. 10, R. 4	June 13	3	Fishermen	
Hammond Pl.	June 14	¼	Fishermen	
T. 8, R. 4	June 7	170	Unknown	300.00
Township "C"	June 13	2	Fishermen	
T. 16, R. 11	June 17	6	Incendiary	120.00
Hammond Pl.	June 24	2	Fishermen	150.00
Township "D"	June 27	1–10	Boy Scouts	
Hammond Pl.	July 31	½	Caught from furnace in mill	5,900.00
T. 5, R. 5	Aug. 25	1½	Campers	20.00
Garfield Pl.	Aug. 30		Hunters	
T. 17, R. 4	Aug. 30	1	Cigarette	2.00
T. 15, R. 5	Sept. 1	½	Campers	10.00
T. 17, R. 4	Sept. 1	1	B. Pickers	
T. 17, R. 5	Sept. 5	1	Campers	2.00
Westmanland	Sept. 6	1½	B. Burning	
		218		$6,716.00

HANCOCK COUNTY

No. 21 Pl.	April 30	35	Incendiary	150.00
Township 7	April 28	200	B. Burning	750.00
Township 7	May 29	3	M. C. R. R.	35.00
No. 33 Pl.	June 6	4	Fishermen	50.00
Townships 9 & 16	Sept. 1	400	Lightning	2,750.00
Township 4, N. D.	Sept. 4	1	Fishermen	64.00
		643		$3,799.00

FRANKLIN COUNTY

Lowelltown	Aug. 2		Lightning	
T. 3, R. 1	Sept. 10	¼	Campers	5.00
				$5.00

PENOBSCOT COUNTY

Lakeville Pl.	May 10	100	Unknown	300.00
Indian No. 3	May 20		Railroad	10.00
T. 1, R. 7	May 23	1	Railroad	3.00
T. 1, R. 7	May 24	1-8	Lumbering	
Hopkins Academy	Sept. 7	2	Unknown	
T. 8, R. 7	Sept. 9		Campers	
		103		$313.00

PISCATAQUIS COUNTY

Location	Date	Area	Cause	Damage
T. 7, R. 9	May 9	2-3	Trappers	.....
Elliotsville Pl.	May 14	3	Railroad	50.00
Onawa	May 20	3	Railroad	30.00
T. 6, R. 9	June 17	.....	Lightning	.....
T. 4, R. 8	June 18	1	Lightning	.....
T. 8, R. 10	Aug. 6	.....	Lightning	.....
T. 2, R. 9	Aug. 13	Camp	Campers	100.00
T. 1, R. 9	Aug. 24	8	Fishermen	50.00
T. 6, R. 10	Aug. 25	12	Lightning	5.00
T. 2, R. 10	Aug. 26	2	Fishermen	5.00
T. 5, R. 10	Aug. 29	.....	Lightning	.....
T. 6, R. 10	Aug. 29	.....	Lightning	.....
		29		$240.00

OXFORD COUNTY

T. 4, R. 1	June 6	1-10	Lightning	.....
T. 5, R. 4	Aug. 19	.....	Lightning	.....
T. 4, R. 4	Aug. 19	2	Lightning	30.00
T. 4, R. 1	Aug. 22	.....	Burning hotel camps	.....
		2		$30.00

SOMERSET COUNTY

Tomhegan	May 10	75	Cigarette	150.00
T. 4, R. 3	May 12	40	Railroad	100.00
T. 4, R. 3	May 20	250	Railroad	500.00
West Forks	July 9	4	Burning of woods camp	20.00
Jackman	Sept. 6.	1	B. Pickers	25.00
Squaretown	Sept. 6.	.....	B. Pickers	.....
		370		$795.00

WASHINGTON COUNTY

Township 19	April 27	.....	Unknown	.....
Grand Lake Str.	April 27	6	Unknown	60.00
Marion	April 27	32	Unknown	10.00
Indian Township	May 3	55	Fishermen	150.00
Grand Lake Str.	May 4	113	Unknown	300.00
Plantation 21	May 15	3	Fishermen	5.00
T. 10, R. 3	May 19	.....	Railroad	.....
Plantation 21	May 20	½	Unknown	20.00
Township 30	May 28	750	Fishermen	1,500.00
T. 10, R. 3	Aug. 16	¼	Burning of camp	.....
T. 10, R. 3	Aug. 25	2	Fishermen	100.00
Plantation 21	Aug. 26	.....	Unknown	.....
Grand Lake Str.	Aug. 27	1-8	Campers	.....
Township 19	Sept. 1	½	Incendiary	15.00
		963		$2,160.00

Fire Record 1926

AROOSTOOK COUNTY

Location	Date	Area	Cause	Damage
T. 15, R. 7	June 21	25	Poachers	125.00
T. 9, R. 10	June 28	1	Lightning	
Garfield	July 1	1	Slash	2.00
T. 14, R. 11	July 3	3	Lightning	45.00
Nashville Pl.	July 4	Camps	Fishermen	100.00
T. 7, R. 4	July 5	2	Fishermen	10.00
T. C, R. 2	July 6	1	Fishermen	220.00
T. 12, R. 17	July 26	1	Lightning	10.00
T. 13, R. 7	July 31		Campers	
T. 17, R. 4	August 4	1	Cigarette	5.00
Winterville Pl.	August 4	100	Slash	1,000.00
Ts. 12 & 13, R. 9	August 5	50	Lumbering	500.00
Silver Ridge Pl.	August 6	2	Unknown	2.00
T. D, R. 2	August 10	1	Incendiary	10.00
Winterville Pl.	August 10	20	Lumbering	10.00
T. 5, R. 15	August 12	1	Campers	2.00
T. 11, R. 4	August 14	¼	Lumbering	55.00
T. 17, R. 5	August 16	1	B. Pickers	2.00
T. 17, R. 4	August 21	1	B. Pickers	
T. 2, R. 4	August 22	10	Fishermen	43.00
T. 16, R. 8	August 22	½	Campers	2.00
T. 14, R. 15	August 26	2	Farmers	2.00
		223½		$2,145.00

FRANKLIN COUNTY

Dallas Pl.	August 23	½	Campers	2.00

HANCOCK COUNTY

Township No. 8	May 15	35	Unknown	20.00

OXFORD COUNTY

Lincoln Pl.	May 16	½	Unknown	1,900.00
T. 4, R. 2	July 4	½	Lunchers	30.00
T. 4, R. 4	July 17	1	Burning of logging camps	1,000.00
Grafton	July 25	¼	Lumbering	10.00
T. 4, R. 1	July 29	Camp site	Lightning	5.00
T. 4, R. 3	August 20	1	Cigarette	5.00
T. 4, R. 1	August 22	30	Campers	300.00
		33¼		$3,250.00

PENOBSCOT COUNTY

T. 1, R. 7	June 24	30	Lumbering	150.00
T. 2, R. 8	June 24	6	Lumbering	50.00
T. 6, R. 7	June 27	1	Campers	2.00
T. A, R. 7	July 5	100	Railroad	
T. 3, R. 9	July 6	5	Campers	
T. 6, R. 8	July 22	10 cords	Lightning	100.00
T. 2, R. 8	August 4	2,000	Undecided	10,000.00
T. 3, R. 8	August 6	50	Unknown	425.00
		2,192		$10,727.00

PISCATAQUIS COUNTY

Location	Date	Area	Cause	Damage
T. 3, R. 11	May 16	1	Cigarette	5.00
T. 10, R. 13	June 17	2	Cigarette	30.00
T. A, R. 11	July 4	8	Fishermen	300.00
T. 7, R. 13	July 4	Camp	Unknown	1,000.00
East Middlesex	July 17	1½	Campers	48.00
T. 4, R. 12	July 17	50	Fishermen	300.00
T. 6, R. 9	July 22	1	Lightning	5.00
Frenchtown	July 22	1½	Lightning	40.00
T. 7, R. 9	July 22	.....	Unknown	.....
T. 6, R. 10	July 23	.....	Lightning	.....
T. 6, R. 9	July 23	½	Lightning	.....
Lily Bay	July 23	2	Lightning	20.00
West Bowdoin College Grant	July 23	2½	Lightning	288.00
T. 7, R. 10	July 25	½	Lightning	.....
T. 1, R. 11	July 27	415	Lightning	8,000.00
East Middlesex	July 28	1½	Lightning	60.00
West Bowdoin College Grant	July 31	½	Lightning	4.00
T. X, R. 14	August 1	2	Unknown	25.00
T. A, R. 11	August 5	425	Lightning	5,500.00
Frenchtown	August 16	1–8	B. Pickers	25.00
Squaw Mt. town	August 17	2	Unknown	85.00
Squaw Mt. town	August 22	¼	Railroad	5.00
		616¾		$15,740.00

SOMERSET COUNTY

T. 6, R. 7	May 29	Camp	Unknown	100.00
T. 5, R. 6	June 12	4	Lumbering	100.00
Tomhegan	June 14	6	Campers	60.00
East Moxie	June 30	1	Fishermen	10.00
T. 8, R. 16	July 17	12	Lightning	200.00
T. 9, R. 18	July 22	.....	Lightning	.....
Sapling Town	July 23	2	Lightning	160.00
Misery	July 24	15	Lightning	75.00
Middlesex	July 24	30	Lightning	300.00
Misery	July 25	8	Lightning	80.00
T. 4, R. 3 N. B. K. P.	July 30	6	Railroad	30.00
T. 3, R. 3 N. B. K. P.	August 6	1	Lumbering	25.00
Misery	August 6	10	Lightning	150.00
Mayfield	August 21	12	Campfire	60.00
Tomhegan	August 21	3	B. Pickers	50.00
		110		$1,400.00

WASHINGTON COUNTY

Cooper	May 13	1	Unknown	2.00
Indian Township	May 15	4	Unknown	15.00
Codyville Pl.	May 16	50	Unknown	15.00
Marion	May 31	25	Fishermen	100.00
Whiting	August 22	425	B. Pickers	650.00
Codyville Pl.	July 4	1	Fishermen	.....
Marion	Sept. 13	½	Fishermen	2.00
		506½		$784.00

Summary of Forest Fires for 1925-1926 by Months, Counties and Causes

	No. of Fires		Acres		Damage	
	1925	1926	1925	1926	1925	1926
By Months:						
April	6		273		$970.00	
May	21	8	1,417	116½	3,353.00	$2,157.00
June	13	9	195	76	632.00	527.00
July	2	37	4½	673¼	5,920.00	12,442.00
August	18	28	29	2,851¼	312.00	18,940.00
September	13	1	409½	½	2,871.00	2.00
	73	83	2,328	3,717½	$14,058.00	$34,068.00
By Counties:						
Aroostook	22	22	218	223½	6,716.00	2,145.00
Franklin	2	1		½	5.00	2.00
Hancock	6	1	643	35	3,799.00	20.00
Oxford	4	7	2	33¼	30.00	3,250.00
Penobscot	6	8	103	2,192	313.00	10,727.00
Piscataquis	12	22	29	616¾	240.00	15,740.00
Somerset	6	15	370	110	795.00	1,400.00
Washington	15	7	963	506½	2,160.00	784.00
	73	83	2,328	3,717½	$14,058.00	$34,068.00
By Causes:						
Lightning	11	23	414	632	2,785.00	15,042.00
Railroad	10	3	300	106¼	728.00	35.00
Smokers	2	4	76	5	152.00	45.00
Campers	8	12	3	82¾	137.00	631.00
B. Burning	4	3	208	103	762.00	1,004.00
Incendiary	3	1	41½	1	285.00	10.00
Lumbering	1	8		111½		900.00
Unknown	11	13	432½	2,146½	1,090.00	13,589.00
Hunters	2		1			
Berry Pickers	3	5	2	430	25.00	727.00
Fishermen	13	10	833	98½	2,074.00	1,085.00
Caught from burning building	4	1	5	1	5,920.00	1,000.00
Children	1		12		100.00	
	73	83	2,328	3,717½	$14,058.00	$34,068.00

Outside Maine Forestry District

FOREST FIRE PROTECTION IN ORGANIZED TOWNS

It is estimated that the forested area of organized towns outside of the Maine Forestry District is about 5,000,000 acres. Within this area is located practically all of the white pine of the State valued at over $50,000,000. The responsibility of protecting this area from fire rests entirely upon the Municipal officers of each town and plantation. In the general supervision of the forest fire protection of the State, it is always the aim of this Department to lend such assistance as comes within its power. The Department cooperates with the selectmen in the maintenance of eight lookout stations, in the enforcement of the slash law, in the distribution of bulletins and fire signs, and in the licensing and regulation of conditions under which portable sawmills shall be run. Last spring the United States Forest Service suggested that a study should be made of the present condition of the forest fire system in the organized towns. This study was carried out in cooperation with the Department and the result appears in an ably prepared report which appears in the appendix entitled "Forest Fires in Maine—Values Involved" by C. R. Tillotson. The suggestions made in said report are very valuable and deserve the careful consideration of the citizens of the State.

LOOKOUT STATIONS

All the lookout stations were manned during the past two seasons at the expense of the Department, except Green, Kelly and May Mountains. The first one was maintained in cooperation with the State of New Hampshire, and the other two with private owners. As usual, these have saved the State thousands of valuable acres of forested land. A special effort will be made next year to establish a few more stations. About six additional towers would complete the system, and specific sites for some of these have already been selected, while investigations in the spring are necessary to determine the most advantageous sites for the others.

Station	Opened 1925	Opened 1926	Closed 1925	Closed 1926	No. Fires 1925	No. Fires 1926
Agamenticus Mt.	April. 10	May 7	Oct. 7	Oct. 15	42	36
Dedham Bald Mt.	Apr. 8	May 5	Oct. 1	Oct. 1	17	28
* Green Mt.	Apr. 19	May 16	Oct. 14	Oct. 31	9	16
** Kelly Mt.	May 31	May 10	Sept. 14	Sept. 8	1	21
** May Mt.	June 14		June 30			
Ossipee Mt.	Apr. 10	May 8	Oct. 7	Oct. 6	50	30
Pleasant Mt.	Apr. 28	May 16	Oct. 14	Oct. 31	15	14
Stockholm Mt.	Aug. 16	July 23	Sept. 12	Aug. 28	13	2
Zircon Mt.	May 6	May 25	Sept. 14	Oct. 5	8	4
					155	151

* In New Hampshire.
** Privately Owned.

SLASH

The appointment of a slash inspector for 1925 and 1926 has helped materially in the enforcement of the slash law. Over five hundred violations were investigated and all of them were remedied without need of prosecutions. The removing of the slash within fifty feet from the limit of a railroad, or center of the wrought portion of roads helps to reduce the number of fires. As a rule the railroads keep their rights of way clear of all inflammables and very few fires would be caused by them if the landowners adjoining the rights of way would remove the slash or debris as required by the law; and the removal of slash or debris alongside highways would prevent the spread of many forest fires caused by the throwing of matches, cigarettes, and cigars from automobiles.

FOREST FIRES

The records show that a larger area was burned in the organized towns than in the Forestry District, due to two causes, viz., the prolonged drought of July, August and September, and in some instances delay in placing men on the fires. In order to assist the selectmen, the Department bought a portable gasolene pump and one thousand feet of hose. This pump was used on the big fires in Bowdoinham and Phippsburg, and besides getting these fires under control saved many buildings and valuable lumber which otherwise would have been burned. This pump is stored in Augusta and is at the disposal of all the towns.

Comparison of Burned Area from 1923 to 1926

1923	1924	1925	1926
7,992 acres		1,956 acres	3,725 acres	8,495 acres

Fire Record, 1925

ANDROSCOGGIN COUNTY

Location	Date	Area	Cause	Damage
Turner	May 11	4	Unknown	50.00
Lewiston	June 6	2	Unknown	.....
Turner	June 16	140	Railroad	500.00
Leeds	August 17	1	Unknown	15.00

CUMBERLAND COUNTY

Falmouth	April 9	.....	B. Burning	.....
Portland	Sept. 2	1	Unknown	.....

FRANKLIN COUNTY

Chesterville	April 28	5	Unknown	75.00

KENNEBEC COUNTY

Albion	April 28	41	B. Building	130.00
Manchester	April 25	300	Campers	1,500.00
Rome	April 27	50	Wood Choppers	310.00
Augusta	Sept. 4	5	B. Burning	50.00

KNOX COUNTY

Thomaston	May 10	5	Unknown	40.00

LINCOLN COUNTY

Boothbay	April 1	2	Unknown	25.00
Jefferson	April 6	6	Unknown	.....
Alna	April 8	10	Unknown	100.00
Dresden	Sept. 2	5	Cigarette	.....

OXFORD COUNTY

Rumford	April 22	1	B. Burning	.....

PENOBSCOT COUNTY

Location	Date	Area	Cause	Damage
Kenduskeag	April 7	4	B. Burning	.....
Kenduskeag	April 9	100	B. Burning	.....
Clifton	April 27	200	Unknown	.....
Greenfield	May 4	200	Unknown	200.00
Greenbush	May 15	50	Unknown	.....
Millinocket	May 20	65	Railroad	150.00

PISCATAQUIS COUNTY

Monson	April 22	1½	Railroad	5.00
Monson	April 22	½	Burning brush	.....
Shirley	April 22	15	B. Burning	30.00
Shirley	April 26	10	Unknown	20.00

SAGADAHOC COUNTY

Georgetown	April 6	10	Unknown	50.00

WASHINGTON COUNTY

Baring	May 14	300	Children	.....
Baring	May 24	50	Fishermen	.....
Vanceboro	Aug. 31	50	Unknown	5.00
Vanceboro	Sept. 9	½	Unknown	5.00

YORK COUNTY

Waterboro	April 7	10	Railroad	.....
Kennebunk	April 7	5	Sparks from chimney	200.00
Hollis	April 8	100	Unknown	200.00
Hollis	April 9	50	B. Burning	100.00
Shapleigh	April 26	50	Unknown	.....
Buxton	April 27	30	Unknown	.....
Buxton	May 4	15	Railroad	100.00
York	Aug. 29	100	Incendiary	400.00
Lebanon	Sept. 2	1,750	Railroad	25,000 00
York	Nov. 4	20	Hunters	.....
		3,725		$29,060.00

Fire Record, 1926

ANDROSCOGGIN COUNTY

Location	Date	Area	Cause	Damage
Greene	July 4	20	Incendiary	50.00
Poland	August 22	1½	Unknown	2.00
Lewiston	August 23	10	Unknown	200.00

CUMBERLAND COUNTY

Scarboro	May 2	8	Unknown	200.00
Bridgton	June 25	1	Railroad	.....
Bridgton	July 4	.....	Children's fireworks	.....
Naples	July 4	.....	Children's fireworks	.....
Naples	July 5	.....	Unknown	.....
Bridgton	August 30	1	B. Burning	2.00

HANCOCK COUNTY

Lamoine	May 13	40	Cigarette	300.00
Bluehill	May 22	50	Unknown	200.00
Dedham	July 26	½	Cigarette	.....
Brooklin	August 18	8	Unknown	25.00
Tremont	August 23	3	Unknown	.....

KENNEBEC COUNTY

Monmouth	May 2	5	B. Burning	1,800.00
Litchfield	Sept. 6	40	Unknown	80.00

LINCOLN COUNTY

Edgecomb	July 25	7	Cigarette	15.00
Waldoboro	July 4	20	Unknown	800.00

OXFORD COUNTY

Buckfield	August 20	.....	Unknown	.....
Rumford	August 20	.....	B. Pickers	.....
Brownfield	August 21	1–8	Railroad	.....
Brownfield	August 22	¼	B. Pickers	2.00

PENOBSCOT COUNTY

Orrington	May 8	17	Campfire	160.00
Millinocket	July 6	100	Fishermen	800.00

PISCATAQUIS COUNTY

Location	Date	Area	Cause	Damage
Willimantic	July 5	½	Campfire	
Blanchard	July 13		B. Pickers	

SAGADAHOC COUNTY

Georgetown	May 5	30	B. Burning	3,000.00
Bowdoinham	August 17	325	B. Pickers	650.00
Phippsburg	Sept. 3	6,900	Unknown	7,500.00

SOMERSET COUNTY

Concord	July 4	10	Unknown	20.00
Athens	August 22	1	Caught from burning bldg.	

WALDO COUNTY

Belfast	May 7	7	Campfire	14.00
Lincolnville	August 20	20	Unknown	10.00
Stockton Springs	August 21	10 cords	Unknown	12.00

WASHINGTON COUNTY

Steuben	May 7	60	Unknown	15.00
Eastport	August 16	1	B. Pickers	
Centerville	August 19	20	Unknown	

YORK COUNTY

Cornish	May 3	25	B. Burning	
Saco	May 5	8	Railroad	96.00
Saco	May 5	15	Railroad	250.00
Eliot	May 8	150	Unknown	300.00
Hollis	May 8	20	Railroad	250.00
North Berwick	May 12	18	Caught from burning bldg.	300.00
Biddeford	May 12	500	Unknown	200.00
Buxton	June 21		Railroad	
Saco	June 29	5	Burning building	500.00
Buxton	July 3	8	Unknown	100.00
Sanford	July 4	4	Unknown	
Sanford	July 4	3	Unknown	
Sanford	July 4	1	Cigarette	
Sanford	July 4	1	Unknown	
York	July 4	2	Cigarette	
North Berwick	July 12	¼	Unknown	
Wells	July 21	½	Unknown	
Saco	July 24	8	B. Pickers	50.00
Wells	August 23	1½	Unknown	25.00
Eliot	August 29	2	Unknown	
Kennebunk	August 31	2	Unknown	
Wells	Sept. 4	1½	Unknown	25.00
York	Sept. 9	10	Unknown	100.00
Lebanon	Sept. 10	3	Unknown	60.00
		8,495½		$18,113.00

Summary of Forest Fires for 1925-1926 Outside Maine Forestry District by Months, Counties and Causes

	No. of Fires		Acres		Damage	
	1925	1926	1925	1926	1925	1926
By Months:						
April	23		981		$2,545.00	
May	8	15	689	953	540.00	$7,085.00
June	2	3	142	6	500.00	500.00
July		19		165¾		1,035.00
August	3	19	131½	416¼	415.00	1,728.00
September	5	5	1,761½	6,954½	25,060.00	7,765.00
October						
November	1		20			
	42	61	3,725	8,495½	$29,060.00	$18,113.00
By Counties:						
Androscoggin	4	3	147	31½	565.00	252.00
Cumberland	2	6	1	10		202.00
Franklin	1		5		75.00	
Hancock		5		101½		525.00
Kennebec	4	2	396	45	1,990.00	1,880.00
Knox	1		5		40.00	
Lincoln	4	2	23	27	125.00	815.00
Oxford	1	4	1	¼		2.00
Penobscot	6	2	619	117	350.00	960.00
Piscataquis	4	2	27	½	55.00	
Sagadahoc	1	3	20	7,255	50.00	11,150.00
Somerset		2		11		20.00
Waldo		3		27		36.00
Washington	4	3	351	81	10.00	15.00
York	10	24	2,130	788¾	25,800.00	2,256.00
	42	61	3,725	8,495½	$29,060.00	$18,113.00
By Causes:						
Railroad	5	6	1,982	44	25,750.00	596.00
Smokers	1	5	5	50½		315.00
Fishermen	1	1	50	100		800.00
Campers	1	3	300	24½	1,500.00	174.00
Incendiary	1	1	100	20	400.00	50.00
B. Burning	9	4	175	61	185.00	4,802.00
Burning Building	2	3	46	24	130.00	800.00
Children	1	2	300			
Unknown	19	30	697	7,837¼	785.00	9,874.00
Hunters	1		20			
Lumbering	1		50		310.00	
Berry Pickers		6		334½		702.00
	42	61	3,725	8,495½	$29,060.00	$18,113.00

State at Large

PUBLIC LANDS

The Department has the supervision and the management of the school lots in plantations, with an approximate area of 70,000 acres. No special work has been done on these lots in the past two years, and the following tabulation will show the revenue derived from the sale of stumpage, from the leasing of camp sites, and for trespass.

LANDS RESERVED FOR PUBLIC USES

		1925	1926
Cary Pl.	Aroostook County		$16.00
Leavitt Pl.	" "	$ 617.30	312.40
Molunkus Pl.	" "	3,201.69	25.00
Moro Pl.	" "	105.06	
Nashville Pl.	" "	284.00	487.44
New Canada Pl.	" "		47.00
Oxbow Pl.	" "	225.00	5.00
Reed Pl.	" "	1,040.40	2,615.61
St. John Pl.	" "	710.89	400.00
Winterville Pl.	" "	414.01	
T. 10, R. 4	" "	32.00	46.00
T. 16, R. 10	" "	48.05	
T. 17, R. 10	" "	4.01	.69
T. 17, R. 11	" "	697.52	382.51
Coplin Pl.	Franklin County	406.55	
Letter E	" "	25.00	25.00
T. 3, R. 3	" "	100.00	100.00
T. 3, R. 4	" "	100.00	100.00
No. 21 Pl.	Hancock County		864.50
T. 4, R. 2	Oxford County	80.00	80.00
T. 5, R. 4	" "	126.00	126.00
T. 5, R. 5	" "	50.00	50.00
Lakeville Pl.	Penobscot County		107.64
Webster Pl.	" "		21.00
T. 5, R. 8	" "	10.00	10.00
T. 2, R. 11	Piscataquis County	25.00	25.00
T. 10 R. 9	" "	12.50	12.50
Bigelow Pl.	Somerset County	2,326.36	93.81
Caratunk Pl.	" "		344.16
Flagstaff Pl.	" "		352.68
Forks Pl. The	" "	1,746.71	953.45
Highland Pl.	" "	320.01	
Jackman Pl.	" "	30.00	
Moose River Pl.	" "	77.05	4.00
T. 5, R. 20	" "	48.88	
Codyville Pl.	Washington County	115.70	
Grand Lake Stream Pl.	" "	2,147.60	
		$15,127.29	$7,607.39
Passamaquoddy Indian Fund, Indian Twp.	Washington County	11,834.24	106.25
Interest on Deposits		379.09	193.02
Office Fees		76.00	36.50
Islands		85.00	75.00
SALE OF LAND			
Madawaska		31.00	
St. Agatha		17.00	
T. 14, R. 14		200.00	
		$27,749.62	$8,018.16

Education and Publicity

Human carelessness is the source of over seventy per cent of our forest fires. These fires are started rarely through ignorance of the danger coming from matches, cigarettes, pipe heels, and camp fires. Furthermore, a realization of the value of Maine's forests to her industries, transportation systems, water powers, and summer visitors has as yet not been fully reached by the people of the State. During the past two seasons especial emphasis has been laid upon educating the public to a realization of the part they must play in protecting our forest resources.

Miss Marie Provotat, who is known along the Maine, New Brunswick, and Quebec border as "The apostle of conservation" has carried on an intensive crusade amongst the french speaking citizens of the State. Miss Provotat is a vivacious, highly educated Parisian french lady of very pleasing personality. For some time she lectured through France and later in Canada on conservation. Her work has been almost entirely a labor of love. She has visited every town, lumber operation and driving camp on the St. John and Allagash rivers preaching her gospel of conservation. She has lectured in many of the schools illustrating her talks by means of both moving and still pictures which she has taken. In the lumber camps she has particularly emphasized the need of care in protecting the young growth. There is no question but that she has done a tremendous amount of good and that she deserves the hearty thanks of those interested in forest protection.

Each year the President of the United States sets aside one week to be known as "American Forest Week" in which the various states try to bring before the people some message of forest protection and perpetuation. The Maine Forest Service did its part the past season by organizing a State wide contest amongst school children for the best essays on the subject "The Forests of Maine, their Protection and Conservation." Three hundred dollars in cash prizes were offered. The school children throughout the State entered heartily into the contest and some extremely well written papers were received. The winning essay was written by Miss Arlene St. Peter of Van Buren.

This paper admirably covered the value of the forests to the State and the great need of protecting them from the ravages of fire, insects, and disease.

The Department was particularly fortunate in having Mr. Herbert N. Wheeler, Lecturer for the United States Forest Service, with us for two weeks, during which time he lectured in different parts of the State on "Forest Fire Prevention." Mr. Wheeler is a man of broad experience in the forest service and his talks were everywhere enthusiastically received. A large number of other talks have been given throughout the State by members of the Maine Forestry Department before granges, business men's clubs, etc.

In the spring of 1926 Mr. Ralph M. Hutchinson was appointed extension forester. Although he comes directly under the State extension service an agreement has been entered into by which he works in cooperation with the Department. His work is largely with the farm wood lot owner and an effort will be made to show the farmers how best to manage their wood lots and to encourage forest planting.

During the past year 20,000 signs, and 30,000 cards making an appeal to fishermen, hunters, campers, and motorists to be careful of fire have been distributed throughout the State. A colored slide depicting the danger from forest fires was sent to each moving picture house in the State and shown on the screen during the fire season. Special signs showing the location of the lookout stations were placed in all of the hotels, sporting camps, and railroad stations.

Thirty-four camp sites have been established along the main highways in the forest region of the State. These sites are located near either a spring or a brook. Each area has been cleared of all rubbish and inflammable material and in the center is a substantial rock fire place with a table near by that will seat twelve people. Large metal signs along the highways indicate the location of these camp sites. It is hoped that these sites will prevent motorists from stopping and building camp fires in places of danger. The following list shows the general location of these camp grounds:

Aroostook County
- Nashville Plantation
- Township 14, Range 7
- Township 16, Range 4
- Oxbow Plantation
- Township 9, Range 5
- Township 8, Range 5
- Township 7, Range 5
- Island Falls
- Township 15, Range 6
- Township 14, Range 6

Franklin County
- Jerusalem

Hancock County
- Township 28
- Township 10

Penobscot County
- Township 1, Range 7
- Township 2, Range 6
- Township 2, Range 7

Piscataquis County
- Gore A, Range 2
- Township 3, Range 12
- Township 3, Range 11

Oxford County
- Grafton

Somerset County
- Dead River Plantation
- Bigelow Plantation
- Caratunk Plantation
- The Forks Plantation
- West Forks Plantation
- Jackman Plantation
- Moose River Plantation
- Moscow
- Harmony

Washington County
Indian Township
Grand Lake Stream
Topsfield
Lambert Lake
Township 30

A large number of lunch grounds along the lakes and streams have been established in cooperation with the Brown Co. in the Rangeley Lake region.

Maine Forest Service exhibits were shown at the following fairs this past season: Bangor, Waterville, Lewiston, Eastern States Exposition at Springfield, Mass., and the American Legion Fair at Portland. At these latter two fairs the Maine Hardwood Association cooperated with the Department. The exhibit in these two cases consisted of a large back drop showing a typical view from a lookout station. In the foreground were cut-outs of near-by mountains and a miniature mountain covered with forest trees and surmounted by a lookout station. In the immediate foreground was a hardwood and softwood forest made by dyeing the flowers and fruit of golden rod and steeple bush. An electric railroad led to a typical sawmill, with its mill-pond and lumber piles. Fourteen panels showed the various activities of the Department. Smaller exhibits were shown from time to time in store and bank windows.

Several publications have been completed for distribution and these are in constant demand. The subjects covered are "Forest Trees of Maine," "Maine Hardwood Opportunities," "The Control of Forest and Shade Tree Insects," and "White Pine Blister Rust Control."

A recent campaign of education held by the Massachusetts State Department of Conservation admirably emphasized the benefits arising from this type of work. A certain section of the State that year after year had been swept by disastrous fires was set aside and an intensive campaign of education in forest protection started. In spite of a very dry season the number of fires was greatly reduced, and if it had not been for one fire that was purposely set the loss would have been negligible.

Forest Entomology

The increasingly large number of inquiries which are received in regard to trouble from insects to forest, forest products, and shade trees, denotes the interest that people are taking in regard to natural resources and their protection. The protection of the forests from insect pests should go hand in hand with their protection from fire. Both are possible and both depend largely upon an early attack by man before the destructive agent becomes widespread. For several years the western states have been fighting forest insect pests with great success, but it is only very recently that the larger forest states of the East have been making forest insect control an integral part of their forest protection program.

The requests for aid are very varied and include many interesting records, such as insects working in the timbers of roofs, floors, and walls of houses, and in one case even in the furniture. Trees throughout their entire life are threatened by insect enemies. Taking for example the life of white pine as it was affected by insects reported this last season. First came the white grubs attacking the roots of the seedlings in forest nurseries. Then the Pales Weevil chewing off the bark and girdling the young trees. Then the mound building ants girdling trees up to three inches in diameter. At approximately the same time we find weevils working in the base of the trees and another specie destroying the terminal shoot. Then come plant lice and wooly aphids feeding on the needles and thin bark of the tree. A new insect was found that feeds in the needle sheath causing the needles to dry up and fall off. Several species of caterpillars and sawflies defoliate the larger trees. Then there are the hosts of minute bark beetles that bore beneath the bark girdling the trees. A large outbreak of cone and seed weevils destroyed vast quantities of seed in one section of the State. The weakened, dying and dead trees are quickly attacked by the round and flat headed borers and by carpenter ants. Even after the trees are cut we find the logs invaded by beetles of many kinds, and in one case even sawed lumber was attacked. The same story might be told of other coniferous trees, and to some extent even of hardwood trees. It is a continual silent battle for survival, and unless man steps in on the side of the forest, the insect hosts will win out.

Man has upset the natural balance in the forest through selective cutting and fires, and something must be done to restore the present unequal fight. The following brief outline tells something of the work being done to combat these insects. A more detailed report is in process of preparation and will be published in 1927.

RESEARCH

As the control of forest insects is a science that is still in its infancy the success of its application depends largely upon research.

1. *Spruce Bud Worm.* The major problem in Maine has been to find a feasible method of preventing further losses from the spruce bud worm. Studies made during the last five years have shown that budworm outbreaks invariably start up in areas where there is a high percentage of fir and that if located in time the outbreak can be stamped out by clean cutting the infected area. There are, however, places where it still is not considered feasible to put in a pulpwood operation, even though it might protect large areas from destruction. With this fact in mind sample plots were laid out near Lake Moxie where spruce and fir were girdled in different ways, at different seasons of the year, to determine the feasibility of girdling infested areas, the idea being to dry up the foliage and thus starve out the larvae. The results were far above all expectations. The plots were started in the spring of 1924 and have been constantly watched, notes being taken on the rate of death, rate of decay, and the order in which wood boring insects attack the dead and dying trees. When the study has been completed these plots will show something of the time operators have to salvage areas that have been girdled. Studies in other sections of the State have been continued in an effort to determine the rate of spread of an outbreak and the rate of death in different forest types. Sixty plots were taken to show the effect of hardwoods in diminishing budworm losses. Here again the results were very striking and showed without question the value of mixed stands from an entomological standpoint.

2. *Bronze Birch Borer.* A careful study of this insect, which destroys large amounts of birch in the State was made this last year and the results are now in the hands of the printer. It has been shown beyond any question that stands of white or paper birch should be kept at a density of 249 dominant and co-

dominant trees per acre. Stands that are opened up by cutting out the poplar, or the softwoods, or from diameter limit cutting are invariably severely damaged by the bronze birch borer. White birch stands should be clean cut. As this insect is particularly serious on ornamental trees a new artificial method of control was tried out with apparent great success. This is to inject into the sapwood a harmless plant drug that will change the taste of the wood, thus driving out the borers. Aloes, a bitter, water soluble plant drug proved the most satisfactory substance and this quickly drove the borers out of the trees.

3. *Mound Building Ants.* Each year calls come in for aid in destroying the large ant mounds found throughout New England. The inhabitants of these mounds destroy large amounts of forest trees and are particularly dangerous when present in plantations. The ants destroy the trees by injecting formic acid into the basal portions of the trunk. Carbon bisulphide poured into the mounds will destroy these ants. Further experiments have been carried on throughout the season testing out other poisons. Chlorine gas, calcium cyancide, and several trade poisons have been used. Approximately two hundred mounds have been treated. The results of these experiments will be available in the spring.

4. *Protection of logs from borers.* Through the courtesy of the Bates College Forest at Alfred, and the Brown Company at Cupsuptic, a series of experiments were run in an effort to find some practical way of keeping wood boring insects out of logs that have to be left in the open during the summer months. Peeling of the logs is an absolute protection, but this is too costly. Dusting the logs with powdered lime sulphur proved not only very satisfactory, but also very inexpensive. The lime sulphur dust was thrown on by means of a small trowel. The effects of the dust last throughout the season so that only one application is necessary. The dust merely acts as a repellant. Other experiments showed that shade, plus good water and air drainage, that will aid in bringing about rapid drying of the logs, is the next best method of protection.

5. *Control of the Pales Weevil.* Two small plots were started at Alfred, Maine, in an attempt to prevent damage to white pine seedlings on recently cut-over lands. The Pales Weevil is a small snout beetle that is attracted by freshly cut pine logs and stumps and feeds on the tender bark of seedling pine. Here

again there seemed to be a possibility of decreasing the amount of damage if the odor emanating from the logs could be counteracted or lessened. On one plot the logs and stump from one pine were dusted with lime sulphur. On the other plot the logs and stump were left undusted. The amount of damage was practically one half as much on the treated plot as on the untreated. Plans are now under way to use the lime sulphur on a large scale this coming season.

6. *White Grubs.* The use of crude white arsenic in forest nursery beds as a control for white grubs was tried again with success this year. Even after the grubs start their work it is possible to trench around them by mixing the arsenic in the soil in a narrow band about six inches deep. As a large amount of soil passes through the intestines of the grubs while they are feeding, the presence of a small amount of arsenic acts as a very effective control.

INSECT OUTBREAKS

During the season covered by this report several new budworm outbreaks have been reported. Four areas still remain to be examined. There is no question but that this insect is still with us and whenever favorable forest, climatic, and natural conditions prevail, outbreaks will occur. The satin moth, a new European pest, has invaded southern Maine and has proved a serious pest on poplar and willow. Both State and Federal quarantines exist to aid in preventing the more rapid spread of this insect. The larch sawfly is again becoming very prevalent and it looks as if the larch was again to be killed off. The larch case bearer, which in the last four years has stripped large areas of larch, did almost no damage this past season. Some stands showed as high as twenty-five per cent mortality from this insect's ravages. Many unusual insect outbreaks occurred that brought out the fact that insects which normally are held in check by natural conditions may at times assume epidemic proportions. The cotton wood leaf beetle, *Lina scripta,* practically completely defoliated a poplar stand near Sebago Lake. A leaf miner caused the browning of large stands of pitch pine in York County. The spruce destroying bark beetle, *Dendroctonus piceaperda,* became active in western Maine on white spruce. Another bark beetle, *Ips pini,* destroyed considerable pine in another section of the State before

the outbreak was stopped by cutting the infested timber. Spruce, fir, and pine seed weevils have become very abundant in some sections of the State. These beetles bore through the immature cones laying their eggs through the central spike. The larvae or small grubs hatching from these eggs tunnel through the seeds. An unlisted gall fly infested the needle sheaths in a white pine plantation causing the needles to turn brown and fall off. The spruce gall louse assumed epidemic proportions on one of the spruce covered islands in Casco Bay, being plentiful enough to defoliate many trees by destroying terminal buds.

SHADE TREE PESTS

Considerable interest has been aroused in several Maine cities in regard to protecting the shade trees from insect attack. Three cities have already hired men to do nothing but recondition the trees. A large amount of tree surgery work is being done on estates throughout Maine. This type of work requires an expert, as it has become a highly technical science, but unfortunately the field is unlicensed and open to any one, consequently a large amount of poor work has been done by so called quacks. It is better to leave a tree untouched than to have it treated by men who are not qualified to do the work.

Owing to the increasing prevalence of the elm leaf beetle it would be highly desirable for some of the cities to buy spraying machines. The value of shade trees to a city is far above what the average citizen realizes. It is only when we see treeless cities that we appreciate something of their value.

Borers are destroying large numbers of sugar maple trees. At the present time this is not a desirable tree to plant on this very account. In a like manner our paper or white birch trees are suffering severely. A new means of control as mentioned under the Bronze Birch Borer gives great promise of our being better able to control wood boring insects under shade tree conditions. This could be carried even further as there is a possibility of even preventing any damage.

Insects are attracted for long distances by the odor of their favorite food. Large numbers of experiments have proved this, and forest insects are no exception to the rule. The Pales weevil and white pine weevil will traverse long distances in search for their subsistance. The locust borer will seek out its host tree

miles from where it has been feeding. Paper birch trees planted in the midst of a large city many miles from any forest area are found and infested by the bronze birch borer. We know that trees give off tremendous amounts of water vapor that has passed up through the sapwood into the leaves. It seems reasonably certain that this water vapor given off by the leaves varies in the different species of trees as does the sap in the trees themselves, and that this odor of the evaporating sap as it is blown by the wind may be the attracting agent for insect pests. If this odor can be changed it seems reasonable to assume that insects will not be attracted to the tree, for in general an insect attacking birch infests no other type of tree and likewise one attacking sugar maple feeds on this tree alone. In some cases the odor of the flowers appears to be the attractive agent. It is a field for intensive research with apparant unlimited possibilities for worth while results that may entirely change our methods of combating shade tree insects.

FOREST DISTRICT TYPE MAP

The type map of the Maine Forestry District which was started five years ago is fast nearing completion. Individual type maps furnished by the landowners and by the State Assessors have alone made it possible to compile the map. These maps have all been reduced to scale and are at present being copied onto a large base map. When completed, this map will be of great value in forest insect control work, and in locating areas of special species such as birch, poplar, cedar, etc., for prospective buyers. The Maine Hardwood Association has also taken a very helpful interest in the compilation of the map.

White Pine Blister Rust

IMPORTANCE AND CONTROL

In Maine and other Northeastern pine growing states, pine owners are much concerned with white pine blister rust. Evidences of its destructiveness are being discovered in new locations each year; infection in reproduction running as high as seventy-five to ninety per cent existing in sample plots in many townships. Blister rust "flags" and killed trees are seen along every roadside.

This condition has become general over the entire southern half of the State within a period of ten years. The disease was first found in Maine in 1916 at Kittery Point, but now, in 1926, it is established throughout the entire white pine growing regions of the State—every township has the rust.

Blister rust is here to stay. It is firmly established, and is a real menace, a menace that must not be taken lightly if Maine is to continue her standing as a white pine State. It is our young white pine growth that is endangered—a vast acreage of growth that should replace the timber now being removed so rapidly. Within the State hundreds of thousands of nursery grown white pines are planted yearly, but it is an unquestionable fact that blister rust kills many times this number of wild pine in the same period of time. Blister rust kills mature trees also, but they die slowly and are readily salvaged before their lumber deteriorates. It is the immature stands—the forests of the future—that are in immediate need of protection.

This disease, unlike some other forest tree troubles, may be controlled by man at a reasonable cost of time and money, and the perpetuation of our white pine crop assured, by simply removing all currant and gooseberry bushes within nine hundred feet of white pine trees. These plants are the alternate hosts of the disease, and are its sole distributors to white pine trees, as only by their presence within the above mentioned distance to white pine trees can the disease be spread to other white pine trees. The disease cannot spread from one tree to another, but must go first to a currant or gooseberry bush and then back to the pine. The removal of these bushes for nine hundred feet gives effective control of the rust because the pine-infecting spores of the disease are exceedingly delicate and short-lived, dying quickly after they are blown away from the currant and gooseberry bushes.

PROGRESS IN CONTROL MEASURES 1925 AND 1926

In 1922 the State and Federal Governments entered into a cooperative eight year blister rust control program, in which the State, with such Federal and town aid as may be available, handles the necessary educational, scouting and supervisory work, but the actual eradication of the pine-destroying bushes must be done by the private owner at his own expense. That this method of conducting the work has been very successful is borne out by the thousands of cooperating pine owners, the hundreds of thousands of acres of pine lands protected, and by the steps taken to check the disease by several of our largest timberland owners.

As pine owners in general are not familiar with the seriousness of the disease, and do not recognize the many varieties of currant and gooseberry bushes, therefore needing help in learning to apply methods, it is the State's duty to instruct them through personal contact, following the above mentioned intensive and thorough-going state and Federal working policy. This work has been conducted by four permanent agents, one each in York, Oxford and Cumberland Counties and one for Kennebec and the Twin Counties, and by twelve to thirteen temporary assistants who work during the summer months only.

During 1925 control work was conducted in eleven towns in Cumberland County, fifteen towns in York County, eleven towns in Androscoggin-Sagadahoc Counties, twelve towns in Oxford County, and one town in Kennebec County, a total of fifty towns. A small amount of private work was also done in Penobscot County.

In 1926 work was conducted in eleven towns in Cumberland County, nine towns in York County, seven towns in Androscoggin-Sagadahoc Counties, sixteen towns in Oxford County, two towns in Franklin County and five towns in Somerset County, a total of fifty-one towns. In the last two named counties eradication was performed by the Brown Company and the S. D. Warren Company. All towns in which work is done are designated by the Forest Commissioner under authorization given him by Chapter 178, Public Laws 1917, as areas within which control measures against white pine blister rust are necessary. Within these areas it becomes the duty of every landowner to remove all currant and gooseberry bushes, wild and cultivated, within nine

hundred feet of any white pine trees, prior to the closing of the eradication season. In case of the failure of the owner to destroy such plants within the time specified, the Forest Commissioner is authorized to cause them to be destroyed and to charge the actual expense to the town to be collected as a State tax. Due to the hearty cooperation of the pine owners once they were shown blister rust in their own lots, it has been necessary to resort to legal measures in carrying out control work but five times during the years 1925 and 1926. In these instances the State has done the eradication work, and collected payment for same from the towns. The towns collect from the owners in taxes.

The excellent cooperation of pine owners in blister rust control work is due to the educational factor that enters into it—the personal contact our agents have with the pine owners, in which the owner is brought face to face with the situation. During the past two years 6,720 pine owners were interviewed and 2,324 follow-up calls made, with the result that 3,080 owners destroyed wild ribes (currant and gooseberry bushes). 321 destroyed cultivated ribes, 264 pine owners promised to destroy wild ribes but could not complete the work by the end of the field season, 3,877 promised their moral support. Also 4,133 field demonstrations of the disease to individuals were held, and 2,369 individuals were shown control methods.

The above educational work during the years 1925 and 1926 led ninety-five towns to appropriate $15,321.00, and expend $14,888.00 for blister rust control work. Pine owners to the number of 3,080 spent $18,940.00 in similar work, making a total of $33,828.00 of town and owner money being expended for the removal of 4,785,712 wild and 32,433 cultivated ribes from 81,594 acres of pine bearing lands, at a per acre cost to the towns and owners of forty-one cents.

Each year the Federal allotment for Blister Rust control work in Maine is $20,000.00 and the State's appropriation $5,000.00. With its funds, the Federal Government pays the salary of the State Leader, the salaries and expenses of the four county agents, and six or seven temporary agents; the State's funds are expended for the salaries and expenses of six or seven summer men, the State Leader's expenses, and for miscellaneous items.

The twelve or thirteen temporary summer men do the bulk of the scouting work, that is the location of the areas needing ribes eradication. Pursuing this method the entire pine area in a

town is examined for ribes, thereby saving much unnecessary labor for the owner. Figures show that by using this method of procedure over eighty-five per cent of the acreage is worked by these scouts, and that the pine owners perform eradication on fifteen per cent of the total area examined. During the past two seasons the scouts examined nearly five hundred thousand acres of land, including the nine hundred foot protective strip around pine stands. Combining the acreage protected by the 3,080 pine owners and the thirteen scouts during this two year period, over five hundred and seventy thousand acres of land were freed of the rust-carrying currant and gooseberry bushes.

Although we have confined our efforts chiefly to the five southwestern counties, there has always been a need for control work in other sections of the State, inquiries for assistance being received from many quarters. We have handled these requests for aid as well as our funds would permit. After the completion of the 1926 eradication season our York County blister rust agent was transferred to Lincoln County; similar changes will be made when control conditions permit. Future work in York County will be conducted by agents from adjacent counties.

Our permanent blister rust agents are stationed as follows: W. O. Frost, State Leader in Charge, State House, Augusta; S. D. Connor, Agent for Cumberland County, 904 Washington Avenue, Woodfords; G. H. Kimball, Agent for Twin and Kennebec Counties, 374 Court Street, Auburn; D. S. Curtis, Agent for Oxford County, North Bridgton; and E. E. Tarbox, Agent for Lincoln County, Damariscotta.

These men are in direct touch with local conditions; all pine owners should use their services, as well as those of the Forest Commissioner's office, in controlling this menace to our white pine.

TOWNS, BY COUNTIES, APPROPRIATING FUNDS FOR BLISTER RUST CONTROL WORK DURING 1925 AND 1926

CUMBERLAND COUNTY, S. D. CONNER, AGENT.

Town	Appropriated 1925	Expended 1925	Appropriated 1926	Expended 1926
Harrison	$200.00	$69.00	$100.00	$107.00
Bridgton	300.00	257.75	300.00	309.00
Otisfield	250.00	175.42*	.00	73.25
Naples	100.00	83.00*	150.00	166.00
Casco	100.00	92.00	150.00	149.95
Raymond	100.00	100.00		
Sebago	200.00	206.00	200.00	200.00
Baldwin	300.00	268.00*	150.00	181.25
Gorham	150.00	138.00*	150.00	164.50
Standish	300.00	236.50		
Freeport	100.00	100.00	100.00	100.00
Windham			300.00	277.50
Gray			150.00	150.00

* Unexpended balance available for 1926.

YORK COUNTY, E. E. TARBOX, AGENT

So. Berwick	50.00	50.00		
Berwick	100.00	97.20		
Parsonsfield	100.00	50.00*		21.20
Shapleigh	100.00	99.62		
Alfred	50.00	52.90	50.00	36.75
N. Kennebunkport	150.00	148.75		
Lebanon	200.00	278.50	200.00	197.75
Cornish	150.00	91.00*		56.00
Hollis	200.00	196.00*	50.00	59.50
Buxton	150.00	161.47	75.00	77.00
Acton	200.00	161.47		
Kennebunkport	250.00	72.00*		178.00
York	250.00	249.80		
Eliot	200.00	199.76		
Kittery	200.00	.00*		222.25
Biddeford			300.00	300.00

* Unexpended balance available for 1926.

ANDROSCOGGIN-SAGADAHOC AND KENNEBEC COUNTIES
G. H. KIMBALL, AGENT

Leeds	$100.00	$104.60	$50.00	$44.20
Mechanic Falls	100.00	100.00	100.00	100.00
E. Livermore	150.00	150.00		
Poland	200.00	194.40	200.00	198.90
Turner	200.00	242.80	200.00	196.40
Topsham	100.00	100.00	100.00	100.00
Wales	50.00	41.20		
Webster	50.00	41.00		
Greene	200.00	147.60		
Auburn	300.00	298.00	300.00	272.00
Lewiston	250.00	248.90		
Minot			100.00	100.00
Readfield			300.00	297.50
Wayne			400.00	397.43

OXFORD COUNTY, D. S. CURTIS, AGENT

Paris	$200.00	$200.00	$200.00	$196.40
Sweden	100.00	100.00		
Lovell	200.00	200.00	200.00	247.50
Denmark	250.00	270.00	250.00	214.97
Waterford	200.00	200.00		
Porter	150.00	150.00	150.00	188.66
Norway	200.00	204.00	100.00	76.40
Stoneham	50.00	50.00	50.00	62.5
Andover	100.00	90.00		0
Hiram	100.00	100.00	100.00	99.50
Brownfield	50.00	60.00	200.00	198.40
Roxbury	50.00	40.30	100.00	110.55
Rumford			500.00	509.20
Canton			100.00	99.75
Mexico			100.00	103.50
Hanover			50.00	49.29
Albany			200.00	199.98
Buckfield			100.00	101.66
Stow			100.00	99.00

Public Instruction in Forestry at University of Maine

The support given by the Maine Forestry Department to the educational work at the University of Maine, has enabled it to progress during the past two years.

Registration:

There are now 131 men registered for major work in the Forestry Department, classified as follows:

Seniors	29
Juniors	23
Sophomores	43
Freshmen	36
Total	131

This includes only those who have signified their intention to make forestry their profession, and does not include those taking only one or more of the forestry courses, such as Economics of Forestry, Woodlot Forestry, Forest Protection, or Wood Preservation. Single courses of this kind are open to all students of the University, and are taken as elective courses by a number of students from all colleges of the University. We have at present the largest registration recorded at any time since the forestry course was established here.

Faculty:

As sometimes happens, we were obliged with very great reluctance to accept the resignation of Professor Dwight B. Demeritt. Professor Demeritt had just completed his third year on the teaching staff, with distinquished success, and it was only because we were not able to meet the inducements offered to him for his services elsewhere that we were obliged to release him His leaving is regretted by faculty and students alike. He takes charge of the Forestry Extension work at the University of Louisiana. To fill his place, we were very fortunate in securing the services of Professor Gilbert I. Stewart, a graduate of the University of Michigan, College of Forestry 1922, and of Yale School of Forestry 1926 where he completed his post graduate work with the Degree of M. F. Professor Stewart has had also

very excellent practical experience during the three years between his college work. He has been in charge of a field party for the Land Economics Survey of the State of Michigan, and also directed a large and important survey in the northern peninsula of Michigan for Marquette University.

Although not technically a member of the Forestry Department, the Forestry Specialist in the Extension Service of the College of Agriculture, is nevertheless a distinct asset to the Department. He helps to bring forestry and conservation to the people of the State in a way that would be otherwise impossible, and to the very people whose lands, though listed as agricultural, are according to the figures of the last Census report, 45% wooded. The cash value of the forest products from these farm woodlands is only exceeded by hay, forage and potatoes. It is greater than that of the fruit and cereal crops combined.

Extension work in forestry as conducted by the Extension Service of the College of Agriculture, University of Maine, is progressing satisfactorily under the supervision of Mr. R. M. Hutchinson who succeeds Mr. M. E. Watson as Forestry Specialist. The projects in the program of work are timber estimating and forest tree planting with the addition of a new project known as woodlot improvement. To date there have been 260 timber estimating demonstrations at which 2,750 persons have been shown methods of estimating timber. In forest tree planting there have been 127 demonstration plantations started in which 183,350 forest trees have been planted. As a phase of the woodlot improvement project ten comparative thinning demonstration plots have been established with the objective of showing that excessive growth may be obtained profitably through judiciously opening up a naturally crowded stand of trees. Besides the above mentioned projects subject matter meetings and special problems have been given attention. The interest in these phases of forestry work continues to increase.

Equipment and Publications:

Owing to the shortage of funds for the purpose, very little has been added to the physical equipment of the department during the past two years. In fact it has not kept pace with the increase in number of students, and will have to be provided for more amply in the next two years, in order to bring it up to standard and to provide for replacement of worn out material. Since this

equipment is no small item, it should be carefully borne in mind when preparing the budget for the next period.

A new and revised edition of 10,000 copies of the "Forest Trees of Maine" was published in 1925, and is now nearly exhausted. This third edition has an entirely new and attractive poster cover, and an introduction voluntarily contributed by Governor Brewster, which is greatly appreciated. It has been by far the most in demand of any publication of the Department, and has had a wide distribution not only to the schools, academies and colleges within the State, but many requests have come from outside sources and from the travelling public for this handy little pocket book of identification of the trees of Maine. There is a distinct field and a present need for more publications of this kind, and all that is lacking is the necessary funds to insure publication and distribution.

Camp Course:

Probably no other work of the Department has attracted more outside attention and favorable comment than the winter camp course. After three years experience, this has now become a regular part of the training for forestry Seniors. Only those men who have satisfactorily completed their college work to date are allowed to take this course. The camp course has been made possible through the kindness of Mr. F. A. Gilbert, Vice-President of the Great Northern Paper Company of Bangor. All camps and equipment are provided by the Company, and the teaching staff is supplimented by a representative of the Engineering Department of the Company, as well as by a member from the office of the Forest Commissioner. The living expenses while in camp are divided pro-rata among those present.

The eight weeks in camp are devoted to practical work largely in the field, including inspection of operations, running survey lines, cruising, scaling, locating roads, and logging operations, followed by maps and detailed reports on the work covered in the field. The camp course has been held at Grindstone for the past three years, and now includes three portable camps besides a large log-camp for mess and office, conveniently located on the Atco Siding road.

We have had many inquiries and favorable comments on this practical part of the forestry curriculum, and it has the enthusiastic support of all of the forestry students and faculty.

Forest Nursery:

Established and maintained chiefly as a laboratory for our students in forestry, to provide a practice field for this work the State Forest Nursery has a continually growing demand for the planting stock raised. To date, more than two million trees have now been sold for forest planting, and a number of other nurseries established through the State by means of this agency. This is aside from and in addition to the practical experience furnished by the nursery in the training of the forestry students. On account of their labor, it is possible to return to the State Treasurer each year all that has been appropriated for this purpose, so that there is a clear net gain to the State of all of the trees planted each year from this source. Besides this much interest has been aroused in the growing of planting stock throughout the State, and many nurseries are now established or are about to be established on account of the success of this one. It has also had an excellent psychological effect in demonstrating that something practical is being done by the forestry students in the way of artificial reforestation. Sales are made only to forest planters in Maine, and the distribution is quite general, but largely in the southern half of the State where natural methods of reforesting cannot always be relied on. Only coniferous stock is being grown on account of the great demand for this stock and the limited size of the nursery. About two-thirds of the demand is for White Pine, and the other third for Spruce and other conifers.

Sales for 1926 ran as follows:

White Pine	68%
Red Pine	19%
Spruce	7%
Other conifers	6%
	100%

With an average price of $10.00 per thousand for three-year-old transplants, this brought in a net income for this year of $1,109.31, on an appropriation of $1,000 for the work.

All attempts to increase the amount appropriated for growing forest planting stock in Maine on a larger scale have so far met with quiet but persistent opposition. It is a matter of policy for the State of Maine to decide whether it is best to go ahead on

the lines already blazed by the nursery here and established by custom in other states, and produce stock in large quantities and at minimum prices for prospective forest planters in Maine, or to leave the growing of such stock to private capital and initiative.

Alumni:

Believing that they are the most tangible asset of the Department and the best indication of the success of the work here, we have tried to keep in close touch with our graduates in forestry. While it is impossible in this brief report to give detailed informationas to the occupations and present business of all of our graduates for the past 23 years, the following summary shows that 97 out of 139 living graduates of this department are in actual practical work along the lines of their chosen profession. This means that about 70% of our graduates are pursuing forestry as their life work, and the following table shows the kinds of work as classified on our records to date:

GRADUATES NOW EMPLOYED IN:

Pulp and Paper Companies	22%
Cruising and Estimating	21%
State Departments	16%
Lumber Industry	10%
U. S. Forest Service	9%
Teaching	8%
Nursery and Park Work	6%
Factory Management	4%
Advance work at other Institutions	3%
Forest Entomology	1%
	100%

There are of course students who take the forestry curriculum who never intend to practice forestry or who are later diverted by business necessity or for other reasons into other lines of work; but we have yet to hear from one of our graduates who has expressedreg ret in taking the forestry course at Maine. While this is a recognized and possibly the most important part of our work in this department, we believe that much has been accomplished also in getting a better understanding of forestry and forest conservation along sound and sane lines established in the public mind, through the courses given to students in general, and by means of lectures, publications and propaganda originating in the department. We have tried to use all the means at our disposal for this purpose, and to this end we are now preparing to give a

series of lectures or rather short, popular talks on forestry subjects over the radio conducted by the University W. G. B. X.

If the work of this department is to continue and to progress as it should in a state like Maine, it will be necessary to make some adequate provision for the increase in the funds commensurate with the increase in the number of students and with the importance of the work. It should be remembered that this is the only way that Maine is making any provision for educational work in forestry, or conservation in general. And all will agree that most of the other work such as fire protection and natural regeneration of forests, as well as planting and conservative utilization of our forest products will progress only when and in so far as the general public is made ready to receive and to adopt modern practices and theories as set forth in the educational work carried on by this department in an effort to live up to the name and purpose of Public Instruction in Forestry.

Forest Planting

In addition to the State forest nursery maintained at the University of Maine, several privately owned nurseries supply a large number of trees for planting. The Brown Co. at Oquossoc has one of the finest nurseries in the State. This company not only plants large numbers of trees themselves but makes a special business of selling to the public. The Eastern Manufacturing Company maintains an immense forest nursery at Trout Brook Farm, right in the heart of the forest region. In 1925 this company set out 900,000 trees on old burns near the nursery. The Bates Forest at Alfred specializes in white pine and supplies many trees to people in that section of the State. The S. D. Warren Company in Bingham has a forest nursery to supply trees for planting the abandoned farms owned by them. Mr. T. C. Eastman of Fryburg is one of the most progressive forest nurserymen in the State. This year a new nursery was started in Skowhegan by Mr. Francis Friend. Due to the activities of the extension foresters many farm woodlot owners in the State have started small nurseries to supply their own needs. In 1925 there were 1,863,242 trees planted in the State. Of these 1,000,000 were white spruce. White pine took second place with 700,000. During 1926 it is estimated that twice as many trees were planted. The State nursery sold 134,750 trees at cost this past season. Of these 91,900 were white pine, 31,850 red pine, 9,200 norway spruce, and 1,800 miscellaneous.

The planting of forest trees in Maine should be encouraged. It is true that the softwood forests in some sections of the spruce region are reproducing themselves after cutting in a remarkable way, but these areas should not be taken as a criterion for the entire State. There are large areas of burns that will remain barren for years unless planted. In other sections we find abandoned farms and other none reproducing areas that should be planted. In general white spruce seems to be the favored tree for Northern and Eastern Maine with white pine still leading in Southern and Central Maine. Red pine and poplar are increasing in favor. White spruce is particularly favored as it is rarely killed by the spruce budworm. Red pine is coming into

favor on account of its immunity to the white pine weevil and the blister rust. It is also a tree that will thrive on worn out sandy soils. Several companies are experimenting in planting poplar in the hope of quick rotations.

Public Forests

A program adopted by the first New England Forestry Congress calls for the acquisition of 10% of the forest land in each State as public forest. At present the public forests of New England amount to only 3% of our forest area and consist of 420,000 acres of national forests in New Hampshire, 32,255 acres in Maine, and 180,000 acres of State Forests in Massachusetts, Vermont, Connecticut and New Hampshire, and 77,000 in town forests. There are no State forests in Maine and Rhode Island. Although the 70,000 acres of school lands in this State could be classified as such, while they are handled by the Department, it so happens that when a plantation is organized as a town, the title of these lots vest in the town, and in most instances in the past the towns have sold these lots outright.

It would be well for the next legislature to consider the advisability of enacting a town forest law. A law which would give the town the right to acquire forests by purchase, or otherwise, and hold them for the benefit of the community. Brunswick has already acquired a town forest of 739 acres, and Old Town a forest of 39 acres, these being acquired by bequest.

The Forestry Primer edited by the American Tree Association has the following statement relative to the usefulness of town forests:

"In some parts of Europe there are towns and small cities that own forests. These forests are on the outskirts of the community and the citizens go to them to picnic and rest. The school children go to them to study the birds, the flowers, the trees and the small animals. Near the forests are small mills. These mills are kept busy turning out lumber cut carefully, year after year, from the forest. In the towns are little industries making things used in every-day life, thus employing citizens and making the community prosperous.

Now, the people of these towns own these forests themselves. Each year they bring in an income. This income helps to pay the expenses of running the town, expenses that are usually met by taxing the people.

The city of Fitchburg, Massachusetts, is reputed to be the first

municipality to establish a true city forest in the United States. This forest has been carefully managed over a period of years. It paid expenses soon after it was established. It now turns in a profit that will grow as the value of the forest growing on it grows.

The town forest is a handy local picture of the value of the forest. It is the property of the members of the community. They own it and protect it. They will be quick to punish those who endanger it with fire. They will actively oppose unwarranted trespass upon it. Thus the citizens of the community come to have this view of all forests. As an example and lesson alone, the value of the community forest is great.

What can be done with the town forest can be done by the individual with his acres of land fitted for forest."

The Maine Hardwood Association

ITS ORIGIN AND AIMS

As a result of the Hardwood Conference called by Governor Brewster in Augusta on June 11, 1925, the Governor appointed a committee of seven, consisting of Alfred K. Ames, Machias, Forrest H. Colby, Bingham, Delmont Emerson, Island Falls, S. S. Lockyer, Portland, Haven Sawyer, Bangor, Clarence C. Stetson, Bangor, and Blaine S. Viles, Augusta, to consider what steps might be taken to further the development and increase the utilization of the hardwoods of Maine.

This Committee had two meetings—the first on June 25, 1925, at which the question of organization, program and plan of procedure of a Hardwood Association was discussed; the second on July 16, 1925, at which the Maine Hardwood Association was organized, through the adoption of a constitution. An Executive Committee, consisting of the same seven men as Governor Brewster's Hardwood Committee, was chosen and officers were elected as follows: Clarence C. Stetson, President, Blaine S. Viles, Vice-President, Haven Sawyer, Secretary-Treasurer.

On July 31, 1925, the Executive Committee had its second meeting. In addition to further discussion on the program of the Association, plans were adopted for a membership drive, which was shortly conducted through the good offices of the Governor, the State Forest Commissioner, and the individual efforts of the members of the Executive Committee. The Governor sent to each timberland owner and hardwood manufacturer a letter urging cooperation through membership in the Association and enclosing a copy of the report of the President of the Association, dated August 15, 1925, which outlines the plan of procedure as then formulated. This report read as follows:

(a) A complete survey of the hardwood resources of the State, which survey shall show the location of these resources, together with the quantity, and quality thereof.

(b) A complete list of the owners of these tracts with such information as is obtainable as to stumpage prices and terms of permits. In this connection your Committee is of the

opinion that long term permits assuring a given supply at reasonable stumpage rates are essential in interesting new utilizers of hardwoods to come to the State.

(c) A complete list of the present manufacturers of hardwood, with detailed information as to their products. In this connection your Committee feels that it would be desirable to have each manufacturer furnish information as to what part of their raw material they are manufacturing profitably and what part of their raw material they would be willing to sell to other users of hardwoods. The thought of your Committee is that now manufacturers might be interested to utilize what might be termed the surplus product of the present manufacturers.

(d) Publication from time to time of data collected as to suppply of raw material, ownership, permit prices and terms and such other data as is pertinent. Compilation of all data obtainable as to quantity, quality, and uses of hardwoods in other states.

(e) Your Committee feels that this is important in order to determine how far at the present moment Maine Hardwoods can be marketed.

The seventh meeting of the Executive Committee was held on January 26, 1926. Reports were made at this meeting on the progress of the manufacturers questionnaire. Plans were formulated for the following up of those who had not answered the questionnaire and a definite plan adopted for putting into effect in June, 1926, an advertising campaign of Maine hardwoods. This plan contemplated (1) the completion by the office of the State Forester of type maps of the forest areas of the State, which was started five years ago for use in forest insect control, (2) the installation in the same office of a hardwood expert, and (3) the preparation of a pamphlet on Maine hardwoods, same to consist of about fifty pages and to contain:

(a) Key map of State showing general forest areas, transportation, and power facilities.

(b) Ten or twelve sectional maps of the principal hardwood areas showing type.

(c) Articles on:

(1) Technical qualities of our hardwoods,

(2) Labor,

(3) Power,
(4) Transportation.

(d) Illustrations of hardwood stands, operations, and manufacturing in Maine.

(e) Directory of manufacturers of hardwoods. This pamphlet to be used in connection with advertising campaign referred to above.

The Governor and Council were consulted by the President and their consent secured to the preparation of the maps by the State Forest Commissioner. Assurances were also given by the Governor and Council that they would see to financing of a hardwood expert for the State Forestry Service. Mr. Hunton, Industrial Agent of the Maine Central Railroad Company and Mr. Hill, Industrial Agent of the Bangor and Aroostook Railroad Company have agreed to cooperate in every way possible with such an expert. The proposed machinery and data should furnish adequate means for answering satisfactorily the inquiries resulting from the advertising.

The eighth meeting of the Executive Committee was held on April 8, 1926. Reports were made as follows on the progress of securing an expert and the collection of data and preparation of the articles for incorporation in the pamphlet:

(1) Key map plotted as follows:
(a) General hardwood areas available to transportation,
(b) Transportation,
(c) Actual mill sites,
(d) Possible location of centralized plants. Expert negotiations are under way,
(e) Power sites (not yet plotted).

(2) Sectional maps showing type. 300 out of 400 unorganized towns have been type-mapped.

(3) Arrangements made for articles on
Botany—Professor Briscoe,
Labor—Edwin W. Hamlin,
Power—To be attended to,
Transportation—Messrs. Hill & Hunton.

(4) Manufacturers' Questionnaire.

Complete answers received from 200 out of a possible 250 odd plants.

The Hardwood Association is tremendously indebted for the

splendid cooperation given by (1) the State Forest Commissioner and his assistants in handling routine matters and especially in the preparation of the type maps, for which they are entitled to all credit and (2) the Messrs. Hill and Hunton, Industrial Agents of the Bangor and Aroostook and Maine Central Railroad respectively. The majority of landowners have been most helpful in opening their offices and data to the State Forest Commissioner and the Hardwood Association in the preparation of the type maps. Finally, the Association should not forget the real assistance given to it by the Governor and Council, assistance which has made it possible to undertake and carry towards completion the very expensive work of compiling the data so far collected.

It is slow work and requires careful preparation to insure accuracy which is absolutely indispensable to success.

At the ninth meeting of the Executive Committee an Executive Secretary with experience in the manufacture and marketing of hardwoods was appointed with offices at Augusta and under pay and supervision of the Forest Commissioner, to start on August 1st, 1926.

The first work of the new Secretary was to advise by letter all present hardwood manufacturers and larger timberland owners in the State that such a position had been created and that the office was to act as a clearing house for all manufacturers. As the work of the Association progressed throughout its first year it became more and more apparent that there was a step which preceded the bringing of outside manufacturing interests into the State, namely, bettering the business, knowledge, and methods of production of industries at present located within the State. There were a great many replies to this first letter as there have been to all later circular letters, showing that there was considerable interest in the movement and further that most of those who answered thought it would bring results. Considerable business has been turned over to these manufacturers since the office has been established.

The Association had previously started to compile a manufacturers' index. This work has been completed and linked up with the manufacturers' questionnaire mentioned above so that inquiries which come into this office can immediately be sent out to those who can produce the material covered by the inquiry. This list is probably not complete but certainly covered 90% of

the hardwood manufacturers in the State and by volume of hardwood consumed better than 95%.

The results of the manufacturers' questionnaire show that the average annual consumption of Maine grown hardwoods, exclusive of poplar and wood cut for fuel, is approximately one hundred and fifty thousand cords, ninety thousand cords of which is white and yellow birch.

To advertise Maine hardwoods the following are the outstanding features to date:

A large and attractive exhibit at the Eastern States Exposition which is annually attended by one hundred and fifty thousand people. Great interest was shown in this exhibit and many people were referred to Maine manufacturers. About seven thousand pamphlets were distributed at this exposition telling the public of Maine's hardwood opportunities.

At the American Legion Convention in Philadelphia more of these pamphlets were distributed, together with blue and gold clothes-pins (the Legion colors) stamped in gold "Made in Maine." Through this source these pamphlets have gone into every state in the Union and into many foreign countries.

During November at the National Grange meeting in Portland the hardwoods were again exhibited at the Exposition Building in Portland where it was viewed by some fifty thousand people of Maine and other states.

This office is now working toward the completion of the first bulletin, mentioned above, to be put out simultaneously with an advertising campaign, in many of the lumber trade journals and other publications particularly adapted to the particular products made in Maine.

Results already obtained show that there is a vital need of such an association as now exists in the State and of an Executive Secretary connected with the Forestry Department to handle all correspondence, to meet all our Maine hardwood manufacturers, to form contact with out of the State consumers, to study out methods of manufacture and to compare these methods with other sections, to keep our manufacturers advised of manufacturing needs and methods, through the publication of a monthly sheet or folder and to do all the other innumerable things connected with such a position. This should be brought about and made possible through legislative action, as to date the expense of all this work as outlined has been borne by the Forest Com-

missioner. A number of years ago our recreational resources were largely potential, today they are a reality and becoming of greater value annually. This was brought about by the State advertising itself. By similar State advertising the hardwood resources of the State can be brought into their own.

Appropriations and Expenditures

	Appropriations 1925	Expenditures 1925	Appropriations 1926	Expenditures 1926
Salaries & Clerk Hire	$4,300.00	$2,924.00	$3,000.00	$2,999.44
General Office Expenses	2,500.00	2,996.57	2,500.00	2,327.71
White Pine Blister Rust	5,000.00	4,984.38	5,000.00	4,965.04
Administrat'n of Public Lands	500.00	464.35	500.00	336.20
General Forestry Purposes ..	5,000.00	4,995.75	7,500.00	11,075.49*
Public Instruction in Forestry	10,000.00	9,935.78	10,000.00	9,918.90
Forest Nursery**	1,000.00	998.04	1,000.00	1,009.41
	$28,300.00	$27,298.87	$29,500.00	$32,632.19

* $4,000.00 derived from licenses of portable sawmills and Federal appropriations.
** The revenues from the nursery in 1925 were $1,073.25 and in 1926 $1,109.31.

Appendix

Forest Fires in Maine

Values Involved

Control Measures Recommended for Timberlands Outside the Maine Forestry District

By
C. R. TILLOTSON
U. S. Forest Service
1926

In cooperation with the Maine Forest Service

Forest Fires in Maine

VALUES INVOLVED

Control Measures Recommended for Timberlands Outside the Maine Forestry District

The forest fire situation in Maine is not alarming. In the Maine forestry district, the average area burned yearly in the last 23 years is 32,000 acres, or only one-third of one per cent of the total forested area of 10,000,000 acres; outside the Maine forestry district, the average area burned yearly in the last 22 years has been 10,320 acres, or one-fifth of one per cent of the total forested area of 5,000,000 acres.

(Table No. 1). Occasional years like 1903, 1908, 1921, and 1923 indicate the danger of great conflagrations at times of unusual hazard, a danger which will probably be largely overcome in time through a growing public interest in fire prevention.

CAUSES OF FOREST FIRES

Statistics for 1916-1924 inclusive (Table No. 1) show that during that period the causes of forest fires were as follows: lightning 5 per cent, railroads 13.1 per cent, camp fires and smokers 27.5 per cent, brush burning 10.6 per cent, incendiarism 1.3 per cent, lumbering 6.9 per cent, miscellaneous 5.6 per cent, and unknown 30 per cent. About 60 per cent of the fires arose from preventable causes, and it seems likely that if the origin of every fire were known the percentage in the preventable class would be nearer 90 than 60. Though the record of forest fires is comparatively a good one, the fact that so large a percentage is due to carelessness indicates the need for continued effort to prevent fires in order to avoid future conflagrations that may assume more serious proportions than those of the past. It is, of course, absolute folly, if not stupidity, to burn over timberland through carelessness or thoughtlessness; yet this is the cause of most forest fires. The thoughtlessly discarded burning match, cigarette and cigar stub, and the burning remnant of pipe tobacco, are some of the most prolific causes of woods fires. The motorists who drive

along the roads and unconsciously toss these firebrands into the leaves or grass beside the road and then spin along on their way are fully as much if not more of a menace than hunters, fishermen, and others tramping through the woods. The carelessly started fire burns just as fast as the incendiary fire, is fully as hard to extinguish, and causes as much loss.

WHAT IS AT STAKE

It is not alone the owner of the burned-over land who loses by forest fires, although he, of course, is most directly affected. He loses his timber, frequently his house or other buildings, and is often badly impoverished by his losses. The general public loses also; for nothing destroys wealth more completely than fire.

What does the town lose through a fire that kills timber? It loses trees that at the time of burning, or after a few years' growth, would furnish jobs in the woods or at the mill. It loses a taxable resource. Timberlands in the organized towns are valued at $5.00 to $70.00 an acre, depending on the growth. When they are cut over clean or burned until worthless, the assessed value often drops to $1.00 to $3.00 an acre. Where the timber is a part of the farm, it is generally bunched in with the remainder of the farm land and a flat value put on all the land. Nevertheless, a heavy loss of timber due to fire is often reflected in a reduced valuation for the entire farm property. The community thus loses in the assessed valuation of the property, which simply means that the reduced tax on the property in question will have to be made up by an increase on other property in the town.

In addition to this direct property loss, there are the less easily measured losses of game and other birds destroyed while on their nests or while brooding their young which are too small to escape by flight, wild animals killed or fearfully burned, fish literally roasted in small streams, as is often attested by the floating dead fish after a fire, soils burned out or so impoverished that they subsequently support only a scrubby growth of gray birch, pitch pine, fire cherry, or popple, and all too commonly the loss of one or more human lives.

Not only is wealth, represented by timber and other property, destroyed, but the labor and funds expended in suppressing the fires are creating nothing of value; these might much better be

employed in building roads, in growing crops, or in some other form of productive employment. It is a reflection on the public intelligence of any state that large funds should have to be expended in the prevention, and more particularly in the suppression, of forest fires due to preventable causes. The relatively small number of forest fires in the State of Maine indicates that the public in general is fairly well alive to the need for care against forest fires, or that the natural climatic and forest conditions are not generally favorable to them. It is well that this is true, for the forest wealth of Maine and the industries dependent upon it are of tremendous economic importance.

STANDS AND GROWTH OF TIMBER

Recent authentic figures on the stands of timber in the State are not available. Local estimates place softwoods at about 60 million cords and the hardwoods at 10 to 30 million cords, depending on the proposed degree of utilization. Local estimates also place the growth per year of softwoods at 2½ per cent to 3 per cent of the present volume. These are merely estimates, and there is no substantial agreement among timber owners as to what are reliable figures. One large company, for instance, estimates its growth of softwoods at 1½ per cent of the stand of timber on its holdings. To offset growth, of course, there is the loss due to windthrow and fires, and the still greater loss in spruce and fir stands due to the spruce budworm. It has been estimated that fully 40 per cent of the old stands of spruce and fir have been killed by this insect. Though the stand and rate of growth of timber in the State are not definitely known, it is known that 15 million acres, or 78 per cent of the total land area of the State, is in forest growth of some character.

THE TIMBER INDUSTRY*

Maine's industrial progress has been very largely due to its timber resources. The number of manufacturing establishments in the timber industry, the people given employment by them, the salaries and wages paid, and the value of the product are about one-third the aggregate of all the industries of the State. The

*For a full discussion of the timber situation in Maine, the reader is referred to Bulletin No. 2 of the Maine Forest Service, Augusta, Maine, entitled, "The Forests of Maine," published in 1924.

capital invested in the industry is $182,400,000, or 43½ per cent of all capital invested in manufacturing industries of the State. Rough forest products supply more than two-fifths of the railroad tonnage originating in Maine; and one-fourth of all the pulpwood cut in the United States comes in a normal year from the Maine forests.

THE TIMBER INDUSTRY VERSUS FARMING

Farming is an important industry in Maine. No one would decry the fame and nationwide importance of Maine's yearly crop of potatoes, nor of her expanding blueberry industry; yet, the value of the product of the wood-using industries of the State is almost one-third more than that of all farm crops, even when the forest products cut on the farms are included in the farm crops.

Moreover, the use of land for agricultural purposes appears to be on the decrease. The census figures of 1920 show 12,000 fewer farms and 800,000 acres less land in farms than in 1910. Lands given up for agriculture and permitted to be idle revert to timber in the course of a few years. In the generation preceding the present, some towns in Maine were so highly developed agriculturally that the population was apprehensive of a shortage in the fuelwood supply, wood being the only fuel burned. Today, the old farms in these towns are largely abandoned and grown up to woods. One organized town has recently relinquished its town organization and reverted to the "wild land" or unorganized condition.

Timber reproduces itself naturally and fairly rapidly on lands cut over at all conservatively; and great quantities of hardwoods of small present but great potential value exist. It appears that a large proportion of Maine's land area is destined to grow timber and that the prospertity of the State will be closely tied up with its forest resources in the future, as it has been in the past.

TIMBERLAND OWNERSHIP

The greater part of the timberland in the forestry district and about two million acres outside the district are owned or controlled by the so-called "large land owners." Some three million acres outside the district are held in relatively small tracts by

farmers or other small holders. The owners of timberland in the forestry district are, for the most part, well backed financially and are apparently in the timber business to stay. Taxes there are not so burdensome as to drive private owners out of the timber business. The average assessed values of lands in the unorganized towns of the Maine forestry district varied from $4.778 per acre in Hancock County to $12.81 in Oxford County in the year 1924; the tax, including state, county, and forest fire, levied on these wild lands averages about 10 mills.

RECREATION IN THE STATE

The call of the great outdoors is no stronger anywhere in the north than in Maine. By the hunter, the State has long been thought of as the home of the moose and deer; by the fisherman, as one of the last bits of choice territory in the northern United States where one may still land a salmon or a trout big enough to make more than a single mouthful; and by the lover of the primeval, as a land where the canoe and the canoe-man have not been entirely displaced by the auto and the liveried chauffeur. Supplementing this type of recreationist are the people, rapidly increasing in numbers, who travel the good roads of the State in order to view the mountains, lakes, and woods, and to stop for a week or so at some one of the many excellent camps or resorts; and the boys and girls who come to spend the entire summer at camps where they not only gain in health and strength among beautiful surroundings but are taught various kinds of useful handicraft by skilled instructors. The camp activity is growing by leaps and bounds and already represents an investment of several millions of dollars in housing facilities and equipment. The income of one town in Maine during 1925 from such camps within its boundaries was $260,000. Just how much the urge of the outdoors is going to mean to the State of Maine, it is impossible to estimate. That recreational development there is only in its infancy is the general belief.

There is little need to point out that the forests are an essential feature of the recreational resource of the State. If the forests were to disappear, recreation seekers would turn to other regions.

WATER POWER

Some of the earliest water power developments in the United States were in Maine. Upward of 1,600 lakes and ponds, aggre-

gating a total area of over 3,145 square miles, and more than 6,000 streams furnish a supply of energy, either developed or potential, that is estimated at about 2,000,000 horse power. The relation that forests bear to a steady dependable flow of water is well established. On well forested watersheds of streams a steady flow of water is fairly well assured under normal climatic conditions; on non-forested watersheds the flow is sporadic and varies from flood to drought conditions. The importance, therefore, of Maine's forests to water power already developed or that may be developed is evident.

HOW IS THE STATE PROTECTED AGAINST FOREST FIRES?

It is apparent that the timberlands of Maine are worth all the protection against forest fires that they are now receiving, and that this protection should be strengthened whenever and wherever necessary.

THE MAINE FORESTRY DISTRICT

In the Maine forestry district the State has an efficient organization of chief wardens, deputy wardens, patrolmen, and fire lookout observers, whose business it is to detect and suppress forest fires. The region is well covered by a system of 68 lookout stations and by a telephone system that is constantly being added to and improved. The wardens are well equipped with the ordinary fire-fighting tools, such as shovels, axes, grub hoes, pails, etc., and as fast as funds permit each chief warden is being equipped with a motor driven pump and hose, so that he can combat fire with water in quantity whenever possible. Some of the timberland owners are equipped with similar pumps, which are used to supplement those of the State. One of the large timberland companies has also expended large sums of money in the printing and distributing of educational posters warning against fires; it has also built and is maintaining many miles of first class metallic telephone lines and 175 miles of fine gravel roads through the wooded country. The telephone lines are an aid in reporting and in fighting fires; the roads give crews of fire-fighters quick access to some of the back country. Improvements could be made in the protective system of the Maine forestry district, but it is not the purpose of this paper to discuss

them. The situation outside the Maine forestry district will be taken up in more detail.

OUTSIDE THE MAINE FORESTRY DISTRICT

The Forest Fire Laws: Briefly, the more essential provisions of State forest fire laws applicable outside the forestry district are as follows:

1. The selectmen of the towns are ex-officio forest fire wardens and are authorized (but not required) to appoint one or more persons to act as deputy forest fire wardens.
2. Wardens may call upon any person in town for assistance in fighting fires.
3. Any person suffering from fire in consequence of the negligence or neglect of the selectmen to handle it may bring action against the town to recover damages.
4. Municipal officers are charged with prosecuting offenders who set fires in woodlands unlawfully.
5. The selectmen are required to report to the forest commissioner all fires one acre or more in extent.
6. A permit from the Forestry Department is required for the burning of any brush or slash or of blueberry land adjacent to forest growth, except where the ground is covered with snow.
7. Growth must be left uncut or the slash resulting from cutting must be disposed of within 50 feet of the right of way of a railroad or the center of the wrought portion of any public road.
8. Slash resulting from the construction and maintenance of railroads, highways, and power company telegraph or telephone lines must not be left upon the ground.
9. Persons cutting forest growth adjacent to woodlands owned by others must dispose of the slash within 50 feet of such woodlands.
10. It is forbidden to kindle a fire on another's land without consent of the owner.
11. All fires must be totally extinguished before they are left.
12. Persons hunting in woodlands must use non-combustible wads in firearms.

13. The governor may suspend the open season for hunting and fishing when there is grave danger of fires in the forest.
14. The forest commissioner may maintain a competent and efficient fire patrol along the right of way of any railroad when the adjacent forest lands are in a dry and dangerous condition. The cost must be borne by the railroad.
15. Railroads must keep their rights of way clear of inflammable material.
16. Locomotives must be provided with approved and efficient spark arresters and ash pans.
17. Railroads companies are forbidden to allow employees to deposit fire, live coals, or ashes upon their tracts in the vicinity of woodlands or land liable to be overrun by fires.

STRENGTH AND WEAKNESS OF THE ORGANIZATION

It will be noted that the system of suppression and law enforcement is practically dependent for its administration and effectiveness upon town officers (selectmen) or upon deputy fire wardens whom they are authorized, but not obliged, to appoint. This is a source both of strength and of weakness. If the selectmen are thoroughly in accord with the laws and their enforcement, are good organizers, energetic, and able to enlist the wholehearted support of their local population in the prevention and suppression of forest fires, the system is nearly ideal. The forest fire problem can be handled better and more cheaply by an elert, interested, willing, and well-organized local population than by any other agency. Apparently it is handled efficiently by the local population in at least some portions of this region, because forest fires are few, have done little damage, and have been dealt with promptly, energetically, and whole-heartedly when they have occurred.

On the other hand, the system has decided elements of weakness, which may at any time result in forest fire catastrophies. Selectmen may be doctors, lawyers, merchants, or any citizens of a town. They are usually very busy with their personal and town affairs. They may know little about timber and less about preventing and suppressing forest fires. They may appoint a

deputy forest fire warden, but in many towns they do not do so. They may not take the forest fire problem seriously, which means that they will not be prepared to handle well any fires that occur. Further, they are elected to office, and naturally they are not prone to prosecute their fellow townsmen for any violations of the forest fire laws.

Town officers usually are concerned with only those forest fires that occur within the limits of the town. When a fire passes beyond those limits, and fires usually do not respect town limits, their efforts cease; it is then up to the officers of the adjoining town into which the fire has escaped to combat it. This creates hard feelings, especially between two towns of which one conscientiously attempts to handle fires in a vigorous, able manner and the other is slack about it. The slack town may let a fire run if it is near the boundary and headed toward an adjacent town.

Selectmen are constantly changing because of the political nature of the office, so that a man interested in the forest fire problem may be replaced by one who is not interested, and a falling-off in the efficiency with which forest fires are handled will result.

Reluctance to spend town money for necessary fire fighting is a still further weakness. Unless the timberland in a town is held by a comparatively large number of owners who insist on the selectmen meeting their obligation of suppressing fires which occur, there is often a tendency to be niggardly in hiring men or buying equipment, because this means the town must pay the bill, which, in turn, means that the money must be raised by taxation. The selectmen are thus in a quandary and are sometimes inclined to adopt half-way measures entailing as little expense as possible. Adjacent to the Maine forestry district, they commonly adopt the attitude that the timberland owners should take care of their own fires.

TO WHAT EXTENT ARE LAWS OBEYED AND ENFORCED?

A number of the State laws are not obeyed, largely because of ignorance of their existence; nor are they enforced by the selectmen. Laws too commonly disregarded are those prescribing that a permit must be obtained before brush is burned; that

brush resulting from timber cutting in the fifty-foot strip along roads or adjacent to timber owned by another must be cleaned up; that fires must not be built on the land of another without his consent; and that all fires one acre or more in extent shall be reported by the selectmen to the forest commissioner. The town authorities are lax in enforcing or carrying out these laws for reasons already explained.

An effort has been made by the office of the forest commissioner to enforce the law in respect to cleaning up slash caused by logging operations in the fifty-foot strip previously discussed. This effort has bettered conditions along the main roads, but it has accomplished little along the other roads. Along the back roads slash is abundant wherever there have been timber operations. Neither men nor money are available in the forest commissioner's office to bring about a full compliance with this law without greater cooperation from the selectmen of the towns.

It is a debatable question how far the forest commissioner's office should go in trying to enforce compliance with these laws, if local sentiment does not freely and fully aid and back up the action. If the selectmen of each town were fully in sympathy with the purpose of these laws, and would actively aid in enforcing them, there would be no insurmountable difficulties attending the task. The responsibility for law enforcement, under the present laws and appropriations at least, would still rest largely on the selectmen. The State would aid the selectmen to the extent that its appropriations would permit.

HOW CAN THE SITUATION IN REGION OUTSIDE OF THE MAINE FORESTRY DISTRICT BE IMPROVED?

FIRE OBSERVATION STATIONS

The seven fire observation stations which have been erected and which are maintained by the State in this region are giving good service and are spoken of very highly by the local people whom they serve. Parts of the region, however, are not adequately covered by the present situations. It would be good policy, create friendly feeling, be of educational value, and serve to protect Maine's timber if a few more such stations, perhaps not over six, were erected and maintained by the State. No recommendations are made as to locations. Local people have suggested certain hills, but the best locations can doubtless be worked out from United States Geological Survey sheets. The cost of erecting such stations would not be over $1,500 each, manning them each year for six months $600 each, and upkeep of station and telephone line not over $50 a year. The funds required for six stations would be about $9,000 for initial construction and $3,900 yearly thereafter. If state funds are not available, Federal funds, supplied through the Clarke-McNary law could be devoted to this purpose.

TIMBERLAND OWNERS' ASSOCIATIONS

In Connecticut, forest protective associations made up of owners whose tracts of timberland range in area from 10 acres up have been organized for the purpose of giving more effective protection against fire than is afforded by the State organization. The members levy an assessment of four cents an acre or more upon themselves, and if the association represents 5,000 acres or more of timberland the State forester agrees to spend as much as four cents an acre in the protection of these lands. The funds are ordinarily used in hiring one or more patrolmen or in manning a fire observation station. These associations have not only been effective in getting better protection against

fire, but they have been instrumental in bringing offenders against the forest fire laws to trial. Their influence has been potent, particularly with some of the local officials charged with prosecuting the laws. Small associations of this character might be formed to advantage in some sections of Maine where conditions seem to call for them.

DISTRIBUTION OF SMALL FOREST TREES FOR PLANTING

One of the most effective means of arousing interest in forest land and in its protection against fire is to encourage owners of brush or worn out pasture land to plant a few acres to trees. These trees should be supplied by the State at a reasonable cost to prospective planters. States like New York and Pennsylvania are already distributing millions of trees each year to prospective planters, and both of these States are planning to double their output in the next few years. The demand cannot be met with the present nursery capacity. Maine has a small nursery with a capacity of 200,000 trees a year, enough to plant about 200 acres. This is not enough even to meet the present demand and would be entirely inadequate to meet the larger demand which is certain to come. Means should be provided for increasing the capacity of the present State nursery, for the establishment of another nursery, or else for the contracting of a supply of young trees at a reasonable price from one or more of the commercial nurseries in the State.

CREATION OF FOREST FIRE DISTRICTS

In those portions of the State outside the Maine Forestry District where forest land makes up a good proportion of the town or towns, and where for one reason or another it is not given protection deemed reasonable by the State Forest Commissioner, it should be within the power of the Commissioner to establish forest fire districts in which the prevention and suppression of forest fires would be administered by the State organization. The advisability of the creation of such districts might be called to the attention of the Commissioner by petition of owners of more than 50 per cent of the forest land, or he could take action upon his own volition in cases where information coming to him made it seem desirable. In New York State, fire

districts are not created unless the region involves 75,000 acres or more of fairly contiguous timberland. In order that the local people may not lose their sense of responsibility in the prevention of forest fires, it seems advisable that one-half of the forest fire suppression costs incurred by the State in any forest fire district created should be billed back against and collected from the town or county in which the fire occurs. Some states bill such costs against the town, others against the county. When they are billed against the town, the fact that a forest fire is a serious proposition is impressed upon the local people because they are obliged to pay part of the bill in taxation; on the other hand, it is often the fisherman from the city or a non-resident smoker passing in an automobile who is responsible for setting a fire, and it may accordingly be more equitable to charge back one-half the cost of suppressing the fire against the county in which the fire occurred rather than the town. This will also serve to distribute the cost over a larger area and thus not be so burdensome to any one town.

ASSOCIATIONS OF CAMP OWNERS

Summer camps are already numerous in the State, and promise to become more so. They are usually located in the woods around lakes. Their investment in buildings and equipment makes protection against fires of considerable importance to their owners. A well directed effort would probably bring about the organization of the owners around each lake into a group for their mutual protection against fires. At a relatively small expense to each owner, a gasoline forest fire pump and hose could be purchased which could be mounted on a boat and thus be available for protecting both buildings and woods. It seems worth while for the State Forest Commissioner to take the lead in an effort to bring this about.

MATCH AND BURNING TOBACCO RECEIVERS ON MOTOR VEHICLES

Many forest fires today are due without doubt to the burning match or tobacco discarded by occupants of passing motor vehicles. The State of Maine might well legislate to make the throwing down of lighted matches or burning tobacco a punish-

able offense. Other states have done so. Such a law, however, is difficult to enforce because only rarely are violators apprehended in the act. A law that could more readily be enforced would be one requiring that at the time of sale or resale all motor vehicles primarily designed for travel over public roads be equipped with a permanently attached and conveniently located device for holding burnt matches and burning tobacco of any kind. Such a law would force automobile, truck, and motorcycle manufacturers to equip their product with such a device, and it would practically mean that in the course of a few years all such vehicles in the United States would be so equipped. This would add little to the cost of cars, and though it would not be any guarantee that matches and burning tobacco would not still be flipped out along the roadside, still it would tend more and more to have that effect.

ASSISTING TOWNS WITH EQUIPMENT

Many of the towns are equipped poorly or not at all for fighting forest fires. Fire fighters commonly bring their own shovels, rakes, axes, and similar tools to the fires. Occasionally some are purchased. Some states consider it good policy to assist the towns in the purchase of forest fire fighting equipment such as the tools already mentioned, fire extinguishers, and water pumps of various types. Maine might do so to advantage, confining its initial expenditure in a town perhaps to $100, providing the town expended at least an equal amount for the same purpose. In addition, one or more engine-driven water pumps with hose, and perhaps a half dozen hand fire pumps, should be kept by the State at centrally located points for loaning upon call to towns hard pressed by stubbon fires. This would be an effective and popular measure.

LAW ENFORCEMENT

On account of the general unwillingness of town officials to apprehend and prosecute local people for violations of the forest fire laws, this duty could be assumed by one or two men in the employ of the forest commissioner, provided there was legal authority for it. At the present, such authority apparently does not exist. This plan is followed in Connecticut and is very effective.

PUBLICITY AND EDUCATION

There is a distinct field in the State for more publicity through the newspapers, radio, and talks before various organizations of men and women, schools, and camps. A series of talks accompanied by well selected lantern slides, should be worked up with the idea in mind that each would reach effectively a different type of audience. As is the case in most states, the schools have been somewhat neglected as a means of implanting the idea of forest fire prevention in the minds of the young people. This is one of the most likely fields for good talks, lantern slides, and perhaps moving pictures. The purchase of an automatic baloptiicon or projectoscope by means of which the forest fire story could be carried to the schools or to the public in general would be a good move. Massachusetts continually keeps one of these pieces of equipment in operation in schools or in public libraries. They can also be set up for short periods in even more public places such as front windows of banks, sporting goods stores, etc. The many boys' and girls' summer camps in the State should be reached in the same way; a man with a story to tell in an interesting way is certain to meet with a cordial reception. Fishing and hunting clubs offer another means of reaching a class of people who are interested in forest preservation for the sake of preserving fish and game but through carelessness with matches, burning tobacco, and camp fires contribute to some of the forest fire losses. The primary necessity in the education of the public appears to be a definitely organized continuous program and men and money to put it into effect.

NEW LEGISLATION

Some of the measures already discussed will require both legislation and increased appropriations to make them possible and effective. There are other measures which could be taken to reduce the fire risk, such as forcing those who are responsible for fires to pay the cost of extinction, requiring all steam plants operating in or near forest land to be provided with spark arresters, and requiring portable sawmills to clean up brush for 100 feet or so around their setting. Tentative drafts of some laws follow. These are copied in part from those already in force in other states. It is not recommended, however, that additional legislation be sought before it will be well backed by public

opinion or before means in the way of adequate appropriations are provided for carrying out its provisions. Laws that are simply dead letters are apt to become a detriment rather than an aid in the protection of forest lands against fires.

TENTATIVE DRAFTS OF LAWS FOR REGION OUTSIDE THE MAINE FORESTRY DISTRICT

Forest Fire Districts. In regions where contiguous forest, land aggregates 75,000 acres or more, the forest commissioner may, upon petition of the owners of more than 50 per cent of the woodland, or upon his own volition where he deems it necessary, establish a forest fire protective system. In such regions the commissioner may maintain an organization of men and the equipment necessary to prevent and extinguish forest fires.

Payment of Fire Bills in Forest Fire Districts. All salaries and other expenses incurred by the commissioner and his employees in protecting the forests from fire shall be paid by the State.

Rebate by Towns (or Counties). One-half of all expenses incurred by the State in extinguishing forest fires in the forest fire districts, except salaries and expenses of regular employees, shall be a charge upon the town (or county) in which the fire burned.

Motor Vehicles to be Equipped. All motor vehicles operating in the State must (after a certain date) be equipped with permanently attached devices conveniently located to the seats for holding burnt matches and burning tobacco of any kind.

Setting Fires. No person shall drop, throw, or otherwise scatter lighted matches, burning cigars, cigarettes, or tobacco upon or near forest, grass, or brush lands of the State.

Protection on Steam Plants. No device for generating power which burns wood, coke, lignite, or coal shall be operated in, through, or near forest land unless the escape of sparks, cinders, or live coals shall be prevented in such manner as may be required by the forest commissioner.

Recovery of Expenses. Any moneys necessarily expended by the State, a municipality, or any person in fighting forest fires may be sued for by the State, municipality, or person expending the same and recovered from the person causing the fire. Such

actions may be maintained in addition to other actions for damages or penalties and such recovery of expenses may be demanded in the same or separate actions.

Assisting Towns in Purchase of Forest Fire Fighting Equipment. When, in the judgment of the forest commissioner, forest fire suppression will be materially strengthened and a town has need of financial assistance, he may cooperate to the extent of $100 in the initial purchase of forest fire fighting equipment and $50 in any one year in the replacement of such equipment, provided that the town in each case expends at least an equal amount for the same purpose. A sum not exceeding $5,000 may be expended by the State in any one year for the purpose.

SUMMARY OF MOST IMPORTANT MEASURES RECOMMENDED

1. The forest commissioner should have authority, upon petition or upon his own volition, to designate forest fire districts in which forest fire control will be handled by the State. One-half the expense of suppression should be charged back against the town or county.
2. Provision should be made by law requiring motor vehicles to be equipped with permanently fixed devices for holding burnt matches and burning tobacco.
3. The system of fire observation stations should be extended.
4. Poor towns should be assisted in the purchase of forest fire fighting equipment. The State should also maintain at one or two centrally located points fire pumps for loan to towns hard pressed by fires.
5. If legal authority exists, the State should take over the job of apprehending and prosecuting violators of the forest fire laws in the towns.
6. The State nurseries should be increased in size, or provision should be made with commercial nurseries to supply small trees at a reasonable cost.
7. More stress should be laid upon educational efforts, particularly in the schools and boys' and girls' camps.

Table No. 1
Forest Fire Record For Maine

MAINE FORESTRY DISTRICT				OUTSIDE MAINE FORESTRY DISTRICT			
Year	No.	Acreage	Damage	Year	No.	Aereage	Damage
1903	140	200,232	$761,588	1903	209	6,155	$183,500
1904	31	6,958	12,665	1904	.....	.....	.....
1905	109	14,737	40,518	1905	33	5,579	23,105
1906	56	7,250	19,488	1906	11	371	1,540
1907	17	2,324	5,257	1907	17	2,200	9,310
1908	127	98,691	361,796	1908	111	43,439	257,020
1909	68	27,083	63,734	1909	89	11,545	32,965
1910	17	267	935	1910	18	581	1,906
1911	127	99,654	298,052	1911	75	11,423	48,303
1912	63	16,198	57,152	1912	36	4,042	14,096
1913	74	9,327	28,477	1913	120	20,887	148,365
1914	105	8,311	14,467	1914	52	7,405	14,840
1915	80	14,474	22,776	1915	76	11,185	55,340
1916	54	8,257	9,460	1916	18	3,359	10,305
1917	19	147	1,334	1917	9	311	800
1918	58	3,820	7,291	1918	21	5,118	70,600
1919	85	4,352	6,305	1919	19	668	2,625
1920	118	34,558	143,752	1920	46	5,245	42,155
1921	250	56,947	404,555	1921	112	11,883	112,560
1922	164	19,198	106,001	1922	52	2,190	8,775
1923	132	62,407	289,845	1923	49	7,932	51,521
1924	158	38,401	101,986	1924	62	1,956	11,802
1925	73	2,328	14,058	1925	38	3,556	28,460
Totals 23 Year	2,125	735,921	2,771,492		1,273	227,030	1,129,893
Average	92	32,000	120,500	22 Year Average	58	10,320	51,360