

MAINE STATE LEGISLATURE

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MAINE PUBLIC DOCUMENTS

1946-48

1948

(In three volumes)

VOLUME II.

STATE OF MAINE

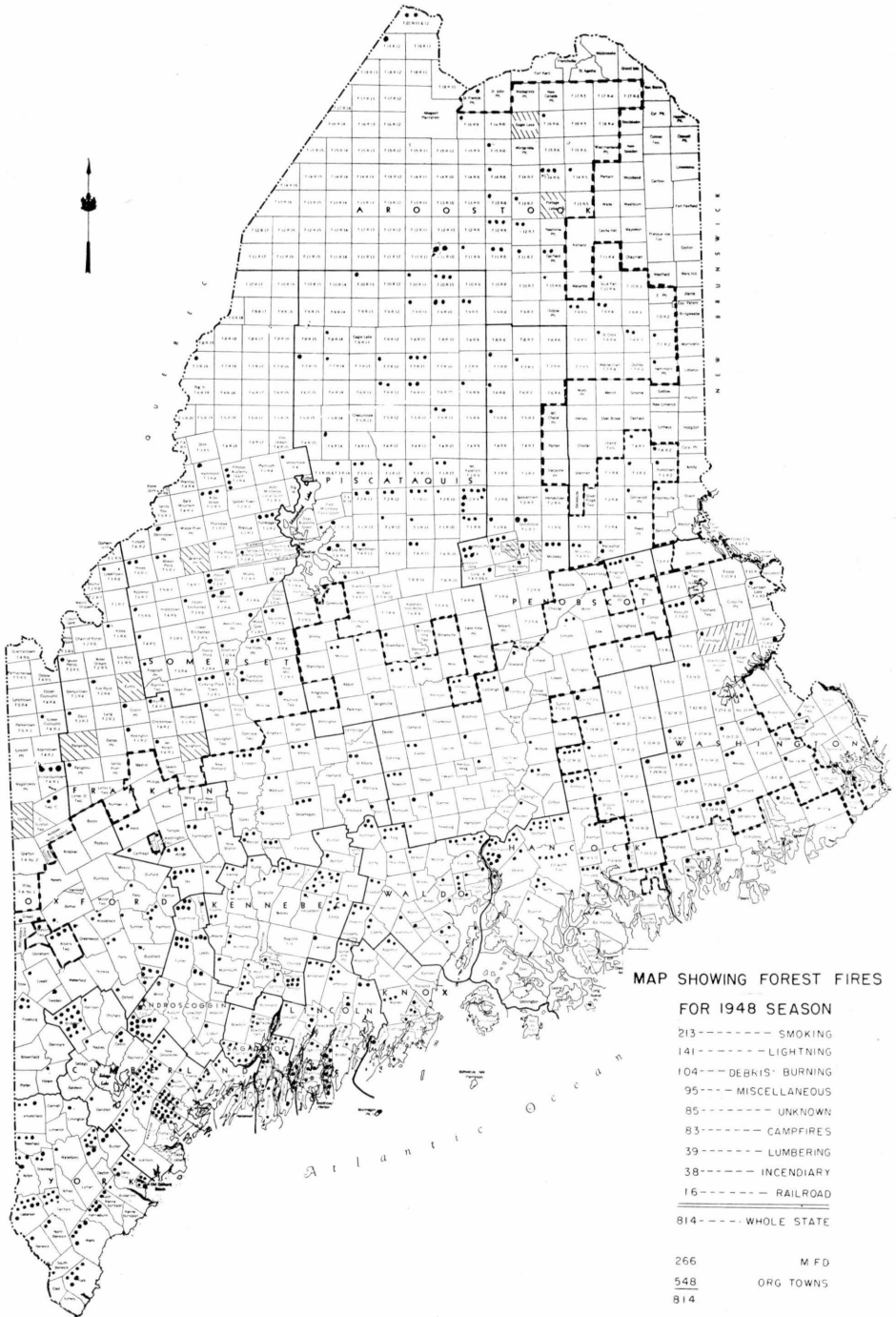
TWENTY-SEVENTH
BIENNIAL REPORT
OF THE
FOREST COMMISSIONER
A. D. NUTTING



HARVESTING MAINE'S LARGEST CROP

1947-1948

DEC 8 1950



MAP SHOWING FOREST FIRES

FOR 1948 SEASON

- 213----- SMOKING
- 141----- LIGHTNING
- 104---- DEBRIS BURNING
- 95----- MISCELLANEOUS
- 85----- UNKNOWN
- 83----- CAMPFIRES
- 39----- LUMBERING
- 38----- INCENDIARY
- 16----- RAILROAD
- 814----- WHOLE STATE

266 M F D
 548 ORG TOWNS
 814

State of Maine

TWENTY - SEVENTH
BIENNIAL REPORT
OF THE
FOREST COMMISSIONER
A. D. NUTTING

1947 - 1948

224067

State of Maine
FOREST SERVICE
(Land Office)

Augusta

July 1, 1949

Honorable Frederick G. Payne
Governor of Maine

Dear Governor Payne:

In accordance with Section 14, Chapter 32, of the Revised Statutes of 1944, I have the honor to transmit herewith the Twenty-seventh Biennial Report for the years 1947-1948.

Respectfully yours,

A. D. NUTTING
Forest Commissioner

FOREST COMMISSIONER'S REPORT
 MAINE FOREST SERVICE PERSONNEL

Forest Commissioner

Raymond E. Rendall—1947, Augusta
 A. D. Nutting, 1948, Augusta

Deputy Commissioner

Austin H. Wilkins, Augusta

Supervisors

Forestry District
 George A. Faulkner, Ellsworth
 Rex E. Gilpatrick, Fort Kent
 Robert G. Hutton, Greenville
 Harry G. Tingley, Island Falls

Assistant Supervisor and Draftsman

Robert E. Pendleton, Augusta

Farm Forester

W. Robert Dinneen, Bridgton

Pilots

Earl F. Crabb, Augusta
 Nestor A. Nelson, Augusta—1947
 Herbert Noble, Fort Kent—1948

State Entomologist

Henry B. Peirson, Augusta

Assistant Entomologists

Joel W. Marsh, Augusta
 Robley W. Nash, Augusta

Laboratory Entomologist

Auburn E. Brower, Augusta

Field Entomologist

Edward J. Duda, Augusta

Forest Insect Rangers

Harold Bullock, Greenville
 Arnold Davis, Jonesboro
 Harry Dyer, Stratton
 James Holmes, Portage
 Henry Willett, St. Francis
 Frank Manning, Augusta

Blister Rust Control Agent

Walter O. Frost, Augusta

District Agents

Harrington G. Bradbury, Belfast
 Martin G. Calderara, Auburn
 Joseph B. Pike, Jr., Bridgton

Office Staff

Secretary to Commissioner
 Lillian Tschamler, Augusta

Chief Clerk

Blanche L. Violette, Augusta

Account Clerk

Kathryn F. Larkin, Augusta

Clerks

Mabel C. Rowell, Augusta
 Marion Blair, Augusta
 Katherine Thulen, Augusta
 Madelyn Kilgore, Augusta

1947 and 1948 were two very dry years which brought on serious forest fires in 1947, and 814 forest fires in 1948 which were more than any year since 1903.

The devastation wrought in southwestern and eastern Maine by the forest fires of October 1947 presents itself as the most outstanding forestry happening of the past biennium. The effects of these fires brought problems which needed immediate attention to prevent a recurrence elsewhere in the state. To fully answer the request of the public that the state should provide remedies and assume more responsibility to prevent a recurrence was impossible without major law changes. Maine is one of the three states in the country making forest fire control the responsibility of as small a political unit as the town.

Austin H. Wilkins, formerly organized town supervisor, was appointed deputy forest commissioner in July 1948. This was to provide a more adequate administrative setup at headquarters. It was necessary because of the increased services and responsibilities placed on the department.

Through financial aid furnished by the Governor and Council from the contingent fund, the department started early in 1948 to build a more adequate forest fire program for organized towns. Because the legal responsibility in this area of the state rests with the town, much of the work in education in 1948 was done through volunteers. Major attention was given to finding out what the people wanted, training state and town forest fire personnel, setting up a volunteer emergency program, and planning a legislative forest fire program for organized towns.

The Maine Forestry District tax of $2\frac{1}{4}$ mills was passed in 1921. Costs of labor, equipment, and a deficit made a change in this tax essential. Plans to provide for this were made for presentation to the 1949 legislature.

The "Keep Maine Green" program, which was introduced into the state by efforts of American Forest Products Industries, Inc. and sponsored by landowners and this department, has far reaching merit. The manner in which this program has been carried out by public spirited people of the state has been of great help to the department.

Recently there has been a plan proposed whereby interstate and Provincial aid can be legally used on fire suppression work.

This is known as the Northeastern Interstate Forest Fire Protection Compact.

SUMMARY FOREST FIRE STATISTICS—1947

Causes	Organized Towns			Maine Forestry Dist.			Total		
	No.	%	Area	No.	%	Area	No.	%	Area
Smokers	194	36	47,891.2	61	36	740.1	255	37	48,631.3
*Unknown	109	20	133,219.4	3	2	4.0	112	16	133,223.4
Debris Burning	76	14	938.6	12	7	31.5	88	13	970.1
Miscellaneous	72	14	24,073.3	35	5	46.8	80	11	24,111.1
Campers	16	3	1,033.7	35	21	906.0	51	7	1,944.7
Lightning	12	2	14.0	33	20	546.0	45	6	560.0
Incendiary	20	4	548.3	8	5	2,360.6	28	4	2,908.9
Lumbering	19	4	85.2	6	3	55.5	25	4	140.7
Railroad	15	3	1,056.0	1	1	.1	16	2	1,056.1
	533	100	208,861.7	167	100	4,684.6	700	100	213,546.3
		3.203 %			.046 of 1 %			1.272 %	
		6,520,545 A.			10,262,455 A.			16,783,000 A.	

SUMMARY FOREST FIRE STATISTICS—1948

Causes	Organized Towns			Maine Forestry Dist.			Total		
	No.	%	Area	No.	%	Area	No.	%	Area
Smokers	156	28	2,423.0	57	21	175.7	213	26	2,598.7
Lightning	32	6	819.5	109	41	496.9	141	17	1,316.4
Debris Burning	97	18	980.3	7	3	15.2	104	13	995.5
Miscellaneous	88	16	205.1	7	3	1.8	95	12	206.9
*Unknown	72	13	979.1	13	5	17.6	85	10	996.7
Campers	27	5	535.9	56	21	14.1	83	10	550.0
Lumbering	37	7	140.8	2	1	5.0	39	5	145.8
Incendiary	26	5	327.4	12	4	72.2	38	5	399.6
Railroad	13	2	25.0	3	1	6.5	16	2	31.5
	548	100	6,436.1	266	100	805.0	814	100	7,241.1
		.099 of 1 %			.008 of 1 %			.043 of 1 %	
		6,520,545 A.			10,262,455 A.			16,783,000 A.	

*This cause will not be used in 1950.

The State of Maine has had other forest problems within the past biennium, one of which is the loss of birch. Many small communities of the state which are dependent upon hardwood turneries have the definite threat of losing these industries through the loss of their raw material—white and yellow birch. It was significant that the manufacturing industries voluntarily contributed financial support in 1947 and 1948 to match state funds to help carry on entomology research in an effort to find some means to combat this pest.

Maine is threatened with an outbreak of the spruce budworm. For some time the department, through its entomological division, has watched and plotted the movement of this pest. In 1948 two areas were found which had reached a point where a serious

outbreak may result in 1949. Plans have been formulated with the Federal Bureau of Entomology and Plant Quarantine for experimental control spraying on these areas.

Many white pine blister rust field demonstrations were put on during the summer of 1948 to bring this problem more forcibly to the attention of interested pine landowners.

Two farm forestry projects which had been carried on in the state since 1943 through federal funds were stopped on July 1, 1948 because no state offset funds were available. Industries and landowners in southern and western Maine held the Bridgton project by financing the state's share through voluntary contributions during 1948-49.

The federal government and this department cooperated in mapping, assisting owners in marketing, and future planning for the burned areas in late 1947 and 1948.

The Eastern Maine Forest Forum was started in the fall of 1947 and the Western Maine in late 1948. These forums are attended by those engaged in any phase of forest production or manufacture. The attendance is from 40 to 80. Speakers are usually obtained from the group. They are completely informal with no dues, no publicity, or votes, but serve as an excellent means of exchanging ideas.

MAINE FORESTRY DISTRICT

10,262,455 A.

The Maine Forestry District, comprising approximately ten million acres, has been for a number of years divided into four divisions, each under a supervisor. These four men are experienced in forest fire work and carry out the administrative policy of the Commissioner in the field.

The four divisions are further divided into 26 districts, the size and bounds determined largely by roads and streams. Each district is under the direction of a chief warden, most of whom have served many years in the department and are familiar with their own and abutting territories. They have varying sized crews working with and under them, the number depending upon the number of towers within their district, miles of roads, rivers and lakes necessary to patrol, and lumbering operations in the district.

Attention is called to the statistical summaries in this report in relation to the fire records of 1947 and 1948. The record of the past two years compares favorably with past records, and considering the drought conditions which existed over much of Maine in this period, the amount of fire losses is small. Particular attention is called to the large number of lightning fires of 1948 (109, being 40% of the total) and to the supervisor's comments covering plane operations on this type of fire.

A school of instruction was held for wardens and fire fighters of the western division by Supervisor Robert G. Hutton, of Greenville. His comments on the benefits from it will be found in his division report.

The need for use of airplanes continues to be increasing. They have saved time and expense by quickly getting to fires which are difficult to reach by road or stream. The pilot's report gives the details of the operations for the past biennium.

The past biennium witnessed two successive serious fire hazard years due to the prolonged drought. On Oct. 17, 1947, and again on Sept. 10, 1948 the Governor, at the request of the Forest Commissioner, invoked a ban or closure of the woods as weather conditions became bad and the fire hazard mounted.

Even with dry weather condition prevailing, the fire record in the Maine Forestry District was good. The percentage of burned area compared favorably with past years, and the 1948 season was particularly good from the standpoint of area burned, as compared to the number of fires occurring. However, the cost of putting the fires completely out during these past two years was high. The first reason was that the dryness of forest cover made it necessary to maintain long hours of patrol on fires. The second reason was the present high cost of labor.

The District ended the biennium with a deficit, but fire suppression costs were not the chief reason. They were only a contributing factor. The reason for the deficit began back in 1942 when wages and equipment costs increased. The District tax of 2¼ mills has been at the same level since 1921. Since then the salary and equipment costs have more than doubled.

At a landowner meeting held at Bangor in March of 1948, the financial picture was presented and discussed. Everyone present agreed that more funds must be provided, not only to wipe out the deficit but to equip and maintain the department on an effi-

cient basis. The landowners approved the budget presented by the Commissioner, which provided \$70,000 for new equipment and supplies and \$40,000 for fire suppression. These added to operating expenses made a total budget of \$351,000. Approval of the Governor and Council for a \$93,000 loan from the state surplus before July 1, 1948 and \$150,000 for the fiscal year 1948-49 was obtained. The landowners agreed to sponsor legislation, replacing funds loaned from the state surplus as soon as sufficient District funds could be obtained through an increased tax.

The Forest Commissioner presented the proposed biennium budget and the financial outlook for the years 1949-50 and 1950-51 at a meeting of the landowners, November 18, 1948. The summarized statement below shows the facts on which he based recommendations that the Maine Forestry District tax be 8 mills in 1949 and 1950:

MAINE FORESTRY DISTRICT FINANCES

Jan. 1, 1948	Deficit and outstanding bills.....	\$70,773.00
July 1, 1948	Expenses January to July.....	154,398.76
		<hr/>
		225,171.76
Expenses	July 1, 1948 to Jan. 1, 1949.....	197,000.00
		<hr/>
		422,171.76
1948 Income—Tax, \$135,000	Federal aid, \$117,000.....	252,000.00
		<hr/>
	Deficit January 1, 1949.....	170,171.76
	Estimated expenses Jan. 1949 to July 1949.....	196,000.00
		<hr/>
	Estimated deficit July 1, 1949.....	\$366,171.76
District valuation—unorganized towns.....		\$45,000,000.00
“ “ organized towns.....		14,000,000.00
“ “ other.....		1,000,000.00
		<hr/>
		\$60,000,000.00
Special tax needed to take care of deficit.....		\$366,171.76

Estimated yearly needs

Personal Services (salaries).....	\$236,873.00
Contractual Services (fires, trucks).....	107,025.00
Commodities (supplies).....	5,800.00
Capital Expense (equipment).....	48,240.00
Grants (accidents).....	500.00
	<hr/>
	\$398,438.00

Estimated income needed

Tax, \$60,000,000 at 5 mills.....	\$300,000.00
Federal subsidy.....	100,000.00

This proposal, barring unusual suppression costs, will leave the full 4½ mill 1951 tax available on July 1 of that year for use during the following year.

For several years previous to 1948, little new equipment was purchased. This was due both to war conditions affecting the availability of materials and to lack of money. A start was made in 1948 to increase equipment in warden districts to put them on a better basis. With the start made in 1948 and with the increased budget, it is expected that within two years equipment and facilities can be brought to a point where an annual schedule of equipment replacements and building maintenance can be adopted.

The interest and cooperation of the landowners in the Maine Forestry District, especially in its financial problems, is appreciated.

Supervisors have written reports for their divisions in the Maine Forestry District. The reports which follow summarize the work done in 1947 and 1948 in their divisions with recommendations for the future.

Northern Division—2,241,348 Acres

Rex Gilpatrick, Supervisor

Madawaska District—1947

Our plans for extensive repairs to the telephone lines in the early spring had to be altered due to the continued rains which lasted well into July. However, after the runoff of water, we went to work on the pole lines which had to be rebuilt and accomplished quite a lot during the balance of the season.

The line between Sinclair, on Long Lake, and our headquarters camp at Cross Lake, along route 162, had been rendered useless by a power line which was erected after we built a new pole line along the right-of-way. It was about six feet above our line, causing noises that made it impossible to be understood when telephoning. We had to cut new poles and set them along the opposite side of the road for a distance of two and one-half miles. This was far enough to put our line in talking condition again so we left the balance to be done the next year.

The heavy rainfall early in the season and the warm weather right afterward gave the bushes along the ground circuits through the woods a great start. We spent all the spare time possible cutting these bushes. After the first week of October it became so unseasonably warm and dry that we had to abandon all line work and attend strictly to patrol.

1948

After the spring work on our ground circuits was completed, we resumed work on the pole line along route 162. We completed it and now have a good, metallic circuit four miles from the chief warden's home on Long Lake to our headquarters camp at Cross Lake.

We rebuilt the pole line between Cross Lake and Stockholm, a distance of about ten miles. This line was built during the summer of 1927 and many of the poles were too decayed to hold the brackets and insulators. At the time this line was built the poles were set along both sides of the road to avoid curves in the road or ledges. We deemed it advisable to keep our line all on one side of the road and now have a good line from our headquarters camp at Cross Lake to our tower at Stockholm Mountain.

With the exception of one extra man and a horse dragging poles from the woods for a few days, we accomplished the work on both pole lines with our three-man crew.

We also put a new roof on our watchman's camp at Three Brooks Mountain.

Allagash District—1947

We had the usual amount of early spring work getting our many miles of ground circuit telephone lines in good working condition after the winter storms. With this work completed we put all the men to work on our log cabin for the watchman at Round Pond Mountain. It was started in the fall of 1946, when we moved the tower from Musquacook Mountain, four miles southeasterly, to Round Pond Mountain. The new site gives us a much better coverage of the area. The logs for the cabin were procured right on the camp site but the boards for the floors and

partition had to be boated up river on the Allagash for about twenty miles. This was slow, tedious work during fly season. We now have a nice log cabin on the east shore of Round Pond that can be reached by plane with supplies for the watchman.

The same condition prevailed in this district that we had in many others this year. The bushes grew very fast along all of our telephone line trails which required all of the spare time to remove them after the work was completed at Round Pond. The bushing job was not completed.

1948

After repairing the telephone lines, the men went to work on the major job they had been doing last fall—cutting bushes along the Allagash line. This was put in first class condition from the mouth of the Allagash up the river forty-five miles to the district boundary.

Work was started on the St. John River line from the headquarters camp to the district boundary above Castonguay settlement. Due to lack of wire and sleeves, four miles were left which will take about a week next spring.

The line to Rocky Mountain tower was cleared out and the wire replaced where needed, except the last five miles which can be completed early in 1949.

Due to an electrical line, our main line from Allagash to St. Francis was changed from a single wire ground circuit to a metallic circuit during the fall. This was nearly completed which will assure us of uninterrupted service between our chief warden and the headquarters storehouse at Allagash. This line also connects the patrol camp at Allagash with the lookout tower at DeBoulie Mountain. The line to DeBoulie had some work done on it this fall but it will need some new wire in places next spring.

Seven Islands District—1947

During the early part of the summer we replaced and rebuilt about a mile of pole line along the St. John River across the farm just below the Seven Islands. The poles that had been in this line were small and the domestic stock had rubbed against them so

frequently that they kept the poles down most of the way. We now have a good pole line. It was also necessary to replace a mile of the same line across the field at the Simmons farm.

We had to put in two miles of new wire on the Big Black River line near Two Mile Stream; then clear out the bushes and sleeve 21 miles of this line from one end to the other.

The old line from the headquarters camp at St. Pamphile to Depot Mountain had to be rebuilt across a farm and rewired for a distance of two miles. This was put on new poles.

1948

Early in the spring of 1948 we had to put on a couple of men working together with a logging crew to rebuild a part of our Big Black telephone line. This line was torn down in many places by a logging operation and it was necessary to repair it while there was still snow on the ground and a winter road to use. The operator furnished a team and shared the expense of repairs.

It was necessary to shingle the roof of the headquarters camp and build on a small woodshed this year. In bad weather the regular men also painted the floors and built some cupboards in the camp. The outside walls and trimmings of the camp were painted and stained.

The camp at the mouth of the Big Black River had to have the walls recaulked this year and the doors and windows were painted on the outside. There was enough stain to cover the logs in front.

The telephone line along the St. John River was bushed out and sleeved from Seven Islands to Long's Rapids, a distance of about 28 miles.

In July there was a terrific thunder storm with a heavy gale of wind that laid the trees down all along our telephone line along the Big Black River. It required extra help and took about three weeks to reconstruct and sleeve about 12 miles of this line.

This fall we commenced the construction of a landing strip to be used by our plane in an emergency. The work was done in cooperation with the landowners and pulp operators. It is built on an abandoned farm about a mile east of our headquarters camp at St. Pamphile. There is a good gravelled road from our

camp to the field, which is located on a flat top hill with no obstructions at either end of the strip. The strip is 100 feet wide by 1320 feet long and can be extended to over 1500 feet.

There is room for a landing strip at the Simmons farm and at the Seven Islands farm which should be developed. These strips should be improved and made available as soon as possible. This would give us a chance to land fire fighting equipment on short notice at two isolated places in this district which are potential fire hazards due to considerable river traffic during the spring, summer, and fall months.

We have most of the lumber to construct a headquarters storehouse in this district sawed out and stuck up to season. At present we have no storehouse in this district and are using a one-car garage to house our fire fighting equipment and store a pick-up truck.

Upper St. John District—1947

The patrolman camp on the Baker Branch of the St. John in this district was so old and rotted that we had to build a new one.

We also had to clear out the bushes that had grown up over our telephone line from St. Aurele to St. Cyprien, a distance of 15 miles, and replace some rusty wire.

1948

It was necessary to build a new patrolman camp near St. Cyprien this year to replace the old one.

The telephone line from Hardwood Mountain to the Baker Branch camp was bushed out and parts of the old wire were replaced with new for a distance of 8 miles.

We also bushed out and repaired the line from Daaquam to the Big Bog, a distance of 7 miles.

Two years ago we got out some logs and had them sawed at the mill in Daaquam to build a new chief warden headquarters camp. The old camp is in a sad state of decay and should be replaced with a new one but as yet we have not been able to get it.

Musquacook District—1947

Owing to lack of regular patrolmen to properly maintain the telephone lines in this district each year, we found it necessary to let other work of less importance go undone until we could put our lines in first class condition once more. There are only three patrolmen in this district to maintain over one hundred miles of telephone lines. With the repair work to be done after storms and the bushes to mow, it is impossible to keep caught up with the job of replacing poles and wire as often as we should.

We have set two miles of pole line along the St. John River above Seven Islands. This is above the islands and across a part of the farm where there are no trees on which to fasten the insulators.

The line along the gravel road from Lac Frontiere toward Nine Mile Brook had considerable rusty wire which we took out and replaced with new. The worst places of wire rust were along the black spruce bog near Nine Mile Brook. There seems to be something in a black spruce tree that causes galvanized wire to rust quicker than elsewhere. We swamped and rebuilt four miles of this line.

We also swamped and rebuilt four and one-half miles on the Tramway line and five and one-half miles along the Clear Lake Mountain line.

1948

This year we have added one patrolman in this district to get caught up with telephone line work. There will be plenty for four of them to do for some time to come.

We swamped and rebuilt 19 miles of the line that goes to Clear Lake Mountain; thence to Munsungan, and on out to the chief warden's house at Ashland. This line works good and gives an outlet to the Aroostook Waters District east of here. This is quite essential in reporting fires and in contacting the plane which patrols districts adjacent to those in the northern division during extreme fire hazards. The cooperation between the districts warrants the maintenance of this line.

The line along the road from Umsaskis Lake to Churchill Lake dam has been patched up with tripods and small poles for several

years. The growth along this road is predominantly white birch which have been dead for several years and were frequently blowing over onto the wire, taking it down into the water in several places. Now that the majority of the trees near the line are down we have built a good pole line between these two points. This line had been serving the Clear Lake Mountain section and the Tramway line in the Chamberlain District, but the load became too much for a one ground circuit hook-up. We now have a separate line from Umsaskis to Tramway and one from Umsaskis to Clear Lake Mountain and Ashland, both on new poles along the gravel road to the dam.

We are very much in need of a storehouse at Umsaskis Lake as a distributing point for incoming equipment from here, either by plane or truck to other districts. We also need a combined garage and woodshed at Nine Mile patrol camp.

Chamberlain District—1947

This district has needed a major job done on the telephone lines for several years. With a shortage of funds, labor, and its isolated location, it will take some time to put it on a par with the other districts in the northern division. We are wholly dependent on a plane for transportation in this area for moving men, supplies, and equipment as there are no roads anywhere within the boundaries of this district.

With but two patrolmen in this district for the season, it was necessary to devote our time to cutting bushes, trees, and rebuilding the main telephone lines from the headquarters camp, down the railroad right-of-way, to Umbazooksus Lake, and out the other way, down the Allagash waters to Umsaskis Lake.

1948

We put a new chief warden and crew in this district this year. We were fortunate to get a man for this work with much experience and plenty of ambition to tackle a hard job and do it well.

The old wharf and landing at the headquarters at Tramway were in a state of decay and ruin this spring. We replaced them with a log and rock wharf twelve feet wide, extending from the

boathouse on the shore out into the lake about two hundred feet to low water mark. At the outer end of the wharf we have built a ramp for our pontoon plane to run up on so it can be strapped down solidly in case of heavy wind storms.

We built a new boathouse on the west shore of Chamberlain Lake at what is known as the Crow's Nest. There is a large boat kept here for boating a crew to a fire at any part of this lake, Round Pond, or Telos Lake. The boathouse is near the tracks of the old Madawaska Railroad where we operate a gasoline car to truck our equipment from the headquarters camp at the Tramway on Eagle Lake to the boat on Chamberlain, or on down to Umbazooksus at the southern end of the district, twelve miles from camp.

The old camp for the watchman, which was built half way up Allagash Mountain, was torn down this summer and the usable lumber was salvaged to build a new log cabin a quarter of a mile below the old site on the west shore of Allagash Lake. It is now possible to land the supplies for the watchman by plane.

This fall we surveyed and brushed out a cut-off trail on our line from the Tramway along the northerly shore of Chamberlain Lake, across the arm of Chamberlain, with a cable, and on down to the dam at Telos Lake. This will shorten our present line to that point, about eight miles, which means a saving in future labor on maintenance. In the spring we will build a patrol camp on this line at Round Pond and have better telephone service to the East Branch District and also patrol service and protection for the eastern part of this district which has been without a patrol in the past.

General

Due to a scarcity of material, increased costs, and a small budget for the past several years, we have had to operate on a lot of patched up and worn out equipment. In 1948 we have been able to replace a part of our old equipment with new and to add some things to our inventory which have been lacking for some time.

Each of the districts, except one, received a new Pacific power pump with a thousand feet of new linen hose. We have also replaced two old pick-up trucks and one larger truck this year with

new ones. A number of canoes, outboard motors, hand pumps, and boats have been replaced and a supply of fire fighting tools were added to some of the districts.

Plane Service—1947 and 1948

In the spring of 1947 we used one of our Seabee planes to move men and supplies to their stations for the summer work. It was a four place plane equipped to land either on water or air fields. It was an ideal plane for some of our heavy freighting jobs to remote locations. However, it had its limitations. For patrol work or for landing on ponds or deadwaters it was too heavy. A lighter plane was found to be more practical for all purposes in the remote regions of the northern district.

During the winter and early spring of 1948 we made a very satisfactory trade whereby we replaced the old Seabee with a lighter two place Luscombe equipped with floats. This gave us a plane that could get in and out of any water that other planes would land on with campers or fishermen. It also was very useful and economical to use on patrol work and in spotting fires caused by lumbering, campers, or lightning.

The area in which this plane was used most is covered with small ponds that are popular fishing grounds. It is also a section of the state that is known to be frequently visited by severe electrical storms during July and August. It certainly came in handy this summer in getting men and fire fighting equipment to many of the nineteen lightning fires we had in some of the most remote sections of the northern area of the state. It unquestionably saved the forestry department many thousands of dollars for fire suppression during its first season of work.

It was very useful as a patrol plane along the border between Maine and Quebec where there were extensive pulp operations and many travelers going back and forth across the border. Along this international border there are farms for a distance of a hundred miles on the Canadian side. On the Maine side it is an unbroken wilderness except for patches of burned lands. These areas were burned for the most part from fires starting near the border, and with the prevailing winds from the west during the fire season, they quickly spread to our forests. Early detection of

fires in this section is a necessary adjunct toward prompt suppression. Our small plane was found to be indispensable for this line of work.

Central Division—2,532,467 Acres

Harry G. Tingley, Supervisor

This division comprises 110 townships. Within the division there are regularly employed:

8	Chief Wardens
21	Watchmen
15	Patrolmen
5	Telephone Operators

The telephone operators are for the most part wives of the chief wardens. They operate the central switchboards connecting the 713 miles of telephone lines operated in the central division.

This division operated the past two years with nearly the same personnel with the exception of an advancement of patrolman Scott Davis to chief warden in the East Branch District, replacing John Mitchell who retired following the 1946 season.

The weather in 1947 was very dry, but in spite of this only 45 fires occurred with a burn of 753 acres. The major part of this acreage was from two fires on which the damage was very light, one fire being in meadow land and the other occurring late in the season and only skimming over the top ground surface.

The 1948 season was similar to the 1947 season in lack of rain, and a high fire hazard existed much of the season. In 1948, however, there were 107 fires, due largely to lightning, with a burned-over acreage of only 103 acres. This excellent record was due to three reasons:

1. The shorter period of time occurring between the first report of the fire and the time actual suppression work began.
2. Increased use and efficiency of airplanes by pilots who knew the country.

3. General increased efficiency due to use of radio which gave better contact between the fire boss and his fire crew, whether on the ground or from the plane to the ground.

Considerable experimenting has been carried on in this division with radios, and since the first use on a fire in July of 1946, they have been used on all fires whenever possible. The use of radios at first was not too encouraging, due in most part, we now realize, to our own lack of understanding of how to use them to best advantage and how to adjust the sets themselves to get maximum results. Continued experiments, both in practice and on fires, however, have ironed out most of the wrinkles. Many test runs in the division have given a good knowledge of results we may expect. The conclusions reached on radios are as follows:

Portable to Portable on ground:

1 to 5 miles—Excellent

5 to 8 miles—Fair

8 to 12 miles—Possible if terrain and atmospheric conditions are favorable

Portable on ground to Portable in a plane:

1 to 7 miles—Excellent

8 to 12 miles—Fair to good

13 to 20 miles—Possible under favorable conditions

Mobile to Mobile:

20 to 75 miles—Good, but elevation must be obtained for maximum distances.

Sets must be checked after use by someone who has at least a good working knowledge of them. The conclusion was also established that training of the men in the use of radio is a necessity before reasonable results can be obtained or expected.

As conditions permitted, the following improvement work was done on the structures:

Boathouses	Minor repairs and some painting
Camps and cabins	Fish River camp—new floor Millinocket and Patten—camps painted Trout Mt. camp—painted Davidson—new porch floor, trim painted, and new roofing on one side Carr Pond camp—new sills and lower logs
Storehouses	Davidson—shingled Macwahoc—new sills Katahdin—painted Patten—partly painted Ashland—trim painted

Towers	Lawler—painted steel Burnt—new ladder built Trout—cab painted Deasey—cab painted Whitney—cab painted Howe Brook—cab painted Replaced glass in many
Telephone Lines	Pole Lines— $\frac{1}{2}$ mile new $7\frac{1}{2}$ miles new wire strung and many new poles set $20\frac{1}{2}$ miles bushed or mowed Woods Lines—2.4 miles new line 11 miles sleeved 260 miles bushed or mowed
Camp Sites and Lunch Grounds	2 new sites at Russell Crossing 5 shelters reroofed

The following major items of equipment were added:

Season 1947	Season 1948
6 miles telephone line	3 Trucks— $\frac{1}{2}$ ton
2 Trucks— $\frac{1}{2}$ ton	2 Power Pumps
2 Power Pumps	3 Outboard Motors
1 Canoe	2 Canoes
1 Cook Stove	1 Boat
1 Tent	5,000 feet $1\frac{1}{2}$ " Linen Hose
	6 doz. Hand Tools

Western Division—3,525,714 Acres

Robert G. Hutton, Supervisor

During the fire season of 1947, rainfall was about average but distribution was such that a bad condition developed during the last three months which was carried into 1948. The following recordings were taken at Greenville:

	1947	1948
May	5.49	7.77
June	4.71	2.32
July	6.32	2.59
August	1.02	2.13
September	2.85	.88
October	.66	4.62
Totals	21.05	20.31

Analysis of the 1947 record shows that during the months of May, June, and July rainfall was above the average for that period. Excessive precipitation occurred during the leafing season which resulted in a thick, heavy foliage growth, thus making transpiration losses great throughout the fire season. The below average rainfall during August, September, and October, together

with this unusual loss of moisture through the leaves, resulted in an unprecedented drought. At the start of the 1948 fire season the subsoil had not fully recovered its normal moisture content, nor did it throughout that summer. This was evidenced by the number of fires, especially from lightning, which were 48 percent of the total.

The two fire danger stations now operating at the Chesuncook and Rangeley headquarters were of considerable help in determining the burning index from day to day. Instruments have been purchased for a new station to be set up at Caratunk, a point midway between the two now in operation, which will be in use next season. Inasmuch as weather conditions, found in Maine, often vary greatly in sections fifty miles apart, this new station will be of considerable value in obtaining better burning index readings throughout the division.

Fire detection depends on the operation of 21 lookout stations which command a coverage of the western division. Often, when visibility from the towers was low, hired airplanes were put on patrol duty, and proved effective.

The following is the distribution of fires by chief warden districts during the past two years:

	1947	1948
Chesuncook	3	12
Moosehead	6	10
Seboomook	2	14
Moose River	9	9
Parlin Pond	14	23
Dead River	10	9
Rangeley	6	14
Totals	50	91

The increased number of fires in 1948 was due, not only to the lack of moisture in the subsoil and from the increased number of lightning fires, but also to the increased number of tenting and fishing parties over those of 1947. As the result of a camp site survey made in 1948 around the shores of Moosehead Lake, it was found that 84 unauthorized locations had been used. This increase in camping is also true for other parts of the division.

Of the 91 fires during the season of 1948, 89 of them burned only 35.50 acres, 2 burned 340 acres, or an average of 4.67 acres. The result of this low acreage was due in part to the use of the

airplane on the fires. Without it greater acreage losses would have resulted.

From experience it has been proved that the airplane is the most valuable piece of equipment we now use, other than the tools which are actually used for suppression work. A great many of our fires occur far back in most inaccessible country, far from roads. We are fortunate, however, that the greater part of the western division has several hundred lakes and ponds, each of which can be used as a landing place for airplanes. However, there are times when fires occur near or on ponds so small that they cannot be used as landing strips with the type of hired planes available. This necessitates long trips overland on foot, resulting in the crews arriving at the fire several hours later than they would have, had we the correct type of plane. Therefore, I would recommend the purchase of a Piper P. T. 11-90 for use in this division.

During the 1948 season 7 fires were first spotted from the air. Planes were used to an advantage on 76 fires, performing many types of work. During those times when visibility was so low that the mountain lookouts were shut in from smoke and haze, planes were put in the air to do patrol work. Their use speeded up supervision on fires as well as on other administrative duties.

A properly marked state-owned plane could help prevent fires. While patrolling it would be identified by people on the ground as the watchful eyes of the Service. It would have a strong psychological effect on campers, fishermen, and woodsmen, especially during the lunch hour. There were 41 fires started by campers in 1948.

Some of the important uses to which we put airplanes follow:

1. Locating certain types of fires.
 - a. Those which are spotted but disappear at intervals.
 - b. Those not visible from towers.
2. Sizing up fires from the air to determine:
 - a. Slope, direction of wind, etc. and their effect on the fire.
 - b. The number of men to send in for suppression work.
 - c. Kind and amount of equipment needed.
 - d. Locating nearby water.
 - e. Type of fuel being burned.
3. Locating the best and shortest way to get to fires.
4. Taking a compass bearing in the air from some known point on the ground to the fire for ground crews; same bearing to be used by them as was taken in the air.

5. Transportation of men, equipment, and supplies to points, usually on water, nearest the location of the fire and taking them out.
6. Checking the progress of all fires in their various stages.
7. Directing suppression work from the air by radio.
8. Checking for spot fires away from the main fire, and directing crews to them.

For the first time heavy equipment was used in the western division. Due to the lack of water within pumping distance on the West Forks fire, it was necessary to use tank trucks, 7 of which were employed. 3 bulldozers were also used to advantage for constructing fire lines. However, forest cover and ground conditions should be taken into consideration before resorting to their general use.

The western division's communication system consists of 605 miles of District-owned telephone lines which tie into commercial circuits. This is maintained and serviced by our regular personnel. Communication between all field installations and the Augusta headquarters is possible at all hours, with two exceptions.

Improvements

Chesuncook District

A new seaplane base was built at Chesuncook Dam.
 A new authorized camp site was constructed at Chesuncook Dam.
 Log replacement and other repairs were made on the Spencer Mountain camp.
 Repairs were made on the Rainbow Lake telephone line.
 A cabin was built on the new 28' motor boat and an inboard motor was installed.
 29½ miles of telephone line were bushed.

Moosehead District

An office and equipment room for the chief warden were built at the Greenville boathouse headquarters.
 A new seaplane base was built in Greenville.
 A gas tank and pump were installed.
 The cab on Number 4 Mountain tower was replaced, the old one having been destroyed by lightning in 1947.
 A new rocked log crib foundation was constructed under the Greenville boathouse.
 Put the Wadeigh Mountain night camp on a rock foundation and repaired sills and replaced logs in the camp.
 44 miles of telephone line were bushed.

Moose River District

A lunch shelter was moved to a new location.
 A ten mile telephone line was built from Rock Pond to Kibbie Mountain tower.
 40 miles of telephone line were bushed.

Seboomook District

The Green Mountain tower was reroofed.
 A new metallic line from the Boundary Road to Green Mountain tower was constructed.
 Four lunch shelters were built, three at Canada Falls Deadwater and one on Seboomook Lake.
 12 miles of telephone line were bushed.

Parlin Pond District

The Appalachian Trail from Moxie Bald Mountain to Bald Mountain Pond was bushed and cleaned in 1947. This work was paid for from funds turned

over to the Maine Forestry District by the Appalachian Trail Conference, Inc.
 New shutters were built for the Moxie Bald Mountain tower.
 10¼ miles of telephone line were bushed.

Dead River District

The Eustis storehouse was reroofed with asphalt shingles.
 2¼ miles of telephone wire were strung on Snow Mountain.
 Replaced a mile of poles and wire, taken up on account of a construction job on highway No. 16.
 Built a new cab on Mt. Bigelow, the old one having been destroyed by lightning in 1947.
 In 1947 bushed and cleaned 10 miles of Appalachian Trail under the same arrangement as that made for the Moxie Bald Mountain job.
 Built over one camp site shelter.
 29½ miles of telephone line were bushed.

Rangeley District

A new boathouse was constructed at Cupsuptic.
 A small storehouse was built at Mills Brook, Richardson Lake.
 A patrolman's camp was built at Little Kennebago Lake to take the place of the old one.
 Repaired storage camp at West Kennebago.
 An asphalt shingle roof was put on the Pine Island patrolman's camp.
 Saddleback Mountain night camp was reshingled.
 7 new camp sites were built near Cupsuptic storehouse.
 25 miles of telephone line were bushed and 30 poles reset.

The following structures were painted during 1947 and 1948:

- 19 Towers
- 2 Boathouses
- 3 Patrolman's camps
- 1 Headquarters set of buildings
- 3 Storehouses
- 2 Garages

Because of increased funds available to the District, in 1948 new equipment was purchased placing the division today in better shape than it has been for several years. Some of the items purchased were:

- 7 Pick-up trucks—½ ton
- 1 Automobile
- 2 Boats
- 6 Power pumps
- 38 Indian back pumps
- 8,000 Ft. 1½" Linen fire hose
- 264 Hand tools
- 3 Outboard motors
- 7 Sets of Binoculars
- 150 Gals. Paint

Eastern Division—1,962,926 Acres

George A. Faulkner, Supervisor

The eastern division of the Maine Forestry District opened its 1947 season with several changes in its personnel. Due to the fact that two chief wardens, Anton Jordan and Harry McReavy,

had reached the retirement age, it was necessary to replace them. Two regular seasonal men from these districts, George Hooper and Macey Armstrong, were promoted to positions of chief warden. Three watchmen who had reached the retirement age were replaced by new men.

The 1948 season began with the same chief wardens as in 1947. One extra full time seasonal man was added in the East Machias District to assist Chief Warden Grant. Four new men were hired for replacements in the division.

Early in April of 1947 it appeared that we might be going to have a dry season, but around the first of May rain began to fall and continued until late in June. Shortly after the first of July the weather changed and a real drought set in that extended the usual length of the fire season until the snow fell in November.

During the fire season of 1947 a total of 68 forest fires were reported and extinguished with a total burn of approximately 2,800 acres. A large percentage of this acreage had been burned over previously.

The drought of 1947 continued into 1948 and the fire season opened earlier than usual and again it seemed as if we were headed for a dry spring which in the past has always been dangerous. However, light rains came at various intervals until the middle of June when another real drought set in that continued well into November.

Although the fire season for 1948 was long and the ground very dry, the humidity held high enough to give the personnel a chance to control and extinguish the forest fires as they were reported. A total of 65 fires for the season were reported and controlled with less than 200 acres burned over, of which approximately 150 acres had been previously burned.

During both fire seasons the use of the airplane played an important part in locating fires, directing their control, and moving men and equipment.

Also, the use of bulldozers that had been experimented with several years back played an important part in establishing fire lines.

Furthermore, a new piece of equipment was brought into service which I believe will play a greater part in helping to combat forest fires in the future when it can be used. That is, either tank trucks or tanks mounted on trucks to carry water to a fire that is accessible by road.

During the past two seasons, the eastern division has added in major equipment:

5	Pick-up Trucks
7	Power Pumpers
5,500	Ft. 1½" Linen Hose
130	Indian pack pumps
3	Canoes
3	Outboard Motors
516	Hand Tools (axes, mattocks, shovels, pails)

As conditions permitted, we made the following improvements:

Established headquarters for the Union River District at T. 28, M.D. on the Airline Road.

Rebuilt 4½ miles of telephone line from Mattamiscontis Mountain to Seboeis.

Relocated and rebuilt 13 miles of the Lee-Passadumkeag Mountain telephone line.

Added a new 10 mile metallic pole line from Topsfield to Tomah Stream.

Relocated 7 miles of telephone line from Young Farm Cove on Dobsis Lake to the head of the lake.

Relocated 12 miles of telephone line from Cooper to Marion.

Constructed a new 13 mile telephone line from Lead Mountain to Deblois.

Finished the building of a 15 mile telephone line from Bull Hill in T. 16, M.D. to the Airline Road.

Constructed a storehouse and camp at Brownville, replacing the one burned in 1945.

Built a boathouse at Young Farm Cove on Dobsis Lake.

Added a sleeping room and porch to the lineman's camp at Main River, T. 30, M.D.

Reshingled the storehouse and boathouse at Princeton and the chief warden's camp at Main River.

Repaired the 45' power boat at Grand Lake Stream.

Relocated 2 camp sites on the Airline Road, one at Old Stream and the other at Lovejoy Brook.

As we progress in the interest of fire protection with new ideas and equipment, the time is coming when we should replace some of our ½ ton pick-up trucks with 4 wheel drive Jeep pick-ups. Eastern Maine has become a great network of bulldozed, CCC, and access roads through the woods that connect with our state highways. These roads are for the greater part inaccessible for our ½ ton pick-up trucks, but it is believed that the Jeep can go over these roads and enable the personnel to get to fires more quickly.

It is with the above thought that 4 Jeep pick-up trucks are to be ordered and put in service the coming season of 1949 to replace four of our old worn out trucks.

Airplanes

Earl F. Crabb, Pilot

The use of the airplane continues to play a very important part in the detection and suppression of forest fires within the Maine Forestry District.

In March of 1947 the department purchased its second Republic Seabee amphibian plane and began the season with two planes. One was stationed in the northern division and the other was used in the three other divisions, being stationed where it was needed the most. The department planes were supplemented in their work by airplanes owned and operated by commercial operators in emergencies when the department planes were working in other areas. On September 1, 1947, Nestor Nelson, a department pilot who had been based in the northern division, left the department for private interests, and the season was completed with only one regular pilot.

In the spring of 1948 it was decided that a small two-place airplane on pontoons could best serve the needs of the Maine Forestry District in the northern division, in place of the larger four-place Seabee which had been in that area. In line with this thought the original Seabee which was purchased in 1946 was traded for a two-place, all metal, Luscombe airplane on pontoons. This plane proved to be very economical to operate and maintain, and was used for a total of 375 hours during 1948. It was based at Umsaskis Lake for use in the northern and central divisions. It was piloted by Herbert Noble.

The department's other airplane, a Republic Seabee, was retained as there was a definite need for an airplane of its load carrying capacity for the freighting of supplies and equipment to remote areas, as well as the transportation of fire fighting equipment and men to fires. During the latter part of July 1948, this plane, piloted by Earl Crabb, the department pilot since 1933, suf-

ferred an accident on Pemadumcook Lake while transporting three men and equipment to a fire in that area. While no injuries were suffered by the personnel, the plane was damaged beyond repair. It was replaced by the insurance company with another Seabee of a later model, on August 4. This plane completed the season of 1948, and in the opinion of the pilot proved to be equal to, and in some respects, superior to the one that was lost. The two planes were operated a total of 775 hours for the season of 1948.

The use of airplanes in the Maine Forestry District has assumed importance in its utility. The saving of time in locating and getting to a forest fire results in less acres burned and a direct saving in operating expenses. Much of the Maine Forestry District is inaccessible by ordinary means of transportation, which creates a problem of getting around, not only in times of fires but in the work of servicing remote areas.

FOREST COMMISSIONER'S REPORT

MAINE FORESTRY DISTRICT

Financial Statement

1947

Balance January 1, 1947.....		\$10,292.95	
Receipts			
1947 Assessment.....	\$133,592.15		
Federal Cooperation.....	115,725.41		
Baxter State Park.....	1,699.00	251,016.56	
		<hr/>	
Total Receipts.....		261,309.51	
Forestry District Abatement and Charge-offs		30.23	
		<hr/>	
Total Receipts Available.....			\$261,279.28
Disbursements			
Chief Wardens.....	45,822.17		
Deputy Wardens.....	723.62		
Supervision.....	19,743.17		
Patrolmen.....	63,226.33		
Watchmen.....	55,993.64		
Improvements.....	27,553.56		
Tools and Supplies.....	40,031.93		
Fire Suppression.....	6,824.33		
Administration.....	12,302.51		
Miscellaneous.....	7,316.41		
		<hr/>	
Total Disbursements.....			279,537.67
Overdraft January 1, 1948.....			18,258.39
Unpaid 1947 bills.....			70,576.47
			<hr/>
Deficit.....			\$88,834.86

EXPENDITURES BY WATERSHEDS—1947

	St. John	Penobscot	Kennebec	Androscoggin	Machias	Totals
Chief Wardens.....	\$15,134.31	\$15,276.09	\$7,320.45	\$1,801.66	\$6,289.66	\$45,822.17
Deputy Wardens.....	205.02	277.39	90.45	66.33	84.43	723.62
Supervision.....	6,242.28	6,345.38	2,678.87	839.05	3,637.59	19,743.17
Patrolmen.....	21,856.18	14,651.34	11,726.40	8,152.16	6,840.25	63,226.33
Watchmen.....	15,031.39	18,283.70	11,411.56	3,509.46	7,757.53	55,993.64
Improvements.....	10,250.04	7,169.92	4,187.22	1,537.04	4,409.34	27,553.56
Tools and Supplies.....	11,938.13	7,668.58	7,729.58	4,564.65	8,130.99	40,031.93
Fire Suppression.....	969.08	2,187.48	1,384.90	135.92	2,146.95	6,824.33
Administration.....	2,459.23	2,477.00	2,454.74	2,456.19	2,455.35	12,302.51
Miscellaneous.....	2,418.67	1,913.20	1,539.31	625.49	819.74	7,316.41
	\$86,504.33	\$76,250.08	\$50,523.48	\$23,687.95	\$42,571.83	\$279,537.67

1947 unpaid bills not distributed by watersheds—\$70,576.47

MAINE FORESTRY DISTRICT

Financial Statement

1948

Overdraft January 1, 1948.....		\$18,258.39
Receipts		
1948 Assessment.....	\$134,295.51	
Baxter State Park.....	1,699.00	
Township 4, N.D., Hancock Co.	250.00	\$136,244.51
Federal Cooperation.....	104,283.49	
Transfer from General Fund on a Loan Basis	*243,000.00	
Miscellaneous Receipts.....	2,172.84	485,700.84
Total Receipts.....		467,442.45
Forestry District tax abatements.....	95.40	
Transfers to State Highway Dept. (Maps).	13.20	108.60
		<u>\$467,333.85</u>
Disbursements		
Administration.....	13,534.90	
Chief Wardens.....	42,954.46	
Telephone Work, Chief Wardens.....	880.33	
Deputy Wardens.....	711.55	
Watchmen.....	55,683.03	
Telephone Work Watchmen.....	4,654.13	
Patrolmen.....	64,075.52	
Telephone Work Patrolmen.....	11,598.50	
Supervisors.....	17,880.12	
Telephone Operators.....	3,883.40	215,855.94
Fires.....	26,430.04	
Car Maintenance and Repairs.....	3,921.93	
Truck Maintenance and Repairs.....	24,745.07	
Equipment Maintenance and Repairs....	6,628.96	
Building Maintenance and Repairs.....	3,813.62	
Construction, Equipment and Supplies...	50,733.18	
Telephone & Telegraph, Electricity & Water	3,892.05	
Plane Hire.....	3,531.82	123,696.67
Planes—Pilots (Salary and Expense).....	5,198.08	
Seabee No. 2.....	2,127.48	
Seabee No. 3 (\$830.00).....	2,141.46	
Luscombe (\$998.00).....	3,007.30	12,474.32
		<u>352,026.93</u>
1947 Fire Bills paid in 1948.....	69,806.06	
1947 Plane Hire paid in 1948.....	393.19	
1947 Expense Seabee No. 1 paid in 1948..	377.22	70,576.47
Total Disbursements.....		422,603.40
Balance January 1, 1949.....		<u>\$44,730.45</u>
*Minus Loan from State Surplus.....		243,000.00
Deficit.....		<u>\$198,269.55</u>

MAINE FORESTRY DISTRICT DISBURSEMENTS.

Calendar Year 1948

	Faulkner 1,962,926 A.	Gilpatrick 2,241,348 A.	Hutton 3,525,714 A.	Tingley 2,532,467 A.	Augusta and Planes	Total 10,262,455 A.
Administration.....	—	—	—	—	\$13,534.90	\$13,534.90
Chief Wardens.....	\$8,920.70	\$9,067.30	\$10,778.96	\$14,187.50	—	42,954.46
Deputy Wardens.....	168.84	241.20	165.83	135.68	—	711.55
Watchmen.....	10,947.61	7,168.20	18,689.88	18,877.34	—	55,683.03
Patrolmen.....	11,542.83	17,504.13	20,091.13	14,937.43	—	64,075.52
Supervisors.....	5,015.41	4,605.23	4,802.67	3,456.81	—	17,880.12
Telephone Operators.....	423.90	1,024.50	1,220.50	1,214.50	—	3,883.40
Telephone Work.....	5,252.11	4,418.98	4,420.57	3,041.30	—	17,132.96
						215,855.94
Fires.....	4,239.61	389.41	18,649.27	3,151.75	—	26,430.04
Car Operation.....	838.96	1,161.01	843.28	290.39	788.29	3,921.93
Truck Operation.....	6,090.34	5,468.12	7,699.46	4,857.43	629.72	24,745.07
Equipment Maintenance.....	1,271.87	2,205.44	2,063.48	999.83	88.34	6,628.96
Building Maintenance.....	975.56	756.78	1,492.09	578.81	10.38	3,813.62
Equipment.....	11 319.94	13,711.23	17,350.70	7,829.17	522.14	50,733.18
Utilities.....	752.58	243.35	1,677.70	1,212.93	5.49	3,892.05
Plane Hire.....	52.66	221.66	2,358.17	899.33	—	3,531.82
						123,696.67
Pilots.....	—	—	—	—	5,198.08	—
Seabee No. 2.....	—	—	—	—	2,127.48	—
Seabee No. 3.....	—	—	—	—	2,141.46	—
Luscombe.....	—	—	—	—	3,007.30	—
						\$352,026.93
1947 Fire Bills.....	30,812.68	602.00	28,651.55	9,739.83	—	69,806.06
1947 Plane Hire.....	—	—	340.69	52.50	—	393.19
1947 Seabee No. 1.....	—	—	—	—	377.22	377.22
						377.22
Totals.....	\$98,625.60	\$68,788.54	\$141,295.93	\$85,462.53	\$28,430.80	\$422,603.40

MAINE FORESTRY DISTRICT

MAINE FORESTRY DISTRICT FIRE RECORD 1947

Location	Date	Acreage	Cause	Damage
Aroostook County				
Glenwood Pl.	April 27	2.2	Incendiary.....	\$1,500.00
Hammond Pl.	May 18	3	Debris or Brush Burning.....	.....
T. D, R. 2	May 25	1	Campfire.....	.....
T. 7, R. 9, WELS	June 22	1	Smoking.....	.....
Oxbow Pl.	June 27	.....	Lightning.....	.....
T. 3, R. 2, WELS	July 4	.....	Campfire.....	.....
T. 13, R. 7, WELS	July 13	.....	Lightning.....	.....
T. 15, R. 9, WELS	July 14	.....	Lightning.....	.....
T. 20, R. 11 and 12, WELS.....	July 15	.....	Lightning.....	.....
T. 10, R. 6, WELS	July 18	.....	Lightning.....	.....
T. 11, R. 9, WELS	July 18	.....	Lightning.....	.....
T. 11, R. 9, WELS	July 18	.....	Lightning.....	.....
Reed Pl.	July 18	.....	Lightning.....	.....
T. 18, R. 11, WELS.....	Aug. 9	12	Smoking.....	1,872.00
Garfield Pl.	Aug. 9	.....	Campfire.....	.....
T. 8, R. 4, WELS	Aug. 13	.....	Lumbering.....	.....
T. 11, R. 7, WELS	Aug. 15	4	Campfire.....	25.00
T. 11, R. 8, WELS	Sept. 4	.....	Lightning.....	.....
T. 14, R. 8, WELS	Sept. 20	.1	Campfire.....	.....
Winterville Pl.	Oct. 24	2	Smoking.....	.....
T. 12, R. 8	Oct. 28	1.5	Campfire.....	6.00
Franklin County				
Coplin Pl.	May 17	.2	Smoking.....	.....
Hancock County				
T. 22, MD.	May 12	.2	Smoking.....	5.00
T. 22, MD.	May 12	.7	Smoking.....	5.00
T. 10, SD	May 19	25	Smoking.....	25.00
T. 22, MD.	May 19	2	Smoking.....	5.00
T. 32, MD.	May 28	1	Smoking.....	5.00
T. 32, MD.	June 23	8	Smoking.....	40.00
T. 34, MD.	Aug. 10	1	Smoking.....	80.00
T. 28, MD.	Aug. 13	.7	Smoking.....	.....
T. 34, MD.	Aug. 14	2	Smoking.....	25.00
T. 10, SD	Aug. 14	.7	Smoking.....	5.00
T. 34, MD.	Aug. 28	2	Smoking.....	40.00
T. 34, MD.	Sept. 1	1	Campfire.....	5.00
T. 32, MD.	Oct. 9	2	Smoking.....	.....
T. 28, MD.	Oct. 14	.5	Lumbering.....	.....
T. 10, SD	Oct. 15	2300	Incendiary.....	8,700.00
Oxford County				
T. 4, R. 3, WBKP	Aug. 23	.....	Smoking.....	.....
Magalloway Pl.	Aug. 25	.1	Smoking.....	.....
T. 5, R. 4, WBKP	Sept. 27	.1	Smoking.....	.....
Albany Township.....	Oct. 8	.....	Debris or Brush Burning.....	.....
Mason Township.....	Oct. 9	.2	Smoking.....	.....
Albany Township.....	Oct. 15	5	Lumbering.....	18.00
Penobscot County				
Webster Pl.	April 30	10	Smoking.....	.....
Kingman Township.....	May 31	100	Smoking.....	.....
T. 1, R. 7, WELS	June 23	3	Campfire.....	15.00
T. 7, R. 8, WELS	July 11	.....	Smoking.....	50.00
Indian No. 3.....	Aug. 7	.....	Smoking.....	.....
T. 1, ND	Aug. 15	1.5	Smoking.....	200.00
T. 4, R. 7, WELS	Sept. 15	.....	Campfire.....	.....
T. 1, R. 8, WELS	Sept. 28	4	Campfire.....	10.00
T. 1, R. 8, WELS	Oct. 2	.2	Campfire.....	3.50
T. 7, R. 8, WELS	Oct. 12	.1	Campfire.....	1.00
T. A, R. 7, WELS	Oct. 18	.2	Incendiary.....	1.00
Indian No. 4.....	Oct. 19	.5	Campfire.....	.....
Medway.....	Oct. 21	4	Smoking.....	19.40
Webster Pl.	Oct. 21	.1	Miscellaneous.....	.....
Drew Pl.	Oct. 23	.1	Debris or Brush Burning.....	.50
Indian No. 4.....	Oct. 25	.1	Railroad.....	.....
T. 3, R. 8, WELS	Nov. 2	35	Smoking.....	175.00
Piscataquis County				
Orneville Township.....	May 17	8	Smoking.....	40.00
T. 5, R. 10, WELS	May 23	.2	Smoking.....	.....

In Memoriam

During the biennium three retired men, who had served the department faithfully for many years, passed on.

Ardeen Henderson—Chief Warden—Carrabassett District,

33 years state employed

April 9, 1870—Nov. 27, 1948.

Frank P. Conley—Chief Warden—Moosehead District,

33 years state employed,

Nov. 1, 1890—Nov. 25, 1948.

Julius E. White—District Warden—Eastern Washington County,

35 years state employed,

Feb. 19, 1873—March 9, 1947.

MAINE FORESTRY DISTRICT FIRE RECORD 1947

Location	Date	Acreage	Cause	Damage
Piscataquis County—Cont.				
T. 1, R. 13, WELS	May 31		Campfire	
T. 2, R. 9, WELS	June 13		Smoking	
T. 5, R. 13, WELS	June 30		Lightning	
T. 2, R. 9, WELS	July 18		Lightning	
T. 10, R. 9, WELS	July 18		Lightning	
T. 5, R. 9, WELS	July 20		Lightning	
T. 2, R. 9, WELS	Aug. 7		Campfire	
T. 4, R. 12, WELS	Aug. 8		Lightning	
Deer Island	Aug. 15	.2	Campfire	\$4.00
T. 9, R. 10, WELS	Aug. 15	5	Lightning	21.00
T. 8, R. 12, WELS	Aug. 15		Lightning	
T. 2, R. 9, WELS	Aug. 16	.1	Smoking	
T. 3, R. 12, WELS	Aug. 17		Miscellaneous	
T. 1, R. 9, WELS	Aug. 19		Campfire	
Medford Township	Aug. 22	.5	Lightning	
T. 7, R. 9, WELS	Aug. 22	16	Incendiary	48.00
T. 7, R. 9, WELS	Aug. 22	35	Incendiary	70.00
T. 3, R. 10, WELS	Aug. 25		Lightning	
T. 7, R. 11, WELS	Oct. 19	1	Unknown	25.00
T. 8, R. 10, WELS	Oct. 22	.2	Campfire	
T. A2, R. 13 and 14, WELS	Oct. 22		Unknown	1,000.00
T. 3, R. 14 and 15, WELS	Oct. 23	500	Lightning	400.00
T. 5, R. 10, WELS	Oct. 23	.1	Campfire	1.00
Somerset County				
West Forks Pl.	May 2		Lumbering	
Mayfield Pl.	May 16	10	Smoking	
Concord Township	May 17		Debris or Brush	
			Burning	
Lexington Pl.	May 17	10	Debris or Brush	
			Burning	25.00
The Forks Pl.	May 17	.1	Incendiary	
T. 4, R. 7, BKP, WKR	May 18	3	Unknown	
Moscow	May 30	.1	Campfire	
T. 6, R. 2, NBKP	July 18		Lightning	
T. 2, R. 4, BKP, WKR	Aug. 4	.1	Campfire	6.00
Flagstaff	Aug. 17	.5	Campfire	
T. 3, R. 5, BKP, WKR	Aug. 17	190	Smoking	135.00
Dead River Pl.	Aug. 17	.2	Smoking	
T. 2, R. 7, BKP, WKR	Aug. 17	.1	Campfire	
T. 1, R. 5, BKP, EKR	Aug. 18		Lumbering	
T. 1, R. 6, BKP, WKR	Aug. 20	.1	Smoking	
T. 2, R. 4, NBKP	Aug. 21	.5	Lightning	
T. 3, R. 5, BKP, WKR	Aug. 22	50	Lumbering	50.00
T. 1, R. 4, NBKP	Aug. 23		Lightning	
T. 2, R. 4, BKP, EKR	Aug. 24		Lightning	
T. 2, R. 4, BKP, EKR	Aug. 24		Lightning	
T. 4, R. 3, NBKP	Aug. 27		Lightning	
T. 3, R. 4, BKP, WKR	Aug. 30		Smoking	
T. 4, R. 5, BKP, WKR	Sept. 1		Campfire	
T. 3, R. 3, NBKP	Sept. 4		Debris or Brush	
			Burning	
T. 4, R. 4, NBKP	Sept. 11	.5	Campfire	
Bigelow Pl.	Sept. 17	3	Miscellaneous	
Caratunk Pl.	Sept. 30		Campfire	
T. 1, R. 4, BKP, WKR	Oct. 8		Smoking	
Dead River Pl.	Oct. 12	3	Campfire	
T. 3, R. 3, NBKP	Oct. 13	300	Smoking	100.00
West Forks Pl.	Oct. 17	.5	Smoking	5.00
T. 6, R. 2, NBKP	Oct. 21	7	Lightning	31.50
Dennistown Pl.	Oct. 21	.5	Lightning	15.00
Moscow	Oct. 23	25	Miscellaneous	
Washington County				
Codyville Pl.	May 10	.2	Debris or Brush	
			Burning	
Indian Township	May 10	.2	Smoking	1.00
Trescott Township	May 11	5	Incendiary	240.00
Deblois	May 13	15	Debris or Brush	
			Burning	
Cooper	May 17	5	Smoking	
T. 18, MD.	May 17	1	Smoking	
Trescott Township	May 17	1	Debris or Brush	
			Burning	

MAINE FORESTRY DISTRICT FIRE RECORD 1947

Location	Date	Acreage	Cause	Damage
Washington County—Cont.				
Trescott Township.....	May 18	2	Debris or Brush Burning.....	\$2.00
T. 26, MD.....	June 1	2	Smoking.....	700.00
T. 27, MD.....	June 24		Campfire.....	
Marion Township.....	July 3	.1	Smoking.....	
T. 43, MD.....	July 31	.5	Lightning.....	6.00
T. 19, ED.....	Aug. 7	.2	Smoking.....	2.00
T. 19, MD.....	Aug. 9	.1	Campfire.....	
T. 19, MD.....	Aug. 9	.2	Campfire.....	2.00
Edmunds Township.....	Aug. 10	1	Miscellaneous.....	
Edmunds Township.....	Aug. 14	.1	Smoking.....	
Topsfield Township.....	Aug. 15		Lightning.....	
T. 36, MD.....	Aug. 17		Lightning.....	
T. 29, MD.....	Aug. 20	15	Lightning.....	15.00
T. 19, MD.....	Aug. 21	.1	Campfire.....	
No. 14 Pl.....	Aug. 22	.2	Smoking.....	
T. 19, ED.....	Aug. 22	.1	Debris or Brush Burning.....	
T. 24, MD.....	Aug. 23	.1	Smoking.....	
T. 24, MD.....	Aug. 23	.1	Smoking.....	
T. 24, MD.....	Aug. 24	.2	Smoking.....	
T. 24, MD.....	Aug. 26	.2	Smoking.....	
T. 19, MD.....	Aug. 26	1	Smoking.....	
T. 1, R. 3, TS.....	Aug. 29	.1	Debris or Brush Burning.....	
T. 25, MD.....	Aug. 29	2	Smoking.....	
Codyville Pl.....	Aug. 30	.1	Smoking.....	8.00
T. 43, MD.....	Sept. 29	.1	Campfire.....	
T. 19, MD.....	Oct. 8	2	Incendiary.....	10.00
Northfield.....	Oct. 13	.2	Smoking.....	
T. 24, MD.....	Oct. 13	1	Smoking.....	
Wesley.....	Oct. 14	1	Smoking.....	10.00
T. 30, MD.....	Oct. 14	2	Smoking.....	
T. 21, MD.....	Oct. 14	.5	Smoking.....	10.00
T. 19, ED.....	Oct. 16	.1	Campfire.....	
T. 29, MD.....	Oct. 19	6	Lightning.....	90.00
T. 8, R. 4, NBPP.....	Oct. 19	610	Campfire.....	135.00
T. 1, R. 3, TS.....	Oct. 21	.7	Smoking.....	8.00
T. 21, MD.....	Oct. 21	1	Miscellaneous.....	10.00
T. 19, ED.....	Oct. 22	10	Lightning.....	50.00
T. 1, R. 3, TS.....	Oct. 23	.7	Miscellaneous.....	
T. 19, ED.....	Oct. 25	275	Campfire.....	4,000.00
T. 19, ED.....	Oct. 25	10	Miscellaneous.....	50.00

MAINE FORESTRY DISTRICT FIRE RECORD 1948

Location	Date	Acreage	Cause	Damage
Aroostook County				
Macwahoc Pl.	April 5	50	Incendiary	
T. 13, R. 7, WELS	May 10		Campfire	
Hammond Pl.	May 27	2	Unknown	
T. 8, R. 3, WELS	May 28		Campfire	
T. 14, R. 8, WELS	May 31	1	Campfire	\$10.00
T. 20, R. 11 and 12, WELS	June 4	.1	Lightning	
T. 12, R. 8, WELS	June 5		Campfire	
Garfield Pl.	June 6	.2	Campfire	10.00
T. 14, R. 6, WELS	June 6	1.2	Smoking	
Macwahoc Pl.	June 26	.2	Unknown	
Glenwood Pl.	June 28		Campfire	
T. 14, R. 5, WELS	June 30		Lightning	
T. 14, R. 6, WELS	June 30		Lightning	
T. 9, R. 4, WELS	July 4		Smoking	
T. 9, R. 5, WELS	July 14		Campfire	
T. 11, R. 10, WELS	July 18		Lightning	8.00
T. 11, R. 8, WELS	July 18		Lightning	
Garfield Pl.	July 25		Campfire	1.00
T. C. R. 2, WELS	July 30		Campfire	
T. 11, R. 8, WELS	Aug. 2		Smoking	
T. 3, R. 3, WELS	Aug. 3		Campfire	
T. 14, R. 6, WELS	Aug. 12		Lightning	
T. 16, R. 6, WELS	Aug. 16		Campfire	
T. 19, R. 12, WELS	Aug. 21	.1	Smoking	
T. 15, R. 8, WELS	Aug. 23		Lightning	
Reed Pl.	Aug. 28		Lightning	
T. 3, R. 2, WELS	Aug. 28		Lightning	
T. 10, R. 4, WELS	Aug. 30		Campfire	
T. 9, R. 5, WELS	Aug. 31		Lightning	
T. 11, R. 7, WELS	Sept. 4	.2	Lightning	20.00
T. 20, R. 11 and 12	Sept. 4	.2	Smoking	
Molunkus	Sept. 5		Smoking	
T. 8, R. 4	Sept. 9	.5	Unknown	4.00
Molunkus	Sept. 10		Unknown	3.00
T. 13, R. 8, WELS	Sept. 13		Lightning	
T. 11, R. 9, WELS	Sept. 13		Lightning	
T. 12, R. 8, WELS	Sept. 13	.1	Lightning	
T. 12, R. 7, WELS	Sept. 13	.1	Lightning	
T. 12, R. 7, WELS	Sept. 13	.1	Lightning	
T. 11, R. 10, WELS	Sept. 13		Lightning	2.00
T. 9, R. 4, WELS	Sept. 13		Lightning	
T. 10, R. 6, WELS	Sept. 14		Lightning	
T. 12, R. 8, WELS	Sept. 17		Lightning	
T. A. R. 2, WELS	Sept. 24		Campfire	
T. 16, R. 9, WELS	Sept. 25		Campfire	
T. 4, R. 3, WELS	Oct. 31		Campfire	
T. 3, R. 3, WELS	Oct. 31	.2	Unknown	
Reed	Nov. 2	3	Smoking	
Franklin County				
T. 4, R. 3, BKP, WKR	April 27	.5	Smoking	
T. 3, R. 5, WBKP	June 20		Lightning	
T. 1, R. 8, WBKP	June 29	.1	Smoking	
T. 1, R. 2, WBKP	July 9		Campfire	
T. 3, R. 3, WBKP	Aug. 2	.1	Miscellaneous	
Rangeley Pl.	Aug. 8		Campfire	
T. 4, R. 1, BKP, WKR	Aug. 27	350	Lightning	31,500.00
T. 1, R. 3, WBKP	Sept. 13		Lightning	
T. 4, R. 3, BKP, WKR	Sept. 13		Lightning	
T. 2, R. 4, WBKP	Sept. 13	.1	Lightning	
T. 1, R. 6, WBKP	Sept. 18	.2	Lightning	
Perkins Pl.	Nov. 3	1	Unknown	
Hancock County				
T. 7, SD	June 4	.5	Campfire	5.00
T. 7, SD	June 4	.7	Campfire	10.00
T. 21, MD	June 17	.7	Smoking	5.00
T. 39, MD	July 12	4	Lightning	25.00
T. 34, MD	July 15	1.5	Campfire	10.00
T. 40, MD	July 15	.5	Lightning	25.00
T. 28, MD	July 21	1.5	Lightning	5.00
T. 32, MD	Aug. 3	.5	Smoking	5.00
T. 32, MD	Aug. 13	.7	Lightning	5.00
T. 32, MD	Aug. 26	.5	Lightning	5.00

MAINE FORESTRY DISTRICT FIRE RECORD 1948

Location	Date	Acreage	Cause	Damage
Hancock County—Cont.				
T. 32, MD	Sept. 14	1	Smoking	\$10.00
T. 40, MD	Sept. 26	.2	Campfire	5.00
Plantation No. 33	Oct. 4	2	Campfire	10.00
T. 22, MD	Oct. 31	15	Smoking	45.00
T. 16, MD	Nov. 1	3	Incendiary	3.00
T. 10, SD	Nov. 2	1	Incendiary	.....
T. 8, SD	Nov. 3	5	Incendiary	.....
Oxford County				
Township C	July 21	.....	Lightning	.....
Albany Township	Aug. 2	10	Unknown	.....
T. 4, R. 1, WBKP	Aug. 5	.....	Lightning	.....
T. 4, R. 3, WBKP	Aug. 24	.....	Campfire	.....
Albany Township	Aug. 28	1	Lightning	.....
Albany Township	Aug. 28	.2	Lightning	.....
T. 4, R. 1, WBKP	Sept. 4	.....	Lightning	.....
Township C	Sept. 13	1.2	Lightning	50.00
T. 4, R. 1, WBKP	Sept. 13	.2	Lightning	.....
Mason Township	Oct. 29	1	Miscellaneous	.....
Penobscot County				
Drew Pl.	April 5	1	Smoking	.....
Kingman Township	April 12	.5	Miscellaneous	.....
E. Hopkins	April 24	.....	Campfire	.....
Kingman Township	April 24	10	Smoking	1.00
Kingman Township	April 25	2	Incendiary	1.00
T. 2, R. 6, WELS	April 25	5	Campfire	.....
Kingman Township	April 29	2	Unknown	.....
Medway	May 5	4	Smoking	.....
Indian No. 3	May 5	1	Smoking	.....
T. A, R. 7, WELS	May 6	5	Railroad	.....
Indian No. 4	May 6	.....	Miscellaneous	.....
.....	May 30	.....	Debris or Brush	.....
.....	.....	.....	Burning	.....
T. 5, R. 8, WELS	June 21	.....	Campfire	.....
Indian No. 4	July 2	.....	Lightning	17.50
Lakeville Pl.	July 5	.2	Incendiary	.....
Medway	July 10	.5	Campfire	.....
T. 1, R. 7, WELS	July 11	.5	Lightning	6.00
T. 7, R. 7, WELS	July 11	.....	Lightning	.....
Drew Pl.	July 18	.....	Lightning	11.00
Indian No. 4	July 18	.....	Lightning	.....
Indian No. 3	July 21	.....	Smoking	.....
T. 1, R. 8, WELS	Aug. 3	.2	Smoking	.....
Indian No. 3	Aug. 23	.....	Smoking	.....
Indian No. 4	Aug. 24	.2	Campfire	10.00
Indian No. 3	Aug. 27	.....	Railroad	.....
T. 6, R. 8, WELS	Aug. 27	.1	Lightning	.....
T. 7, R. 8, WELS	Sept. 4	.1	Lightning	1.00
Grand Falls Pl.	Sept. 13	.5	Lightning	5.00
Long A.	Sept. 13	.....	Lightning	.....
T. 1, R. 7, WELS	Sept. 14	2	Lightning	8.50
Piscataquis County				
Orneville Township	April 10	.....	Debris or Brush	.....
.....	.....	.....	Burning	.....
Orneville Township	April 11	12	Debris or Brush	.....
.....	.....	.....	Burning	36.00
Williamsburg Township	May 4	3	Smoking	15.00
T. 1, R. 9, WELS	May 4	8	Smoking	8.00
T. 2, R. 9, WELS	May 12	.....	Campfire	.....
T. 1, R. 9, WELS	June 2	.....	Incendiary	.....
T. 1, R. 14, WELS	June 20	.....	Campfire	.....
T. 4, R. 10, WELS	June 30	.....	Lightning	.....
T. 3, R. 10, WELS	July 1	.5	Campfire	19.50
T. 2, R. 12, WELS	July 3	.....	Campfire	.....
T. 3, R. 12, WELS	July 3	.....	Lumbering	.....
T. 2, R. 13, WELS	July 3	.1	Miscellaneous	5.00
T. 7, R. 15, WELS	July 4	.....	Campfire	.....
T. 2, R. 10, WELS	July 5	.2	Campfire	.....
T. 2, R. 11, WELS	July 11	.....	Lightning	.....
Bowerbank	July 15	.1	Smoking	.....
T. 2, R. 11, WELS	July 18	.....	Lightning	.....
T. 3, R. 11, WELS	July 18	.....	Lightning	.....
T. 3, R. 10, WELS	July 24	.....	Campfire	.....

MAINE FORESTRY DISTRICT FIRE RECORD 1948

Location	Date	Acreage	Cause	Damage
Piscataquis County—Cont.				
T. 10, R. 10, WELS	July 27		Lightning	\$3.00
T. 10, R. 10, WELS	July 31	.3	Campfire	25.00
T. 2, R. 9, WELS	Aug. 2	.2	Smoking	
T. 5, R. 10, WELS	Aug. 5		Campfire	
T. 1, R. 9, WELS	Aug. 7	.2	Campfire	1.00
T. 2, R. 9, WELS	Aug. 8		Smoking	
T. 10, R. 11, WELS	Aug. 11		Campfire	
T. 1, R. 14, WELS	Aug. 26	.1	Lightning	
T. 2, R. 13, WELS	Aug. 27		Campfire	
T. A. R. 13 and 14, WELS	Aug. 27	2	Lightning	50.00
T. 1, R. 11, WELS	Aug. 27	.2	Lightning	5.00
T. 2, R. 9, WELS	Aug. 27		Lightning	
T. A. R. 13, WELS	Aug. 27		Lightning	
T. 2, R. 9, WELS	Aug. 27		Lightning	
T. 7, R. 11, WELS	Aug. 27	.1	Lightning	
T. 2, R. 11, WELS	Aug. 28	.5	Lightning	20.00
T. 1, R. 12, WELS	Aug. 28	.2	Lightning	
T. 5, R. 10, WELS	Aug. 28		Lightning	
T. 9, R. 10, WELS	Aug. 28		Lightning	
T. 7, R. 11, WELS	Sept. 3	.5	Lightning	3.00
T. 9, R. 11, WELS	Sept. 9		Lightning	
T. 2, R. 9, WELS	Sept. 10	.1	Unknown	
T. 10, R. 13, WELS	Sept. 13		Lightning	
T. 6, R. 11, WELS	Sept. 13		Lightning	
T. 7, R. 12, WELS	Sept. 13	1	Lightning	50.00
T. 7, R. 11, WELS	Sept. 13	1	Lightning	40.00
T. 6, R. 12, WELS	Sept. 13		Lightning	20.00
T. 6, R. 12, WELS	Sept. 13		Lightning	30.00
T. A. R. 14, WELS	Sept. 13	.2	Lightning	10.00
T. A. R. 11, WELS	Sept. 13	.2	Lightning	
T. A. R. 13, WELS	Sept. 13	.1	Lightning	
T. 3, R. 13, WELS	Sept. 13	.1	Lightning	
T. 10, R. 10, WELS	Sept. 13	.1	Lightning	1.00
T. 9, R. 9, WELS	Sept. 13	.1	Lightning	3.00
T. 9, R. 10, WELS	Sept. 13	.2	Lightning	15.00
T. 9, R. 9, WELS	Sept. 13	.1	Lightning	1.50
T. 2, R. 9, WELS	Sept. 15		Smoking	
T. 6, R. 11, WELS	Sept. 17	.1	Lightning	
T. 3, R. 13, WELS	Sept. 18	.1	Lightning	
T. A. R. 11, WELS	Sept. 18	.5	Lightning	25.00
T. 7, R. 14, WELS	Sept. 18		Lightning	
T. 8, R. 14, WELS	Sept. 23	.2	Lightning	
T. 4, R. 14, WELS	Sept. 23	.1	Lightning	5.00
T. 3, R. 14, WELS	Sept. 23	.1	Lightning	5.00
T. 3, R. 12, WELS	Sept. 23	.5	Unknown	
T. 2, R. 9, WELS	Oct. 27	28.5	Smoking	28.50
T. 6, R. 9, WELS	Nov. 2	1.5	Smoking	10.00
Somerset County				
Moscow	April 1		Unknown	
T. 6, R. 1, NBKP	May 5	1.5	Railroad	
T. 1, R. 2, NBKP	June 1	.5	Unknown	
T. 3, R. 4, NBKP	June 3	1	Smoking	75.00
T. 7, R. 19, WELS	June 4	5	Lumbering	270.00
T. 3, R. 7, BKP, WKR	June 4		Smoking	
Flagstaff	June 4		Smoking	
T. 2, R. 3, BKP, WKR	June 9		Campfire	
T. 3, R. 3, NBKP	July 2		Campfire	
T. 1, R. 2, NBKP	July 3	1	Smoking	25.00
T. 2, R. 4, NBKP	July 4	.5	Unknown	
T. 3, R. 3, NBKP	July 4		Campfire	
T. 1, R. 2, NBKP	July 4		Campfire	
T. 2, R. 4, NBKP	July 4		Campfire	
Seboomook	July 4		Campfire	
T. 3, R. 1, NBKP	July 4	.2	Campfire	
T. 5, R. 1, NBKP	July 11	1.7	Lightning	45.00
T. 2, R. 4, NBKP	July 12	.2	Lightning	
T. 2, R. 5, BKP, EKR	July 12		Campfire	
T. 2, R. 5, BKP, EKR	July 16		Campfire	
T. 3, R. 6, BKP, WKR	July 18		Campfire	
T. 2, R. 4, BKP, EKR	July 19		Smoking	
T. 5, R. 1, NBKP	July 21	.1	Campfire	
T. 2, R. 3, BKP, WKR	July 23	.2	Smoking	10.00
Caratunk Pl.	July 29	.5	Campfire	4.00

MAINE FORESTRY DISTRICT FIRE RECORD 1948

Location	Date	Acreage	Cause	Damage
Somerset County—Cont.				
T. 2, R. 6, BKP, WKR	Aug. 1		Smoking	
Mayfield Township	Aug. 6	.2	Lightning	\$35.00
T. 3, R. 7, BKP, WKR	Aug. 11		Smoking	
Caratunk Pl.	Aug. 20		Smoking	
The Forks Pl.	Aug. 20		Smoking	
T. 2, R. 1, NBKP	Aug. 22	.1	Lightning	
Highland	Aug. 27	.1	Lightning	50.00
T. 6, R. 1, NBKP	Aug. 27	.2	Lightning	10.00
T. 1, R. 3, BKP, WKR	Aug. 27		Lightning	
T. 1, R. 4, BKP, WKR	Aug. 28		Smoking	
T. 1, R. 6, BKP, WKR	Aug. 29	.2	Smoking	
T. 3, R. 7, BKP, WKR	Sept. 4		Campfire	
T. 2, R. 3, BKP, WKR	Sept. 5		Campfire	
T. 2, R. 6, BKP, WKR	Sept. 11		Campfire	
West Forks Pl.	Sept. 13	40	Lightning	50.00
T. 1, R. 7, BKP, WKR	Sept. 13	.2	Lightning	
T. 3, R. 7, BKP, WKR	Sept. 13	.1	Lightning	
T. 3, R. 3, NBKP	Sept. 14	2	Lightning	30.00
Dennistown Pl.	Sept. 14		Lightning	2.00
T. 5, R. 6, BKP, WKR	Sept. 14		Lightning	3.00
The Forks Pl.	Oct. 30		Miscellaneous	
Washington County				
Trescott Township				
T. 27, ED	April 11	1	Brush or Debris Burning	
T. 1, R. 1, TS	April 12	1	Brush or Debris Burning	12.00
T. 1, R. 1, TS	April 24	1.2	Brush or Debris Burning	
Edmunds Township				
Northfield	April 25	1	Incendiary	
Wesley	April 26	5	Incendiary	5.00
Wesley	June 4	.1	Smoking	1.00
Wesley	July 4	.1	Smoking	
No. 21 Pl.	July 11	70	Lightning	70.00
Cooper	July 12		Brush Burning	
T. 1, R. 3, TS	July 17		Lightning	
T. 6, ND	July 18	1.5	Lightning	8.00
No. 14 Pl.	July 19		Miscellaneous	
T. 6, ND	July 21		Campfire	
T. 24, MD	July 22	.2	Smoking	
T. 29, MD	July 22	5	Lightning	5.00
Brookton	Aug. 23	.1	Smoking	6.00
T. 24, MD	Aug. 26	.5	Smoking	
T. 19, MD	Aug. 26	.5	Smoking	
Crawford	Aug. 27	1.5	Lightning	24.00
T. 7, R. 2, NBPP	Aug. 27		Lightning	
T. 7, R. 2, NBPP	Aug. 27		Lightning	
Topsfield Township				
T. 19, MD	Aug. 27		Lightning	
T. 19, MD	Aug. 28		Smoking	
T. 19, MD	Aug. 28		Smoking	
Northfield	Sept. 1	.2	Smoking	1.00
Centerville	Sept. 3	.5	Smoking	
Topsfield Township	Sept. 11	.7	Smoking	3.00
T. 7, R. 2, NBPP	Sept. 12	.5	Lightning	12.00
T. 26, ED	Sept. 13	1.7	Smoking	10.00
Centerville	Sept. 13	.5	Smoking	
T. 19, MD	Sept. 14	75	Smoking	20.00
Indian Township	Sept. 18	1	Smoking	
Trescott Township	Oct. 7	1.7	Smoking	5.00
T. 30, MD	Nov. 1	1	Incendiary	5.00
T. 30, MD	Nov. 1	2	Incendiary	3.00
T. 36, MD	Nov. 1	10	Smoking	
T. 24, MD	Nov. 2	2	Incendiary	

FOREST COMMISSIONER'S REPORT

SUMMARY OF FOREST FIRES FOR 1947-1948 BY MONTHS, COUNTIES
AND CAUSES—MAINE FORESTRY DISTRICT

	No. of Fires		Acreage		Immediate Damage	
	1947	1948	1947	1948	1947	1948
By Months:						
April.....	2	17	12.2	92.2	\$1,500.00	\$55.00
May.....	27	13	194.2	25.5	353.00	33.00
June.....	8	24	14	10.5	755.00	376.00
July.....	15	59	6	91.9	56.00	328.00
August.....	59	63	345.5	371.5	2,613.00	31,726.00
September.....	12	72	8.8	135.4	15.00	448.00
October.....	43	8	4,074.3	48.5	14,699.90	88.50
November.....	1	10	35	29.5	175.00	21.00
	167	266	4,684.6	805	\$20,166.90	\$33,075.50
By Counties:						
Aroostook.....	21	48	26.8	59.5	3,403.00	58.00
Franklin.....	1	12	.2	352.1		31,500.00
Hancock.....	16	17	2,348	38.5	8,945.00	173.00
Oxford.....	6	10	5.4	13.7	18.00	50.00
Penobscot.....	17	30	158.9	35.3	475.40	61.00
Piscataquis.....	25	66	566.5	64.1	1,609.00	434.50
Somerset.....	34	46	604.2	56	367.50	609.00
Washington.....	47	37	974.6	185.8	5,349.00	190.00
	167	266	4,684.6	805	\$20,166.90	\$33,075.50
By Causes:						
Lightning.....	33	109	546	496.9	628.50	32,324.50
Railroad.....	1	3	.1	6.5		
Campfire.....	35	56	906	14.1	4,213.50	120.50
Smoking.....	61	57	740.1	175.7	3,575.40	233.50
Debris Burning.....	12	7	31.5	15.2	27.50	48.00
Incendiary.....	8	12	2,360.6	72.2	10,569.00	17.00
Lumbering.....	6	2	55.5	5	68.00	270.00
Miscellaneous.....	8	7	40.8	1.8	60.00	5.00
Unknown.....	3	13	4	17.6	1,025.00	7.00
	167	266	4,684.6	805	\$20,166.90	\$33,075.50

ORGANIZED TOWNS

6,429,783 A.

Austin H. Wilkins, Deputy Forest Commissioner

Since the creation of the office of forest commissioner in 1891, the authority and responsibility for forest fire control has been with the municipal officials. During the past fifty-eight years, the position of the state in relation to the town has been one of cooperation. However, during the last thirty years the Maine Forest Service has given increasing assistance to the organized towns, because many of the problems could best be met at the state level.

In the early days forest fire detection was one of the problems. The state began cooperation in 1918 by erecting two lookout towers and providing watchmen for them. At present the state owns and operates twenty-three towers which forms a skeleton network for a future program of adequate detection.

Better supervision of fires was another problem. The state in 1930 inaugurated the cooperative county forest fire warden system with one supervisor and six wardens to assist the local town wardens with no cost to the towns. Full responsibility remained with the towns. As funds were made available the number of state wardens has increased to one supervisor and seventeen wardens.

Later came the need for specialized forest fire equipment. The state maintains a ½ ton truck for each warden and provides fire equipment consisting of portable power pumpers, hose, and various types of specialized hand tools. These are kept at established storehouses and tool caches.

Financial assistance to towns for suppression costs is one of the more recent methods of state cooperation. Financially poor towns were often hard pressed to pay costly fire bills. Usually many bills went unpaid. Some sought reimbursement through the legislature while others borrowed money from banks and made payments prorated over a period of years. This burden was eased by the legislature in 1945 by the "Aid to Towns" bill which provided that the state should reimburse towns ½ of their suppression costs up to 1% of the town's valuation. This financial assistance, while helpful, is not entirely satisfactory and recommended changes will be presented to the 1949 legislature.

These four methods of state cooperation do not solve the forest fire problem in the organized towns. The fire seasons of 1947 and 1948 brought out the need for centralized state authority and control. Public opinion appears to favor centralized control to provide a chain of command from town warden to forest commissioner. An outline of a proposed plan is included in this report.

Character of Season

The seasons of 1947 and 1948 were chiefly characterized by rainfall deficiency and prolonged periods of drought. This created a serious state-wide forest fire hazard condition. Records show that it is unusual to have two consecutive dry seasons.

By Governor's proclamation, the forests of the state were closed on October 17, 1947, banning the building of fires and smoking in the woods. The ban continued until November 12. This was supplemented by a second proclamation which delayed the opening of the hunting season. In 1948 a ban was invoked on September 10 and lifted October 13.

Both fire seasons had long dry periods beginning early and continuing late into the fall. In 1947 the first fire was reported on March 19 and the last on December 19, and in 1948 the first was reported on March 29 and the last on December 5.

Fire Record

Year	No. of Fires	Acreage	Immediate Damage
1947	533	208,862	\$11,970,688
1948	548	6,436	102,368

Compared to the Maine Forestry District, the number of forest fires is greater in the organized towns. Frequency of fires depends upon density of population, accessibility to forest lands by roads, volume of automobile traffic, and recent heavy cutting operations. Although public cooperation in prevention education and control seems to be increasing, more is needed as the number of fires is on the increase.

Equipment and Property

The state lost considerable forest fire fighting equipment such as power pumps, hose, and hand tools from burning and wearing out during the 1947 disaster. These losses were replaced with

funds provided by Governor and Council action from the contingent account.

During the disaster the Federal Works Administration made certain war assets equipment available to the towns and to the Maine Forest Service. Most of this equipment was permitted to remain with the towns after the disaster on a memorandum loan or purchase agreement through the forest fire emergency committee. On a priority basis, the fire stricken towns received first consideration and second to those towns which lost equipment in going to the aid of others.

The Maine Forest Service storehouse, at Alfred, was completely destroyed in the York County fire. This storehouse was rebuilt in 1948 with funds from the fire insurance settlement.

In the spring of 1948 the Governor and Council made funds available from the contingent account to permit an expansion program. Sixty foot steel towers were constructed on York Hill in New Sharon, Johnston Hill in Bremen, and Mitten Mountain in Centerville. A watchman's camp was built near each tower.

Auxiliary storehouses were constructed at Columbia and Meddybemps. Each was supplied with forest fire fighting equipment.

In addition to essential fire equipment, twelve new 1½ ton pickup trucks were purchased.

A much needed 20' x 40' storehouse was constructed at the Augusta Airport and is connected to the Maine Forest Service hangar. This building will serve as a reserve cache of fire equipment and a distributing center for winter and early spring purchases for delivery into the field at the opening of the fire season.

Personnel Changes

Two new forest fire wardens and three watchmen for the newly constructed lookout towers were employed in 1948 to intensify fire protection.

All of the 1946 wardens and watchmen returned for both seasons.

Publicity and Public Relations

The 1947 disaster did much to arouse public opinion to the need for greater forest fire protection. Through the medium of the

press, radio, movies, fairs, exhibits, and literature, the Maine Forest Service received much helpful publicity and cooperation. In 1948 newspapers were especially helpful during dry periods in preparing feature articles, editorials, and commercial ads; publishing warnings of increasing fire hazards, and reporting class fire danger days. Radio stations were equally cooperative.

A specially designed panel exhibit of "Pulpwood is a Crop—Keep it Growing" was shown at 1948 county fairs. The department featured insect, disease, and fire control in its exhibit at the Eastern States Exposition at Springfield, Mass. Exhibits were shown at Farm and Home Week at the University of Maine, sportsmen's shows at Rumford and Caribou, and Keep Maine Green Labor Day floats at Bucksport and Greenville.

The department obtained five copies of a 16 mm. film of the 1947 Maine fire disaster. These and other conservation films were shown to several hundred groups of people.

Wide distribution was made of celluloid forest fire calendars, fire manuals, directories, and signs, as well as literature made available by the U. S. Forest Service and American Forest Products Industries, Inc.

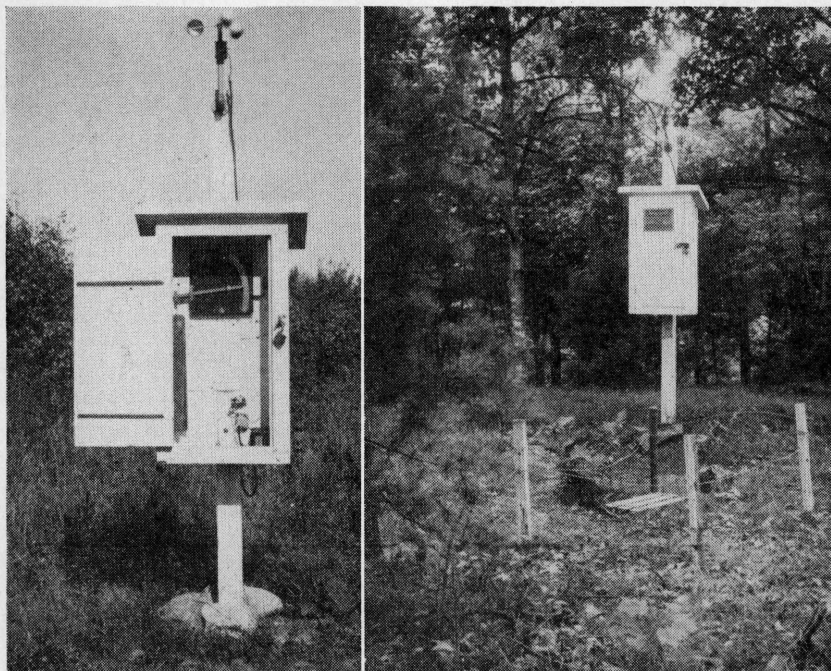
In September of 1948 a joint forest fire conference was held at Fryeburg. This was sponsored by the New England Section of the Society of American Foresters and the Northeastern Forest Fire Equipment Committee of the U. S. Forest Service. Features of the conference were a tour through the 1947 Fryeburg-Brownfield forest fire area, short papers by wardens who worked on the fire, and demonstrations of special types of forest fire equipment by commercial exhibitors and state forestry departments. Delegations from the New England States and New York attended.

A group of individuals interested in forestry problems met monthly as a forum in Bangor during the winter months of 1948. In the fall, due to the success in eastern Maine, a similar forum was started in western Maine. Eastern Maine meetings continued to be held in Bangor while those in western Maine were held in Portland and Lewiston. These forums served as an excellent means of providing groups to discuss forestry matters.

Lack of trained leaders to assume responsibility was one of the weaknesses brought out in a review of the 1947 fire disaster. Plans to remedy this situation were started in 1948 by an inten-

sive school of instruction for supervisors and district state wardens "to teach teachers how to teach." Through the cooperation of the U.S.F.S., George Kramer conducted the school in a 12-hour course, assisted by members of the University of Maine Forestry Department and the Maine Forest Service.

Later the supervisors and district state wardens held many schools for seasonal state wardens, town wardens, volunteer fire departments, and other protective groups in their respective districts and divisions. Every town was invited to send representatives to town warden training schools. Seventy-five percent of



FOREST FIRE WEATHER STATION

the towns were represented at these schools. Results from these schools have been gratifying. This is the beginning of a state plan of training which should provide better leadership on forest fires at both town and state levels.

Fire Danger Stations

The application of forest fire danger predictions in forest fire control work is past the experimental stage. Daily measure-

ments and readings taken at established stations form the basis for departmental action and for informing the public. Additional methods of getting this information to the people are being developed.

A feature of this work is a new fire danger meter chart from which a numerical burning index figure is determined for each class danger day. It is now possible to show the building up of forest fire danger by means of the burning index figures. The burning index is determined by reading weights of special sticks to determine moisture content, by measuring wind velocity, considering number of days since last rain, amount of rain, and vegetation development.

There are 16 stations in the state with plans for more to give greater coverage in the remote northern sections.

Credit is given to the U. S. Weather Bureau for its cooperation in sending daily forecasts that include the forest fire danger class day. Based upon coded information sent from key fire danger stations from supervisor districts, this bureau sent daily weather forecast telegrams to the supervisor for his division.

Proposed Forest Fire Program

The logical basis to use in preparing a forest fire plan is to learn what the people want and are willing to pay for. Throughout the year 1948, over 300 group meetings were held to determine the public viewpoint in order to formulate proposals for a state forest fire plan. In early January and February, 16 county meetings were held in joint cooperation with the University of Maine Extension Service. These were followed by hundreds of other meetings. The following outline represents the combined ideas and suggestions of interested persons attending these meetings.

A. Forest Fire Prevention and Control in Organized Towns

1. Step-up plan from present state cooperation with organized towns, cities, and plantations to centralize forest fire control. A maximum amount of authority and responsibility should remain with the local town warden with provision for state control whenever needed.

2. Creation of major forest fire control districts, to be subdivided into smaller units when deemed necessary for more effective protection.

3. Appointment of state forest fire wardens to have supervision of state personnel and equipment in their respective districts in the prevention, control, and extinguishment of forest fires. They should enforce all forestry laws, carry on a program of prevention-education, hold training schools, and prepare forest fire plans, etc.

4. Town and state forest fire wardens should have authority to take necessary action to control forest fires and to coordinate protective agencies in emergency situations.

5. Establish a radio network to provide communication on the fire line and between the fire line and headquarters.

6. Sufficient funds to carry out this plan in order to employ trained personnel, establish storehouses and lookout towers, and purchase forest fire equipment and tools.

B. Municipal Town Forest Fire Wardens

1. Appointment by the forest commissioner of a local forest fire warden for each organized municipality for a 3-year term, subject to approval by the municipal officials.

2. Payment of a retainer fee of \$50 to each appointee, conditional on attendance at state forest fire training schools and preparation of a forest fire plan for his town.

C. Aid to Towns

1. State $\frac{1}{2}$ reimbursement should be provided to towns for all eligible suppression costs up to 2% of the town valuation. All costs beyond the 2% valuation for any one year should be paid by the state.

D. Slash and Brush Disposal

1. More rigid penalties for slash violations bordering on public roads, railroads, electric power, telegraph, telephone, and pipe lines, adjoining property lines, portable sawmills, and dwellings.

2. More care in issuing burning permits and more rigid enforcement against violators.

3. More rigid penalties for failure to dispose of slash in construction and maintenance of railroads, highways, electric power, telegraph, telephone, and pipe lines.

4. Regulations to reduce fire hazards around town and private dumps located in or near forest growth.

E. Portable Sawmills

1. Clearer definition of a primary wood-using portable sawmill.

2. Regulations should be established regarding burning of slabs, sawdust piles, hazard clearance, and tool caches.

F. Yearly Timber Report

1. Yearly timber report of all primary wood-using sawmills, both stationary and portable, should be required.

ORGANIZED TOWNS
Financial Statement

	<u>1947</u>	<u>1948</u>
Appropriation Balance January 1.....	\$4,102.79	\$22,273.23
Receipts		
Appropriation.....	49,715.00	49,715.00
Transfer from Contingent Fund.....	21,603.00	75,708.00
Transfer from Appropriation 7840—Cooperative Forest Fire Lookout Tower.....	639.34	—
Balance carried June 1947 from 1946-47 Fiscal Year.....	400.00	—
Federal Cooperation.....	17,726.83	27,332.00
Portable Sawmill Licenses.....	4,150.00	4,100.00
Tree Surgeon Licenses.....	384.00	289.00
Equipment Sold.....	414.00	1,373.00
Miscellaneous.....	11.36	566.20
Insurance recovery on Alfred Storehouse.....	—	4,940.00
	<hr/>	<hr/>
Total Receipts.....	\$99,146.32	\$186,296.43
Disbursements		
Wardens (Salary).....	\$29,317.28	\$32,545.06
Wardens (Expense).....	4,769.62	8,353.08
Watchmen (Salary).....	21,842.20	24,239.75
Watchmen (Expense).....	2,061.19	3,417.29
Supervisor (Salary).....	4,198.62	4,653.22
Supervisor (Expense).....	528.83	375.91
Supervisor (Mileage).....	1,165.41	864.49
Miscellaneous (Printing and Publicity).....	1,949.37	2,553.15
Equipment.....	5,087.58	53,997.85
Improvement.....	5,888.54	18,620.60
Highway Department—Maps.....	—	24.13
Timber Survey.....	—	3,576.32
Fires.....	—	2,448.14
Transferred to Aid to Towns Account.....	—	6,417.72
Amount Lapsed—June.....	64.45	874.92
	<hr/>	<hr/>
Total Disbursements.....	\$76,873.09	\$162,961.63
Balance December 31.....	\$22,273.23	\$23,334.80
Forest fire costs paid by towns.....	\$99,529.71	\$50,235.67
State Reimbursement.....	23,527.04	40,013.53
State Reimbursement for 1947 Fires.....	—	70,497.83

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Androscoggin County				
Durham.....	Mar. 31	28	Debris or Brush Burning.....	\$3,200.00
Minot.....	April 4	2.1	Debris or Brush Burning.....	35.00
Poland.....	April 20	6	Debris or Brush Burning.....	10.00
Leeds.....	April 22	125	Unknown.....	50.00
Auburn.....	April 28	17	Railroad.....	25.00
Poland.....	May 9	5	Unknown.....	25.00
Livermore.....	May 11	3	Debris or Brush Burning.....	10.00
Auburn.....	May 11	100	Unknown.....	600.00
Auburn.....	May 12	1	Railroad.....	.....
Turner.....	May 16	4	Debris or Brush Burning.....	100.00
Poland.....	May 17	2	Smoking.....	25.00
Livermore.....	May 24	3	Debris or Brush Burning.....	.....
Turner.....	June 30	.5	Lightning.....	.....
Poland.....	July 21	.5	Smoking.....	5.00
Poland.....	July 24	2.5	Smoking.....	.....
Poland.....	Aug. 2	.5	Smoking.....	.....
Minot.....	Aug. 11	8	Lumbering.....	500.00
Leeds.....	Aug. 14	2	Smoking.....	.....
Turner.....	Aug. 14	.1	Campfire.....	.....
Mechanic Falls.....	Aug. 22	.8	Unknown.....	5.00
Wales.....	Aug. 24	.3	Campfire.....	.....
Durham.....	Aug. 29	3	Smoking.....	187.00
Leeds.....	Aug. 30	1	Campfire.....	.....
Livermore.....	Sept. 7	3	Smoking.....	10.00
Minot.....	Sept. 12	.5	Lumbering.....	4,000.00
Webster.....	Sept. 12	5.5	Campfire.....	.....
Turner.....	Sept. 28	.5	Miscellaneous.....	2.00
Poland.....	Sept. 28	3	Smoking.....	5.00
Poland.....	Oct. 6	100	Railroad.....	500.00
Poland.....	Oct. 8	2	Unknown.....	.....
Poland.....	Oct. 11	1.5	Smoking.....	15.00
Livermore.....	Oct. 12	1	Debris or Brush Burning.....	2.00
Livermore Falls.....	Oct. 12	3	Unknown.....	.....
Lisbon.....	Oct. 13	40	Unknown.....	2,100.00
Poland.....	Oct. 13	2	Unknown.....	20.00
Turner.....	Oct. 13	2.5	Smoking.....	12.00
Durham.....	Oct. 17	130	Unknown.....	1,400.00
Minot.....	Oct. 18	2.5	Smoking.....	25.00
Minot.....	Oct. 18	1	Smoking.....	10.00
Livermore Falls—Andro.	Oct. 21	1,200	Unknown.....	22,000.00
Fayette-Kennebec.....	Oct. 23	4	Smoking.....	20.00
Durham.....	Oct. 23	4	Smoking.....	20.00
Poland.....	Oct. 24	.5	Miscellaneous.....	.....
Aroostook County				
St. Agatha.....	Aug. 6	1	Smoking.....	75.00
St. Agatha.....	Oct. 13	5	Unknown.....	100.00
St. Agatha.....	Oct. 22	3	Unknown.....	500.00
Madawaska.....	Oct. 27	5	Miscellaneous.....	50.00
Cumberland County				
Harpswell.....	April 1	.5	Debris or Brush Burning.....	.....
Gray.....	April 4	10.5	Smoking.....	10.00
Cumberland.....	April 10	20	Debris or Brush Burning.....	.....
North Yarmouth.....	April 10	4.5	Debris or Brush Burning.....	.....
North Yarmouth.....	April 10	1	Unknown.....	.....
Gray.....	April 10	1	Smoking.....	10.00
Gray.....	April 11	8	Smoking.....	5.00
North Yarmouth.....	April 11	4	Unknown.....	25.00
Cumberland.....	April 11	10	Debris or Brush Burning.....	.....
Windham.....	April 13	2.5	Debris or Brush Burning.....	.....
Windham.....	April 13	10	Unknown.....	100.00

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Cumberland County—Cont.				
Cumberland	April 15	40	Debris or Brush Burning	
Windham	April 15	7	Unknown	\$25.00
Cumberland	April 18	.1	Smoking	
New Gloucester	April 19	1	Smoking	
Cumberland	April 22	1.5	Smoking	10.00
Windham	April 25	.5	Unknown	10.00
Windham	April 26	10	Debris or Brush Burning	5.00
Harrison	May 10	2	Debris or Brush Burning	
Gray	May 11	3	Debris or Brush Burning	
Baldwin	May 12	4	Railroad	25.00
Gray	May 12	8.3	Smoking	10.00
Windham	May 16	12.5	Smoking	50.00
Baldwin	May 16	1	Unknown	
Gray	May 17	.5	Smoking	
Bridgton	May 23	.3	Debris or Brush Burning	7.00
Brunswick	June 1	4	Smoking	8.00
Brunswick	June 21	3	Lumbering	
Gray	June 28	.5	Miscellaneous	10.00
Freeport	July 3	1.5	Miscellaneous	15.00
Gray	July 6	.1	Miscellaneous	
North Yarmouth	July 7	.5	Smoking	5.00
Harpwell	July 11		Smoking	
Scarboro	July 14	22.5	Smoking	125.00
Brunswick	Aug. 5	4	Lumbering	800.00
Bridgton	Aug. 8	3	Unknown	15.00
Bridgton	Aug. 8	.3	Smoking	
Bridgton	Aug. 12	.2	Smoking	
Bridgton	Aug. 13	3	Unknown	15.00
Bridgton	Aug. 14	2	Unknown	
Gray	Aug. 21	.5	Miscellaneous	
Brunswick	Aug. 21	.3	Smoking	
Freeport	Aug. 23	1	Campfire	25.00
Brunswick	Aug. 24	.5	Lightning	
Brunswick	Aug. 25	5	Miscellaneous	10.00
Gray	Aug. 27	20	Miscellaneous	75.00
Westbrook	Aug. 27	3	Smoking	30.00
Brunswick	Aug. 29	.5	Smoking	
Bridgton	Aug. 29	.8	Smoking	
Brunswick	Aug. 29	2	Smoking	
Gray	Aug. 30		Miscellaneous	
Falmouth	Sept. 10	1.5	Unknown	25.00
Falmouth	Sept. 11	1	Smoking	15.00
Freeport	Sept. 15	1.5	Unknown	25.00
Falmouth	Sept. 17	.7	Unknown	25.00
Freeport	Sept. 18	5	Smoking	50.00
Freeport	Sept. 18	1	Unknown	15.00
Brunswick	Sept. 27	2	Unknown	
Windham	Sept. 28	2.5	Smoking	5.00
Freeport	Sept. 28	.5	Campfire	5.00
Freeport	Oct. 1	1	Unknown	
Gorham	Oct. 6		Smoking	
Falmouth	Oct. 8	1.5	Smoking	15.00
Falmouth	Oct. 10	5	Unknown	50.00
Falmouth	Oct. 10	1.5	Miscellaneous	10.00
Windham	Oct. 10	4	Smoking	10.00
Falmouth	Oct. 11	.5	Unknown	
Windham	Oct. 11	1	Unknown	
Standish	Oct. 12	1000	Campfire	1,000.00
Windham	Oct. 12	.3	Unknown	
Baldwin	Oct. 13	3	Smoking	25.00
Raymond	Oct. 13	8	Unknown	50.00
Windham	Oct. 13	.2	Unknown	5.00
Freeport	Oct. 14	1	Miscellaneous	5.00
Windham	Oct. 14	.1	Smoking	
Gorham	Oct. 15	1.5	Unknown	
Bridgton	Oct. 15	1.5	Smoking	
Bridgton	Oct. 15	2	Smoking	15.00
Bridgton	Oct. 15	.7	Unknown	
Falmouth	Oct. 15	1.5	Unknown	5.00

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Cumberland County—Cont.				
Falmouth.....	Oct. 15	4	Smoking.....	\$35.00
New Gloucester-Gray.....	Oct. 15	50	Smoking.....	125.00
New Gloucester.....	Oct. 16	1	Debris or Brush Burning.....	10.00
Gorham.....	Oct. 16	2	Unknown.....	
Freeport.....	Oct. 16	2.5	Smoking.....	15.00
Windham.....	Oct. 16	.5	Unknown.....	10.00
Freeport.....	Oct. 19	3	Unknown.....	10.00
Scarboro.....	Oct. 21	1	Unknown.....	
Brunswick.....	Oct. 21	307	Miscellaneous.....	2,025.00
Windham.....	Oct. 21	2	Smoking.....	25.00
Freeport.....	Oct. 22	1	Unknown.....	10.00
Windham.....	Oct. 22	6	Incendiary.....	15.00
Freeport.....	Oct. 23	2	Unknown.....	20.00
Freeport.....	Oct. 23	20	Incendiary.....	125.00
Scarboro.....	Oct. 23	3	Incendiary.....	150.00
Scarboro.....	Oct. 23	25	Incendiary.....	2,000.00
Freeport.....	Oct. 26	1.3	Unknown.....	5.00
Freeport.....	Oct. 27	2	Unknown.....	10.00
Falmouth.....	Nov. 8	2.5	Campfire.....	20.00
Franklin County				
Jay.....	April 23	3	Miscellaneous.....	10.00
Weld.....	April 26	6	Unknown.....	
Strong.....	May 11	1	Unknown.....	20.00
Farmington.....	Aug. 8	.2	Miscellaneous.....	53.00
Farmington.....	Aug. 22	.1	Miscellaneous.....	
New Sharon.....	Oct. 13	.5	Lightning.....	10.00
Industry.....	Oct. 15		Smoking.....	
Strong.....	Oct. 20	2	Unknown.....	
Carthage.....	Oct. 22	50	Unknown.....	190.00
Industry.....	Oct. 23	8	Unknown.....	10.00
Farmington.....	Oct. 24		Miscellaneous.....	
Industry.....	Oct. 25	.2	Incendiary.....	2.00
Strong.....	Oct. 26	3	Unknown.....	6.00
Hancock County				
Bar Harbor.....	April 1	2	Debris or Brush Burning.....	25.00
Bar Harbor.....	April 4	6	Miscellaneous.....	
Bucksport.....	April 4	200	Debris or Brush Burning.....	650.00
Gouldsboro.....	April 13	10	Smoking.....	
Ellsworth.....	April 15	4	Miscellaneous.....	
Bar Harbor.....	April 19	3	Miscellaneous.....	
Bucksport.....	April 22	1.5	Smoking.....	5.00
Mariaville.....	April 26	15	Debris or Brush Burning.....	607.50
Gouldsboro.....	April 26	5	Debris or Brush Burning.....	
Gouldsboro.....	April 26	4	Smoking.....	
Bluehill.....	May 11	200	Debris or Brush Burning.....	500.00
Lamoine.....	May 11	12	Miscellaneous.....	2.00
Bucksport.....	May 12	6	Smoking.....	18.00
Orland.....	May 14	1.5	Lightning.....	5.00
Franklin.....	May 14	25	Debris or Brush Burning.....	85.00
Bar Harbor.....	May 27	3	Smoking.....	2.00
Eastbrook.....	June 13	1.5	Lumbering.....	
Bucksport.....	July 1	2	Debris or Brush Burning.....	
Bar Harbor.....	Aug. 1	103	Smoking.....	2,380.00
Bar Harbor.....	Aug. 23	15	Smoking.....	25.00
Mariaville.....	Aug. 28	.5	Miscellaneous.....	
Ellsworth.....	Aug. 28	.5	Smoking.....	
Bar Harbor.....	Aug. 29	2	Miscellaneous.....	
Mariaville.....	Sept. 8		Smoking.....	
Bluehill.....	Sept. 12	.8	Unknown.....	10.00
Brooksville.....	Oct. 11	2	Smoking.....	
Ellsworth.....	Oct. 12	.5	Debris or Brush Burning.....	
Southwest Harbor.....	Oct. 13	1	Smoking.....	
Ellsworth.....	Oct. 15	.3	Smoking.....	

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Hancock County—Cont.				
Sullivan	Oct. 15	.5	Debris or Brush Burning	
Winter Harbor	Oct. 16	4	Smoking	
Bar Harbor	Oct. 17	17,188	Miscellaneous	\$5,812,000.00
Sullivan	Oct. 20	3	Lumbering	2.00
Bucksport	Oct. 21	3	Miscellaneous	
Ellsworth	Oct. 21	.8	Miscellaneous	
Ellsworth	Oct. 22	10	Railroad	
Surry	Oct. 23	1	Lumbering	
Dedham	Oct. 25	1	Smoking	
Bucksport	Oct. 25	7	Smoking	600.00
Ellsworth	Oct. 25	.2	Incendiary	
Orland	Oct. 27	.8	Miscellaneous	
Ellsworth	Oct. 29	.3	Incendiary	
Kennebec County				
Litchfield	April 1	30	Debris or Brush Burning	
Augusta	April 11	4	Miscellaneous	
Winthrop	April 19	2	Debris or Brush Burning	
Winthrop	April 24	2	Unknown	5.00
Clinton	April 24	15	Unknown	50.00
Payette	May 10	.3	Miscellaneous	
Clinton	May 27	20	Debris or Brush Burning	20.00
Vassalboro	Aug. 11	10	Unknown	35.00
Rome	Aug. 15		Lightning	
West Gardiner	Aug. 17	.3	Debris or Brush Burning	
West Gardiner	Aug. 18	2.5	Miscellaneous	5.00
Gardiner	Aug. 21	.2	Unknown	
Winslow	Aug. 23	.2	Smoking	2.00
Pittston	Sept. 12	10	Smoking	5.00
Pittston	Sept. 26	3	Incendiary	30.00
Gardiner	Sept. 28	.5	Debris or Brush Burning	
China	Oct. 6	.5	Campfire	20.00
Litchfield	Oct. 6	1.5	Smoking	
Manchester	Oct. 10	5	Smoking	5.00
Rome	Oct. 11	.5	Smoking	2.00
China	Oct. 12	1	Smoking	
Fayette	Oct. 12		Smoking	
Sidney	Oct. 12	65	Unknown	300.00
Augusta	Oct. 13	.8	Debris or Brush Burning	5.00
Pittston	Oct. 13	4	Smoking	2.00
Sidney	Oct. 13	2	Debris or Brush Burning	
Winslow	Oct. 14	.8	Smoking	5.00
Vassalboro	Oct. 15	10	Railroad	50.00
Vienna	Oct. 15	1	Unknown	
Winslow	Oct. 16	.5	Smoking	
Winslow	Oct. 17		Smoking	
Farmingdale	Oct. 20	10	Miscellaneous	30.00
Winslow	Oct. 21	.2	Unknown	
Winslow	Oct. 23	.2	Miscellaneous	5.00
Winslow	Oct. 25	.3	Unknown	
Winslow	Oct. 26	.2	Railroad	
Gardiner	Nov. 2	.5	Smoking	1.00
Pittston	Nov. 11	2	Smoking	1.00
Clinton	Nov. 15	3	Railroad	15.00
Knox County				
South Thomaston	Mar. 28	8	Smoking	25.00
Friendship	April 29	.5	Unknown	
Cushing	May 12	15	Debris or Brush Burning	25.00
St. George	July 22	.2	Unknown	5.00
Appleton	July 25	.5	Lumbering	
Rockport	Aug. 3	2.5	Unknown	25.00
Washington	Aug. 12	.3	Unknown	8.00
South Thomaston	Aug. 18	1	Smoking	

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Knox County—Cont.				
St. George	Aug. 31	1	Lightning	\$10.00
Appleton	Sept. 24	2	Smoking	5.00
Thomaston	Sept. 27	2	Smoking	
Vinalhaven	Oct. 1	2	Unknown	
Cushing	Oct. 3	.2	Smoking	
Thomaston	Oct. 15	1	Smoking	
Rockport	Oct. 15	53	Smoking	15.00
Warren	Oct. 20	10	Debris or Brush Burning	
Rockport	Oct. 23	3	Miscellaneous	
Vinalhaven	Nov. 4	12	Unknown	
Friendship	Nov. 18	1.5	Unknown	
Warren	Nov. 21	14	Lumbering	25,675.00
Friendship	Nov. 29	.3	Debris or Brush Burning	
Lincoln County				
Boothbay	Mar. 19	2	Miscellaneous	
Alna	April 1	15.5	Debris or Brush Burning	50.00
Edgecomb	April 1	4	Miscellaneous	140.00
Alna	April 1	10	Debris or Brush Burning	
Edgecomb	April 4	1	Miscellaneous	50.00
Nobleboro	April 13	1.5	Debris or Brush Burning	
Whitefield	April 18	18	Debris or Brush Burning	30.00
Jefferson	April 26	1.3	Debris or Brush Burning	3.00
Boothbay	May 11	.5	Smoking	
Whitefield	June 13	5	Unknown	
Whitefield	June 28	.3	Debris or Brush Burning	
Boothbay	Aug. 8	2	Smoking	
Boothbay	Aug. 9	3	Smoking	
Boothbay	Aug. 15	1	Lightning	
Whitefield	Aug. 29	.8	Unknown	
South Bristol	Sept. 10	2	Debris or Brush Burning	
Boothbay	Sept. 24	1	Smoking	
Boothbay	Sept. 28	1	Smoking	
South Bristol	Oct. 2		Miscellaneous	
Waldoboro	Oct. 3	1	Unknown	25.00
Jefferson	Oct. 13	1	Miscellaneous	
Waldoboro	Oct. 14	15	Lumbering	75.00
Waldoboro	Oct. 15	2	Miscellaneous	
Damariscotta	Oct. 16	5.5	Smoking	240.00
Waldoboro	Oct. 20	1	Incendiary	15.00
Waldoboro	Oct. 21	1.5	Smoking	
Boothbay	Oct. 21	1	Smoking	
Jefferson	Oct. 21	.2	Lumbering	
Jefferson	Oct. 21	.5	Smoking	
Jefferson	Oct. 25	2	Incendiary	20.00
Boothbay	Oct. 29	.1	Debris or Brush Burning	
Boothbay	Nov. 2		Smoking	
Jefferson	Nov. 19	6	Smoking	
Jefferson	Nov. 22	4	Debris or Brush Burning	
Jefferson	Dec. 19	17	Debris or Brush Burning	1,000.00
Oxford County				
Paris	April 22	3	Debris or Brush Burning	
Paris	April 28	5	Railroad	25.00
Porter	May 9	10	Smoking	50.00
Rumford	May 11	15	Miscellaneous	150.00
Hartford	May 12	2	Smoking	3.00
Newry	May 12	35	Smoking	125.00
Paris	May 12	2.5	Miscellaneous	5.00
Paris	May 12	.5	Smoking	5.00
Paris	May 15	2	Railroad	5.00

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Oxford County—Cont.				
Brownfield-Fryeburg	May 16	250	Smoking	\$500.00
Paris	May 16	.5	Railroad	2.00
Paris	May 17	2	Railroad	75.00
Fryeburg	June 1	.3	Smoking	1.00
Gilead	June 6	75	Smoking	125.00
Paris	June 24	.2	Debris or Brush	
			Burning	1.00
Paris	Aug. 29	10	Unknown	10.00
Porter	Aug. 31	8	Lightning	
Hiram	Aug. 31	.2	Lightning	
Sweden	Sept. 1	3	Smoking	6.00
Hiram	Sept. 10	16	Smoking	80.00
Brownfield	Sept. 10	1	Lumbering	
Porter	Sept. 14	.3	Smoking	
Hiram	Sept. 29	.5	Debris or Brush	
			Burning	
Hiram	Oct. 3	1	Unknown	
Rumford	Oct. 11	.5	Unknown	
Hartford	Oct. 12		Smoking	
Hartford	Oct. 12	60	Unknown	740.00
Lovell	Oct. 12	1.5	Debris or Brush	
			Burning	800.00
Stoneham	Oct. 13	1	Smoking	
Norway	Oct. 17	.8	Unknown	
Fryeburg-Brownfield-Hiram-Porter-Denmark, Oxford County; Cornish, York County				
	Oct. 21	20,120	Smoking	744,000.00
Norway	Oct. 21	2	Unknown	30.00
Norway	Oct. 23	.2	Unknown	7.50
Lovell	Oct. 23	2.5	Smoking	4.00
Hartford	Oct. 26	1.5	Unknown	3.00
Greenwood	Nov. 1	1	Unknown	
Sumner	Nov. 2	.1	Unknown	
Peru	Nov. 2	1	Unknown	5.00
Norway	Nov. 5	.3	Unknown	2.50
Paris	Nov. 18	1	Smoking	
Penobscot County				
Hampden	April 22	20	Debris or Brush	
			Burning	50.00
Hampden	April 26	20	Debris or Brush	
			Burning	100.00
Dixmont	Aug. 12	1	Smoking	
Charleston	Aug. 25	.3	Lightning	
Garland	Sept. 14		Miscellaneous	
Lincoln	Oct. 15	5	Miscellaneous	25.00
Newburg	Oct. 16	.1	Smoking	
Newburg	Oct. 17	.1	Smoking	
Bradford	Oct. 20	2	Miscellaneous	
Eddington	Oct. 21	.3	Miscellaneous	
Carmel	Oct. 21	900	Railroad	2,000.00
Plymouth	Oct. 28		Unknown	73.00
Newburg	Nov. 8	.3	Unknown	41.25
Clifton	Nov. 11	.2	Miscellaneous	
Piscataquis County				
Shirley	Aug. 16	1	Lumbering	16.00
Sebec	Oct. 23	1	Smoking	
Willimantic	Oct. 24	10	Miscellaneous	5,495.00
Parkman	Oct. 27	1	Unknown	
Sagadahoc County				
Topsham	Mar. 23	1.5	Debris or Brush	
			Burning	
Bowdoinham	April 1	1	Lumbering	
Bowdoinham	April 11	10	Campfire	79.00
Topsham	April 27	2.5	Smoking	
Bowdoinham	April 28	10	Campfire	10.00
Topsham	May 14	5.5	Smoking	
Topsham	May 15	75	Smoking	195.00
West Bath	May 17	1.5	Debris or Brush	
			Burning	10.00
Bowdoinham	May 17	1	Debris or Brush	
			Burning	

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Sagadahoc County—Cont.				
Topsham	July 6	.5	Smoking	
Topsham	Aug. 5	75	Miscellaneous	\$3,000.00
Bowdoinham	Aug. 7	3	Smoking	
Bowdoinham	Aug. 11	3	Lumbering	250.00
Richmond	Aug. 24	1.5	Smoking	
Bowdoin	Aug. 25	1.5	Lumbering	250.00
Bath	Aug. 26	2	Smoking	
West Bath	Aug. 27	53	Smoking	353.00
Bath	Aug. 27	.3	Smoking	
West Bath	Sept. 1	.2	Campfire	
Richmond	Oct. 7	3	Debris or Brush Burning	
Topsham-Bowdoin	Oct. 7	5,450	Smoking	13,450.00
Bowdoinham	Oct. 15	1.5	Unknown	
Topsham	Oct. 21	.5	Railroad	
Phippsburg	Oct. 22	.5	Smoking	
Topsham	Oct. 22	.2	Miscellaneous	
Richmond	Oct. 23	2,650	Miscellaneous	14,000.00
Georgetown	Oct. 23	.8	Unknown	180.00
Richmond	Nov. 8	.5	Smoking	
Somerset County				
Solon	April 23	10	Miscellaneous	50.00
Solon	April 25	4	Smoking	
Canaan	April 26	6	Debris or Brush Burning	10.00
Madison	May 10	6	Smoking	
Canaan	May 12	2	Debris or Brush Burning	
Norridgewock	May 27	35	Smoking	50.00
Harmony	Aug. 4		Lightning	
Madison	Aug. 7	.1	Debris or Brush Burning	2.00
Embden	Aug. 26	.5	Unknown	3,570.00
Embden	Aug. 30	.3	Miscellaneous	5.00
Fairfield	Oct. 14	2	Debris or Brush Burning	10.00
Norridgewock	Oct. 16	1	Smoking	5.00
Cornville	Oct. 17	2	Unknown	15.00
Harmony	Oct. 20	3	Smoking	25.00
Anson	Oct. 21	410	Miscellaneous	5,225.00
Madison-Norridgewock	Oct. 21	2,496	Miscellaneous	37,875.00
Pittsfield	Oct. 22	.8	Railroad	
Anson	Oct. 24	.7	Smoking	15.00
Solon	Oct. 24	2	Miscellaneous	15.00
Cornville	Oct. 25		Smoking	
Cornville	Oct. 26	.3	Incendiary	3.00
Norridgewock	Oct. 31	2	Smoking	10.00
Waldo County				
Winterport	Mar. 23	12	Debris or Brush Burning	
Winterport	Mar. 28	10	Unknown	
Troy	April 3	7.5	Smoking	20.00
Belfast	April 19	1	Unknown	
Winterport	April 22	7	Smoking	5.00
Winterport	April 22	5	Debris or Brush Burning	
Winterport	April 22	25	Debris or Brush Burning	25.00
Palermo	April 26	25	Debris or Brush Burning	170.00
Northport	April 26	4	Debris or Brush Burning	
Searsmont	April 26	4	Debris or Brush Burning	
Palermo	April 28	4	Campfire	
Palermo	May 12	20	Debris or Brush Burning	
Stockton Springs	May 17	4	Smoking	110.00
Unity	Aug. 12	.5	Lightning	
Northport	Aug. 22		Campfire	
Waldo	Aug. 25	1	Smoking	5.00
Belfast	Aug. 29	1	Miscellaneous	10.00

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
Waldo County—Cont.				
Swanville.....	Oct. 13	7	Smoking.....	\$50.00
Jackson.....	Oct. 16	14	Debris or Brush Burning.....	50.00
Thorndike.....	Oct. 21	1	Smoking.....	
Lincolnville.....	Oct. 21	90	Smoking.....	3,686.00
Waldo.....	Oct. 21	2	Miscellaneous.....	5.00
Waldo.....	Oct. 22	1	Smoking.....	
Winterport.....	Oct. 23	5	Incendiary.....	10.00
Searsport.....	Oct. 24		Incendiary.....	
Palermo.....	Oct. 26	12	Smoking.....	
Searsport.....	Oct. 30	.3	Incendiary.....	
Washington County				
Lubec.....	April 3	3	Miscellaneous.....	
Machiasport.....	April 3	20	Smoking.....	
Jonesport.....	April 4	10	Debris or Brush Burning.....	
Lubec.....	April 22	3	Debris or Brush Burning.....	
East Machias.....	April 22	8	Debris or Brush Burning.....	50.00
Cherryfield.....	May 11	70	Miscellaneous.....	245.00
Harrington.....	May 11	3	Miscellaneous.....	
Lubec.....	May 11	20	Incendiary.....	60.00
Addison.....	May 12	4	Miscellaneous.....	
Perry.....	May 15	3	Miscellaneous.....	
Addison.....	May 15	1	Miscellaneous.....	
Meddybemps.....	May 17	30	Smoking.....	
Calais.....	May 18	3	Smoking.....	
Baileyville.....	July 22	2	Smoking.....	
Steuben.....	Aug. 11	2	Smoking.....	
Baileyville.....	Aug. 13	1	Debris or Brush Burning.....	
Harrington.....	Aug. 17		Smoking.....	
East Machias.....	Aug. 18	1	Smoking.....	
Machiasport.....	Aug. 19		Smoking.....	
Pembroke.....	Aug. 22	.1	Smoking.....	
Centerville.....	Aug. 23	200	Miscellaneous.....	3,000.00
Columbia Falls.....	Aug. 24	1	Smoking.....	24.00
Whiting.....	Aug. 24	.1	Smoking.....	
Addison.....	Aug. 25	8	Miscellaneous.....	25.00
Steuben.....	Aug. 25	1	Smoking.....	
Lubec.....	Aug. 27	2	Miscellaneous.....	280.00
Lubec.....	Aug. 28	2	Smoking.....	
East Machias.....	Aug. 28	.1	Smoking.....	
Harrington.....	Aug. 30		Smoking.....	
Addison.....	Sept. 6	.1	Campfire.....	
Machiasport.....	Sept. 9	.5	Smoking.....	
Milbridge.....	Sept. 27	.5	Smoking.....	
Whiting.....	Oct. 8	.5	Smoking.....	
Princeton.....	Oct. 12	1.5	Smoking.....	
Milbridge.....	Oct. 14	6	Smoking.....	
Cherryfield-Steuben—Org. Towns— No. 10 MFD (Org. Town figures listed here)	Oct. 15	480	Miscellaneous.....	4,050.00
Cutler.....	Oct. 17	.5	Smoking.....	
Machiasport.....	Oct. 17	5	Unknown.....	
Machiasport.....	Oct. 17	5	Smoking.....	
Centerville-Jonesboro-Machias-Roque Bluffs-Whitneyville.....	Oct. 21	19,970	Smoking.....	327,200.00
Lubec.....	Oct. 21	6	Smoking.....	
Dennysville.....	Oct. 22	6	Smoking.....	90.00
Columbia Falls.....	Oct. 24	.3	Smoking.....	5.00
York County				
Wells.....	Mar. 23	.5	Debris or Brush Burning.....	
Kennebunk.....	Mar. 23	50	Unknown.....	
Shapleigh.....	April 19	.5	Miscellaneous.....	
North Berwick.....	April 19	.3	Debris or Brush Burning.....	
Hollis.....	April 25	2	Smoking.....	
Hollis.....	April 26	450	Incendiary.....	
Newfield.....	April 26	.3	Miscellaneous.....	

ORGANIZED TOWNS FIRE RECORD 1947

Location	Date	Acreage	Cause	Immediate Damage
York County—Cont.				
Buxton.....	May 11	3.5	Smoking.....	\$21.00
Buxton.....	May 12	3	Lumbering.....	.....
Lyman.....	May 12	19	Lumbering.....	95.00
Old Orchard.....	May 12	960	Smoking.....	2,975.00
Sanford.....	May 12	1.5	Smoking.....	40.00
Saco.....	May 13	40	Unknown.....	.....
Saco.....	May 16	75	Unknown.....	.....
Limerick.....	May 17	45	Smoking.....	230.00
Sanford.....	May 17	3	Smoking.....	.....
South Berwick.....	May 17	3	Debris or Brush Burning.....	10.00
Shapleigh.....	May 17	10	Smoking.....	.....
Sanford.....	May 31	4	Smoking.....	.....
York.....	June 12	2	Smoking.....	.....
York.....	June 21	1	Smoking.....	.....
York.....	June 26	1	Smoking.....	.....
Sanford.....	July 5	1	Smoking.....	.....
York.....	July 6	1.5	Smoking.....	.....
Sanford.....	July 6	1.5	Smoking.....	.....
Lebanon.....	Aug. 12	3	Smoking.....	30.00
York.....	Aug. 15	18	Smoking.....	300.00
Old Orchard.....	Aug. 15	2	Unknown.....	10.00
Kennebunk.....	Aug. 23	2	Unknown.....	200.00
Parsonsfield.....	Aug. 23	1.5	Smoking.....	15.00
Wells.....	Aug. 24	6	Smoking.....	6.00
Shapleigh.....	Aug. 25	.3	Smoking.....	.....
York.....	Aug. 29	2	Smoking.....	.....
York.....	Aug. 31	1.3	Smoking.....	.....
Shapleigh.....	Aug. 31	.5	Smoking.....	5.00
Kennebunk.....	Sept. 12	4	Unknown.....	250.00
Lyman.....	Sept. 20	1.5	Miscellaneous.....	.....
Sanford.....	Oct. 5	3.5	Unknown.....	.....
Sanford.....	Oct. 6	15	Unknown.....	.....
Parsonsfield.....	Oct. 7	5	Lumbering.....	10.00
Lebanon.....	Oct. 9	.5	Unknown.....	10.00
Sanford.....	Oct. 10	3	Campfire.....	.....
Acton.....	Oct. 15	4	Smoking.....	.....
York.....	Oct. 16	2	Unknown.....	100.00
Sanford.....	Oct. 17	1	Miscellaneous.....	.....
Shapleigh-Waterboro-Wells-Lyman- Saco-Kennebunk-Hollis-Dayton- Alfred-Newfield-Limerick-Parsons- field.....	Oct. 17	109,110	Unknown.....	3,532,000.00
York.....	Oct. 18	5	Incendiary.....	100.00
York.....	Oct. 19	4	Incendiary.....	.....
York.....	Oct. 19	1	Incendiary.....	.....
Wells.....	Oct. 20	15	Unknown.....	200.00
Sanford.....	Oct. 20	3	Unknown.....	.....
Sanford.....	Oct. 20	5	Unknown.....	.....
Wells.....	Oct. 20	3	Smoking.....	550.00
Biddeford-No. Kennebunkport- Kennebunkport.....	Oct. 20	21,910	Unknown.....	1,372,000.00
Acton.....	Oct. 21	2	Smoking.....	50.00
Wells.....	Oct. 21	.2	Smoking.....	.....
York.....	Oct. 22	2	Incendiary.....	100.00
York.....	Oct. 22	4	Unknown.....	.....
Berwick.....	Oct. 25	15	Miscellaneous.....	700.00
Wells.....	Nov. 10	1	Unknown.....	.....

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Androscoggin County				
Leeds	Mar. 31	5	Unknown	
Mechanic Falls	April 5	1.5	Debris or Brush Burning	\$2.25
Poland	April 7	1.5	Debris or Brush Burning	1.50
Auburn	April 9	4	Smoking	
Poland	April 10	6	Railroad	
Poland	April 13	4	Debris or Brush Burning	4.00
Turner	April 22	8	Unknown	
Poland	April 27	3	Miscellaneous	3.00
Poland	May 2	2	Debris or Brush Burning	2.00
Poland	May 2	2	Miscellaneous	2.00
Mechanic Falls	May 4	1.5	Smoking	2.00
Greene	May 9	2	Smoking	
Durham	May 17	1.5	Smoking	
Minot	June 14	2.5	Smoking	
Greene	July 16	3	Lumbering	20.00
Livermore	Aug. 2	2	Miscellaneous	600.00
Lisbon	Aug. 2	3	Lumbering	300.00
Leeds	Aug. 3	.5	Smoking	
Livermore	Aug. 3	.1	Smoking	
Poland	Aug. 9	.8	Debris or Brush Burning	5.00
Poland	Aug. 22	1	Miscellaneous	1.00
Turner	Aug. 22	.1	Smoking	
Turner	Aug. 26	1	Miscellaneous	5.00
Poland	Aug. 29	2	Campfire	
Livermore	Sept. 2		Campfire	
Livermore	Sept. 8		Campfire	2.00
Livermore	Sept. 12	.1	Unknown	
Leeds	Sept. 12	.5	Lumbering	
Poland	Sept. 14	.5	Miscellaneous	
Turner	Sept. 15	1	Unknown	
Poland	Sept. 28	.5	Smoking	
Livermore Falls	Oct. 29	.5	Unknown	20.00
Turner	Nov. 3	1.5	Smoking	2.00
Aroostook County				
St. Francis	June 21	60	Campfire	500.00
Haynesville	Aug. 25	.3	Smoking	1.00
Cumberland County				
Gray	Mar. 29	3	Debris or Brush Burning	15.00
Gray	Mar. 29	.5	Debris or Brush Burning	
Windham	Mar. 30	2	Miscellaneous	
Falmouth	Mar. 30	1	Railroad	2.00
Falmouth	Mar. 31	5.3	Debris or Brush Burning	5.00
Brunswick	April 4	5	Incendiary	75.00
Cumberland	April 4	.1	Miscellaneous	
Freeport	April 4	75	Debris or Brush Burning	123.00
Freeport	April 5	25	Debris or Brush Burning	20.00
No. Yarmouth	April 9	5	Debris or Brush Burning	2.50
Bridgton	April 10	10	Unknown	
Bridgton	April 10	5	Unknown	
Falmouth	April 10	2	Smoking	10.00
Cumberland	April 10	.1	Miscellaneous	
Brunswick	April 11	5.5	Debris or Brush Burning	
Gray	April 13	.3	Debris or Brush Burning	
Falmouth	April 14	2.2	Debris or Brush Burning	3.00
Falmouth	April 16	2	Railroad	2.00
Bridgton	April 18		Smoking	

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Cumberland County—Cont.				
Cumberland	April 18	1	Debris or Brush Burning	
Cumberland	April 18	.1	Debris or Brush Burning	
Gray	April 18	5	Debris or Brush Burning	\$2.50
Windham	April 19	5	Miscellaneous	20.00
Casco	April 19	25	Lumbering	
Gray	April 22	8	Smoking	15.00
Windham	April 23	1	Debris or Brush Burning	
Gray	April 24	4	Debris or Brush Burning	
Windham	April 24	4	Unknown	
Cumberland	April 24	.1	Debris or Brush Burning	
New Gloucester	April 24	225	Debris or Brush Burning	110.00
Pownal	April 25	40	Miscellaneous	164.00
Windham	April 25	2	Debris or Brush Burning	
Windham	April 25	40	Miscellaneous	100.00
Bridgton	April 25	.5	Miscellaneous	
Gray	April 25	.5	Smoking	
Freeport	April 25	10	Campfire	35.00
Cumberland	April 26	1	Debris or Brush Burning	
Gray	April 27	4	Smoking	
Harrison	May 4	1.1	Debris or Brush Burning	5.00
Windham	May 4	2	Unknown	
Gray	May 6	50	Lumbering	140.00
Cumberland	May 6	.1	Miscellaneous	
Falmouth	May 27	4	Unknown	4.00
Gray	July 4	.3	Incendiary	
New Gloucester	July 4	1	Miscellaneous	
Cumberland	July 9		Miscellaneous	
Gray	July 14	.5	Smoking	
Freeport	July 15		Smoking	30.00
Scarboro	July 15	3	Smoking	
Windham	July 16	2	Unknown	30.00
Windham	July 17	1	Unknown	
Bridgton	July 18	.3	Smoking	
Harpwell	July 20	3	Miscellaneous	
Gorham	July 25	2	Smoking	15.00
Bridgton	July 25	1	Smoking	100.00
North Yarmouth	July 25	.5	Smoking	2.00
Falmouth	July 31	.2	Smoking	2.00
Freeport	Aug. 1		Smoking	45.00
Falmouth	Aug. 1	.5	Smoking	5.00
Gorham	Aug. 1	2	Smoking	15.00
Bridgton	Aug. 2	1	Debris or Brush Burning	
Gray	Aug. 2	.5	Debris or Brush Burning	
Casco	Aug. 2	.5	Smoking	
Casco	Aug. 2	.3	Smoking	
Falmouth	Aug. 2	.1	Smoking	
Gorham	Aug. 2	2	Smoking	75.00
Bridgton	Aug. 10	.5	Smoking	
Bridgton	Aug. 11	.2	Debris or Brush Burning	
Bridgton	Aug. 13	.2	Smoking	
Bridgton	Aug. 18	1	Campfire	300.00
Gray	Aug. 21	1.5	Smoking	25.00
New Gloucester	Aug. 23	3	Debris or Brush Burning	
Falmouth	Aug. 24	1	Miscellaneous	5.00
Windham	Aug. 25	2.5	Lumbering	15.00
Standish	Aug. 27	3	Miscellaneous	100.00
Scarboro	Aug. 28	5	Lightning	
New Gloucester	Aug. 30	2.5	Miscellaneous	
Gray	Aug. 30	.3	Miscellaneous	2.00
Windham	Aug. 30	2	Campfire	120.00

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Cumberland County—Cont.				
Naples	Aug. 30	.3	Unknown	
Bridgton	Sept. 1	.2	Smoking	
Cumberland	Sept. 2		Miscellaneous	
Cumberland	Sept. 5	.1	Campfire	
Falmouth	Sept. 6	.1	Smoking	
Falmouth	Sept. 9	.3	Smoking	\$5.00
Bridgton	Sept. 10	.2	Unknown	
Windham	Sept. 13	.5	Unknown	
Gorham	Sept. 14	1	Lightning	2.00
Gorham	Sept. 14	1	Lightning	15.00
Falmouth	Sept. 15	.3	Smoking	3.00
Cumberland	Sept. 16	3	Smoking	50.00
Harswell	Sept. 16	4.5	Smoking	150.00
Falmouth	Sept. 19	.5	Miscellaneous	
Gray	Sept. 26		Miscellaneous	
Falmouth	Sept. 26	.1	Smoking	
Freeport	Sept. 28	.3	Debris or Brush Burning	
Bridgton	Sept. 30	.2	Smoking	
Franklin County				
Jay	April 26	2	Smoking	150.00
Carthage	May 3	4	Smoking	
Farmington	June 6	1	Unknown	5.00
Jay	July 16	.2	Miscellaneous	
Jay	July 30	1	Smoking	15.00
Weld	July 30	.1	Miscellaneous	10.00
Weld	Aug. 1	.5	Smoking	5.00
Wilton	Aug. 2	3	Debris or Brush Burning	
Strong	Aug. 3	4	Incendiary	4.00
Jay	Aug. 11		Lumbering	
New Sharon	Aug. 23	.1	Miscellaneous	
New Vineyard	Aug. 26	.1	Incendiary	
New Vineyard	Aug. 27	.5	Incendiary	
Farmington	Aug. 29	.2	Miscellaneous	
Wilton	Sept. 2	.5	Unknown	
Jay-Canton	Sept. 4	30	Lightning	175.00
Chesterville	Sept. 16	32	Unknown	525.00
Wilton	Sept. 15	.5	Lumbering	
Hancock County.				
Verona	April 9	.2	Debris or Brush Burning	
Bucksport	April 22	5	Debris or Brush Burning	
Bucksport	April 23	.5	Unknown	
Bucksport	April 25	.5	Unknown	
Orland	April 25	7	Debris or Brush Burning	
Surry	April 26	10	Debris or Brush Burning	10.00
Hancock	April 26	.5	Smoking	
Ellsworth	April 28	10	Debris or Brush Burning	
Sedgwick	April 29	6	Smoking	
Otis	April 29	.8	Debris or Brush Burning	
Ellsworth	May 5	1.5	Smoking	
Amherst	May 5		Lumbering	
Bucksport	May 6	1	Unknown	
Amherst	June 9	1	Smoking	5.00
Amherst	July 4	.5	Smoking	
Hancock	July 17	.5	Smoking	
Ellsworth	July 20	.8	Debris or Brush Burning	
Dedham	July 21	.3	Lumbering	5,018.00
Dedham	July 21		Campfire	
Eastbrook	July 21		Campfire	8.00
Bar Harbor	July 23		Incendiary	
Franklin	July 29	1.5	Smoking	15.00
Otis	July 30	1.5	Smoking	
Surry	Aug. 2	9	Smoking	30.00
Aurora	Aug. 2	450	Campfire	

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Hancock County—Cont.				
Ellsworth	Aug. 2	.....	Railroad	
Bluehill	Aug. 4	3	Miscellaneous	\$150.00
Hancock	Aug. 5	.....	Unknown	
Orland	Aug. 6	.....	Smoking	
Dedham	Aug. 7	2	Smoking	39.00
Sedgwick	Aug. 9	3.5	Lumbering	180.00
Mt. Desert	Aug. 9	25	Smoking	1,010.00
Waltham	Aug. 10	5	Smoking	25.00
Dedham	Aug. 18	.....	Debris or Brush Burning	
Sullivan	Aug. 20	.....	Miscellaneous	
Hancock	Aug. 24	2.5	Miscellaneous	
Bucksport	Aug. 26	8	Unknown	
Bucksport	Aug. 27	3	Lumbering	
Ellsworth	Aug. 27	.....	Miscellaneous	
Dedham	Aug. 29	21	Smoking	172.50
Bucksport	Aug. 29	5	Unknown	
Dedham	Sept. 1	2	Smoking	
Tremont	Sept. 4	1	Incendiary	
Amherst	Sept. 4	1	Smoking	
Bucksport	Sept. 16	5	Lumbering	
Bucksport	Sept. 19	4	Debris or Brush Burning	
Surry	Sept. 26	5	Lumbering	
Long Island Pl.	Oct. 3	1	Campfire	
Waltham	Nov. 2	125	Smoking	
Bucksport	Nov. 3	3	Unknown	
Bucksport	Dec. 7	2	Railroad	
Bucksport	Dec. 16	1	Unknown	
Kennebec County				
Winslow	April 5	7	Unknown	7.00
West Gardiner	April 5	30	Debris or Brush Burning	2,000.00
Pittston-Dresden	April 10	750	Unknown	
Vienna	April 10	3	Debris or Brush Burning	
Oakland	April 13	2	Unknown	5.00
Belgrade	April 18	2	Smoking	
Litchfield	April 18	5	Smoking	
Oakland	April 19	1	Miscellaneous	
Oakland	April 23	5	Unknown	15.00
Pittston	April 23	1	Miscellaneous	
Benton	April 26	3	Smoking	15.00
Gardiner	April 26	5	Campfire	12.00
Fayette	April 28	5	Debris or Brush Burning	
Pittston	April 28	50	Debris or Brush Burning	
Pittston	April 28	40	Debris or Brush Burning	50.00
Winslow	April 29	5	Unknown	5.00
Litchfield	May 3	1	Miscellaneous	
Fayette	May 9	1	Miscellaneous	
Winslow	June 6	1	Unknown	
Vienna	June 13	1	Smoking	3.00
Winthrop	June 20	2	Miscellaneous	
Belgrade	July 31	5	Debris or Brush Burning	5.00
Pittston	Aug. 2	5	Smoking	
Pittston	Aug. 2	5	Lumbering	
Litchfield	Aug. 3	1.5	Debris or Brush Burning	
Vassalboro	Aug. 11	3	Miscellaneous	15.00
Winslow	Aug. 25	1	Smoking	2.00
Winslow	Aug. 25	3	Smoking	7.00
Winslow	Aug. 26	1	Smoking	5.00
Litchfield	Aug. 26	1	Smoking	
Gardiner	Aug. 27	2	Lightning	
Winthrop	Aug. 27	5	Miscellaneous	
Winslow	Aug. 27	1	Smoking	5.00
China	Aug. 27	15	Smoking	1,320.00
Rome	Aug. 27	5	Lightning	3.00
Winslow	Aug. 29	5	Lightning	10.00

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Kennebec County—Cont.				
Winslow	Aug. 30	.3	Unknown.....	\$1.00
Winslow	Aug. 31	.2	Unknown.....	1.00
Clinton	Sept. 1	.2	Miscellaneous.....	
Mt. Vernon	Sept. 5	.8	Unknown.....	25.00
Mt. Vernon	Sept. 5	1	Lumbering.....	50.00
Farmingdale	Sept. 10	.2	Lumbering.....	
China	Sept. 11	.5	Smoking.....	50.00
Farmingdale	Sept. 11	.1	Campfire.....	
Oakland	Sept. 12	.1	Campfire.....	
Winslow	Sept. 14	.1	Miscellaneous.....	5.00
China	Sept. 16	2	Smoking.....	
China	Sept. 21	.....	Miscellaneous.....	
Pittston	Sept. 26	.2	Debris or Brush Burning.....	
Monmouth	Sept. 29	.5	Lumbering.....	
Windsor	Oct. 6	.2	Smoking.....	
China	Oct. 7	2	Smoking.....	10.00
Knox County				
Warren	April 19	14	Debris or Brush Burning.....	325.00
Appleton	April 19	6	Debris or Brush Burning.....	200.00
St. George	April 25	12	Debris or Brush Burning.....	
Washington	May 4	1	Debris or Brush Burning.....	
Warren	May 6	2.5	Debris or Brush Burning.....	10.00
Warren	July 4	2.5	Miscellaneous.....	37.50
Thomaston	Aug. 7	5.5	Smoking.....	10.00
Thomaston	Aug. 21	4	Unknown.....	
Appleton	Aug. 27	1	Unknown.....	
Thomaston	Aug. 31	1	Miscellaneous.....	
Rockland-Rockport-Warren	Sept. 2	1,600	Smoking.....	31,185.00
Friendship	Sept. 2	.1	Smoking.....	
Lincoln County				
Boothbay	Mar. 29	.5	Debris or Brush Burning.....	
Jefferson	April 5	3	Smoking.....	10.00
Bremen	April 10	7	Smoking.....	
Whitefield	April 10	156	Debris or Brush Burning.....	2,500.00
Somerville	May 3	2.2	Smoking.....	3.00
Westport	July 16	.....	Smoking.....	
Waldoboro	July 22	3	Smoking.....	
Boothbay	July 22	.5	Unknown.....	
Alna	Aug. 2	.5	Miscellaneous.....	
Waldoboro	Aug. 2	.3	Debris or Brush Burning.....	
Nobleboro	Aug. 2	.....	Campfire.....	
Bristol	Aug. 3	26	Smoking.....	250.00
Damariscotta	Aug. 14	2	Lightning.....	
South Bristol	Aug. 19	.....	Smoking.....	
Whitefield	Aug. 21	2	Lumbering.....	
South Bristol	Aug. 23	.....	Smoking.....	
South Bristol	Aug. 26	.....	Smoking.....	
Alna	Aug. 27	.5	Miscellaneous.....	
South Bristol	Aug. 27	.....	Smoking.....	
Jefferson	Aug. 27	.5	Unknown.....	
Alna	Aug. 28	.5	Lightning.....	
Somerville	Aug. 29	.2	Smoking.....	
Westport	Aug. 30	5	Lightning.....	50.00
South Bristol	Aug. 31	.....	Smoking.....	
South Bristol	Sept. 1	.5	Incendiary.....	
Jefferson	Sept. 2	.....	Smoking.....	
South Bristol	Sept. 2	.....	Smoking.....	
Nobleboro	Sept. 2	.2	Debris or Brush Burning.....	
Boothbay	Sept. 5	.5	Campfire.....	
Monhegan	Sept. 6	10	Unknown.....	25.00
Edgecomb	Sept. 15	3	Unknown.....	

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Lincoln County—Cont.				
Whitefield.....	Sept. 15	.5	Debris or Brush Burning.....	.....
Edgecomb.....	Sept. 15	2	Lumbering.....	.....
Newcastle.....	Sept. 29	2.5	Incendiary.....	.....
Westport.....	Sept. 29	2.5	Lightning.....	\$25.00
Jefferson.....	Oct. 1	.....	Debris or Brush Burning.....	.....
Boothbay.....	Oct. 30	1	Unknown.....	.....
South Bristol.....	Dec. 5	5	Debris or Brush Burning.....	.....
Oxford County				
Buckfield.....	April 9	1.5	Miscellaneous.....	.....
Paris.....	April 10	2	Miscellaneous.....	.....
Hartford.....	April 22	1.2	Debris or Brush Burning.....	4.00
Hartford.....	April 27	1.2	Smoking.....	.....
Oxford.....	May 4	4.5	Debris or Brush Burning.....	5.00
Canton.....	May 5	2	Smoking.....	.....
Gilead.....	May 6	2	Railroad.....	.....
Hebron.....	May 6	.2	Unknown.....	.....
Paris.....	May 9	2.5	Unknown.....	10.00
Bethel.....	May 28	1.5	Lumbering.....	.....
Gilead.....	July 4	.1	Miscellaneous.....	.....
Greenwood.....	July 15	3	Lumbering.....	30.00
Fryeburg.....	July 24	1.5	Unknown.....	50.00
Hartford.....	July 27	.5	Campfire.....	1,000.00
Hartford.....	Aug. 25	.....	Lumbering.....	.....
Peru.....	Aug. 27	.2	Lumbering.....	.....
Hebron.....	Sept. 1	.5	Miscellaneous.....	10.00
Lovell.....	Sept. 2	1	Lumbering.....	8.50
Sumner.....	Sept. 7	.4	Railroad.....	25.00
Sweden.....	Sept. 9	.5	Campfire.....	10.00
Fryeburg.....	Sept. 14	2	Unknown.....	.....
Hiram.....	Sept. 14	.5	Smoking.....	.....
Woodstock.....	Sept. 14	.5	Railroad.....	.....
Hebron.....	Sept. 14	.5	Unknown.....	25.00
Hebron.....	Sept. 19	.3	Unknown.....	.....
Hebron.....	Sept. 19	.1	Incendiary.....	2.00
Fryeburg.....	Sept. 27	1	Unknown.....	.....
Fryeburg.....	Sept. 30	5	Unknown.....	60.00
Woodstock.....	Oct. 31	.4	Debris or Brush Burning.....	10.00
Penobscot County				
Exeter.....	April 19	30	Debris or Brush Burning.....	.....
Holden.....	April 20	16.5	Debris or Brush Burning.....	.....
Newport.....	April 23	5	Smoking.....	100.00
Newport.....	April 25	2	Unknown.....	20.00
Newport.....	April 27	1	Miscellaneous.....	10.00
Garland.....	April 27	10	Miscellaneous.....	84.00
Howland.....	June 4	3	Miscellaneous.....	.....
Hudson.....	June 21	3	Debris or Brush Burning.....	350.00
Bradley.....	July 3	640	Lightning.....	1,750.00
Prentiss.....	July 13	1	Lightning.....	.....
Mattawamkeag.....	July 18	.3	Lightning.....	5.00
Exeter.....	Aug. 1	3	Smoking.....	.....
Carnel.....	Aug. 5	2	Smoking.....	.....
Mattawamkeag.....	Aug. 22	.3	Smoking.....	10.00
Lincoln.....	Aug. 22	.2	Campfire.....	.....
Plymouth.....	Aug. 24	23	Incendiary.....	50.00
Lincoln.....	Aug. 27	.8	Campfire.....	.....
LaGrange.....	Sept. 6	75	Smoking.....	.....
Eddington.....	Sept. 6	.....	Debris or Brush Burning.....	.....
Carroll Pl.....	Sept. 8	50	Lightning.....	250.00
LaGrange.....	Sept. 10	1	Lightning.....	.....
Bradley.....	Sept. 12	1	Miscellaneous.....	.....
LaGrange.....	Sept. 13	.1	Smoking.....	50.00
Edinburg.....	Sept. 14	1.5	Lightning.....	100.00

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Penobscot County—Cont.				
Etna.....	Sept. 15	.5	Smoking.....	\$2.00
Dixmont.....	Sept. 28	.1	Incendiary.....	.....
Milford.....	Oct. 24	100	Incendiary.....	.....
Glenburn.....	Oct. 30	50	Incendiary.....	.....
Piscataquis County				
Dover-Foxcroft.....	April 12	10	Debris or Brush Burning.....	100.00 90.00
Sangerville.....	June 4	1.5	Campfire.....	4.00
Sebec.....	June 26	1	Miscellaneous.....	100.00
Willimantic.....	July 18	10	Lightning.....	.....
Dover-Foxcroft.....	Aug. 9	.....	Miscellaneous.....	.....
Sebec.....	Aug. 27	.1	Railroad.....	.....
Monson.....	Aug. 29	.1	Lightning.....	.....
Monson.....	Sept. 1	.3	Lumbering.....	10.00
Sagadahoc County				
Topsham.....	Mar. 30	2	Debris or Brush Burning.....	10.00
Woolwich.....	April 4	3	Miscellaneous.....	.....
Woolwich.....	April 4	3	Miscellaneous.....	.....
Bowdoinham.....	April 13	4	Debris or Brush Burning.....	.....
Bowdoinham.....	April 13	.....	Debris or Brush Burning.....	.....
Bath.....	April 14	2	Miscellaneous.....	15.00
Bowdoinham.....	April 22	2	Incendiary.....	.....
Phippsburg.....	April 14	15	Debris or Brush Burning.....	.....
Woolwich.....	April 24	.5	Smoking.....	.....
Woolwich.....	April 24	3	Debris or Brush Burning.....	.....
Bath.....	April 24	1	Debris or Brush Burning.....	.....
Bath.....	April 25	5	Debris or Brush Burning.....	.....
Bowdoinham.....	April 26	.....	Debris or Brush Burning.....	.....
Topsham.....	May 2	.5	Debris or Brush Burning.....	.....
Bath.....	May 4	1	Miscellaneous.....	.....
Bowdoinham.....	May 5	.2	Smoking.....	.....
Phippsburg.....	May 5	.1	Miscellaneous.....	.....
Topsham.....	May 6	2	Railroad.....	.....
Topsham.....	Aug. 4	1	Smoking.....	.....
Topsham.....	Aug. 4	2	Smoking.....	.....
Phippsburg.....	Aug. 16	.....	Smoking.....	.....
Topsham.....	Aug. 24	2.5	Lumbering.....	.....
West Bath.....	Sept. 7	2	Lumbering.....	.....
Topsham.....	Sept. 12	2	Miscellaneous.....	.....
Richmond.....	Sept. 13	2	Smoking.....	.....
Woolwich.....	Sept. 13	.5	Debris or Brush Burning.....	.....
West Bath.....	Sept. 28	2	Smoking.....	.....
Woolwich.....	Oct. 5	4	Miscellaneous.....	.....
Georgetown.....	Nov. 1	1.2	Miscellaneous.....	.....
Topsham.....	Nov. 1	7	Railroad.....	.....
Somerset County				
Smithfield.....	April 5	3	Miscellaneous.....	.....
St. Albans.....	April 8	.3	Debris or Brush Burning.....	.....
Madison.....	April 10	1	Miscellaneous.....	.....
Mercer.....	April 10	.5	Miscellaneous.....	.....
Pittsfield.....	April 10	3	Unknown.....	.....
Detroit.....	April 14	2	Debris Burning.....	2.00
Smithfield.....	April 18	.5	Smoking.....	.....
Pittsfield.....	April 25	2	Smoking.....	.....
Athens.....	May 4	2	Smoking.....	2.00
Palmyra.....	May 5	1	Miscellaneous.....	.....
St. Albans.....	May 5	.8	Miscellaneous.....	.....
Norridgewock.....	May 5	5	Debris or Brush Burning.....	15.00
Skowhegan.....	May 6	2	Railroad.....	2.00

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Somerset County—Cont.				
Madison.....	May 28	.3	Debris or Brush Burning.....	.....
Athens.....	June 3	.5	Debris or Brush Burning.....	\$10.00
Solon.....	July 28	.5	Lightning.....	.....
Embden.....	July 30	1	Smoking.....	5.00
Athens.....	July 30	.5	Campfire.....	2.00
Palmyra.....	Aug. 2	4	Unknown.....	10.00
Smithfield.....	Aug. 3	3	Debris or Brush Burning.....	10.00
Embden.....	Aug. 4	.....	Campfire.....	.....
Mercer.....	Aug. 27	.1	Lightning.....	.....
Mercer.....	Sept. 1	.1	Miscellaneous.....	.....
Embden.....	Sept. 10	.1	Lightning.....	1.00
Pittsfield.....	Sept. 25	.2	Miscellaneous.....	2.00
Skowhegan.....	Oct. 8	3	Unknown.....	5.00
Skowhegan.....	Nov. 3	3	Smoking.....	15.00
Waldo County				
Palermo.....	Mar. 18	5	Debris or Brush Burning.....	500.00
Burnham.....	Mar. 21	10	Smoking.....	.....
Brooks.....	April 4	5	Smoking.....	10.00
Burnham.....	April 5	5	Smoking.....	.....
Winterport.....	April 7	2	Debris or Brush Burning.....	20.00
Belfast.....	April 9	2	Debris or Brush Burning.....	5.00
Winterport.....	April 10	.5	Miscellaneous.....	2.00
Northport.....	April 11	.5	Debris or Brush Burning.....	.....
Palermo.....	April 13	5	Smoking.....	15.00
Winterport.....	April 23	2	Miscellaneous.....	.....
Winterport.....	April 25	15	Smoking.....	25.00
Frankfort.....	April 25	125	Incendiary.....	.....
Prospect.....	April 25	1	Debris or Brush Burning.....	.....
Winterport.....	April 25	6	Debris or Brush Burning.....	50.00
Searsmont.....	April 26	20	Smoking.....	50.00
Burnham.....	April 26	3	Smoking.....	.....
Winterport.....	May 4	5	Smoking.....	.....
Troy.....	May 5	2	Unknown.....	4.00
Searsport.....	July 11	.1	Miscellaneous.....	.....
Liberty.....	July 20	.5	Lumbering.....	.....
Freedom.....	July 29	.1	Debris or Brush Burning.....	.....
Northport.....	July 30	.1	Incendiary.....	.....
Troy.....	Aug. 3	.1	Smoking.....	.....
Liberty.....	Aug. 4	.1	Lightning.....	.....
Searsport.....	Aug. 8	2.5	Smoking.....	.....
Searsport.....	Aug. 26	.1	Miscellaneous.....	.....
Islesboro.....	Aug. 26	.3	Miscellaneous.....	.....
Swanville.....	Aug. 27	.5	Lightning.....	.....
Palermo.....	Aug. 27	1	Lumbering.....	20.00
Palermo.....	Aug. 30	5	Lumbering.....	650.00
Northport.....	Sept. 2	.....	Smoking.....	.....
Searsport.....	Sept. 10	.2	Campfire.....	.....
Jackson.....	Sept. 12	.3	Campfire.....	.....
Freedom.....	Sept. 14	.5	Miscellaneous.....	.....
Prospect.....	Sept. 14	.....	Miscellaneous.....	.....
Troy.....	Sept. 24	.1	Incendiary.....	.....
Troy.....	Sept. 25	.1	Incendiary.....	.....
Troy.....	Sept. 27	1	Incendiary.....	.....
Belmont.....	Sept. 28	.1	Smoking.....	.....
Thorndike.....	Sept. 29	.1	Incendiary.....	.....
Washington County				
Whiting.....	April 11	7	Debris or Brush Burning.....	14.00
Lubec.....	April 12	4	Smoking.....	.....
Milbridge.....	April 25	90	Debris or Brush Burning.....	.....
Harrington.....	May 4	1	Miscellaneous.....	3,000.00

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
Washington County—Cont.				
Talmadge	July 12	.3	Lightning	\$100.00
Baring	Aug. 10	1	Smoking	
Steuben	Aug. 10	1	Smoking	5.00
East Machias	Aug. 18		Railroad	
Harrington	Aug. 26	.5	Smoking	
Meddybemps	Aug. 28	.3	Smoking	
Lubec	Sept. 2	1.5	Miscellaneous	15.00
Addison	Sept. 9	.1	Smoking	6.00
Milbridge	Sept. 14	250	Smoking	2,750.00
York County				
Sanford	April 4	12	Smoking	100.00
York	April 9	4	Miscellaneous	
Old Orchard Beach	April 10	25	Unknown	70.00
Sanford	April 10	5	Smoking	
Hollis	April 18	2	Debris or Brush	
			Burning	10.00
Lebanon	April 18	1	Smoking	10.00
Shapleigh	April 19	.5	Miscellaneous	
South Berwick	April 22	4	Unknown	10.00
Hollis	April 24	2	Unknown	25.00
Old Orchard Beach	April 24	10	Unknown	50.00
Hollis	April 25	9	Debris or Brush	
			Burning	50.00
Parsonsfield	April 25	1	Miscellaneous	
Kennebunk	April 26	1	Unknown	
Sanford	April 30	.5	Campfire	
Kennebunk	May 2	8	Debris or Brush	
			Burning	10.00
Sanford	May 3	1.5	Miscellaneous	
Biddeford	May 4	25	Miscellaneous	
Old Orchard Beach	May 4	4	Unknown	10.00
Lebanon	May 4	.5	Unknown	
Old Orchard Beach	May 5	58	Unknown	175.00
Old Orchard Beach	May 6	8.5	Incendiary	50.00
Lebanon	June 2	.5	Unknown	40,000.00
Kennebunk	June 6	1	Debris or Brush	
			Burning	
Waterboro	June 21	.5	Lumbering	
Hollis	June 22	.3	Debris or Brush	
			Burning	
Parsonsfield	June 24		Lightning	
Wells	June 26	2.5	Unknown	
Hollis	June 30	2	Lightning	10.00
Hollis	June 30	1	Lightning	50.00
Lebanon	July 3	1	Smoking	
Newfield	July 4	.2	Miscellaneous	
Shapleigh	July 4	.3	Miscellaneous	
York	July 11	4	Unknown	
York	July 15	.2	Unknown	
Acton	July 20	.5	Smoking	2.00
Lebanon	July 21	3	Smoking	
No. Kennebunkport	Aug. 1	2	Smoking	
Sanford	Aug. 2	.5	Smoking	
Saco	Aug. 3	5	Smoking	60.00
York	Aug. 4	.4	Smoking	
Newfield	Aug. 5	.5	Smoking	
North Berwick	Aug. 11	2.5	Smoking	
North Berwick	Aug. 11	1.5	Smoking	
Lebanon	Aug. 11	1	Smoking	
Acton	Aug. 22	.3	Smoking	25.00
Saco	Aug. 29	1	Lightning	15.00
Berwick	Aug. 31	2	Unknown	
Parsonsfield	Sept. 2	10	Lumbering	200.00
Lebanon	Sept. 3	.1	Smoking	
Wells	Sept. 6	5	Smoking	
Buxton	Sept. 8	5	Lumbering	
Saco	Sept. 8	2	Lumbering	25.00
Hollis	Sept. 9	2	Lumbering	
Buxton	Sept. 10	.5	Incendiary	50.00
Buxton	Sept. 10	.5	Incendiary	50.00
Old Orchard Beach	Sept. 11	2	Unknown	15.00
Hollis	Sept. 12	1	Lumbering	
Newfield	Sept. 12	.8	Lumbering	5.00

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1948

Location	Date	Acreage	Cause	Immediate Damage
York County—Cont.				
Shapleigh.....	Sept. 14	.2	Miscellaneous.....	.....
Kennebunk.....	Sept. 14	.5	Unknown.....	.....
Kennebunk.....	Sept. 15	3	Incendiary.....	.....
Acton.....	Sept. 15	.5	Smoking.....	\$50.00
Limington.....	Sept. 16	8	Lightning.....	100.00
Lebanon.....	Sept. 18	.5	Lightning.....	.....
Wells.....	Sept. 25	6.5	Lightning.....	.....
York.....	Oct. 3	.3	Incendiary.....	.....
York.....	Oct. 3	.2	Unknown.....	.....
Wells.....	Oct. 23	.5	Unknown.....	.....
Wells.....	Nov. 2	5	Smoking.....	.....

SUMMARY OF FOREST FIRES FOR 1947-1948 BY MONTHS, COUNTIES AND CAUSES—ORGANIZED TOWNS

	No. of Fires		Acreage		Damage	
	1947	1948	1947	1948	1947	1948
By Months:						
March.....	8	10	112	34.3	\$3,245.00	\$532.00
April.....	77	135	1,317.6	2,189	2,539.50	6,947.75
May.....	65	46	2,204.4	220.5	6,500.00	3,456.00
June.....	13	20	94.3	85.3	145.00	41,027.00
July.....	15	55	36.8	699.4	155.00	8,451.50
August.....	94	189	627.9	722.3	15,646.00	5,778.50
September.....	36	119	78.1	2,169.4	4,568.00	36,103.50
October.....	204	14	204,322.4	162.2	11,911,129.50	45.00
November.....	20	7	51.2	145.7	25,759.75	17.00
December.....	1	3	17	8	1,000.00	.....
	533	548	208,861.7	6,436.1	\$11,970,687.75	\$102,358.25
By Counties:						
Androscoggin....	42	33	1,817.8	62.6	34,918.00	971.75
Aroostook.....	4	2	14	60.3	725.00	501.00
Cumberland.....	99	97	1,727.7	639.4	7,390.00	1,964.00
Franklin.....	13	18	74	79.7	301.00	889.00
Hancock.....	42	52	17,845.7	712.7	5,816,916.50	6,662.50
Kennebec.....	39	52	209	950.8	592.00	3,626.00
Knox.....	21	12	130	1,649.6	25,793.00	31,767.50
Lincoln.....	35	38	127.7	237.4	1,648.00	2,963.00
Oxford.....	40	29	20,636.4	36.6	746,760.00	1,349.50
Penobscot.....	14	28	949.3	1,020.3	2,289.25	2,781.00
Piscataquis.....	4	8	13	23	5,511.00	304.00
Sagadahoc.....	28	30	8,355	70.5	31,777.00	25.00
Somerset.....	22	27	2,983.7	39.4	46,885.00	86.00
Waldo.....	27	40	263.3	226.8	4,146.00	1,351.00
Washington.....	43	13	20,880.2	356.7	335,029.00	5,890.00
York.....	60	69	132,834.9	270.3	4,910,007.00	41,227.00
	533	548	208,861.7	6,436.1	\$11,970,687.75	\$102,358.25
By Causes:						
Lightning.....	12	32	14	819.5	25.00	2,761.00
Railroad.....	15	13	1,056	25	2,722.00	31.00
Campfire.....	16	27	1,038.7	535.9	1,159.00	2,179.00
Smoking.....	194	156	47,891.2	2,423	1,098,743.00	38,185.50
Debris Burning.....	76	97	938.6	980.3	7,697.50	6,675.75
Incendiary.....	20	26	548.3	327.4	2,630.00	281.00
Lumbering.....	19	37	85.2	140.8	31,673.00	6,671.50
Miscellaneous.....	72	88	24,070.3	205.1	5,888,657.00	4,366.50
Unknown.....	109	72	133,219.4	979.1	4,937,381.25	41,207.00
	533	548	208,861.7	6,436.1	\$11,970,687.75	\$102,358.25

THE 1947 FOREST FIRE DISASTER**Austin H. Wilkins, Deputy Forest Commissioner**

In October, 1947, Maine experienced the worst forest fire disaster in its history, but not the largest. Property losses ran into millions of dollars, 16 persons lost their lives, 2,500 were made homeless, thousands of acres of valuable forests were burned, 9 communities were leveled or practically wiped out, and other areas suffered extensive damage. This devastation and human privation resulted from fires which were fanned by strong winds during extremely dry conditions. The unprecedented severity of the fire is beyond description except for those who witnessed and fought to bring them under control.

It would require considerable time and space to give a comprehensive narrative of this disaster with all the accompanying statistical data, human interest stories, eye witness accounts, the cooperation and coordination of protective agencies, and the after-effects. Until such a detailed study is made, this report will give a general description of what happened.

There have been other major forest fires in Maine's forest fire history. The most famous is the so-called Miramichi fire of October 7, 1825, which burned over 832,000 acres. (The real Miramichi fire occurred 200 miles away in New Brunswick but the separate fire in Maine was similarly named because of the coincidence of identical dates.) The 1947 losses of inhabited dwellings, public buildings, lumber, pulpwood, standing forest growth, and others were the greatest this state has suffered since records have been kept.

205,678 acres of forests, fields, and pastures were burned, of which 179,342 acres were forested. This is a little over one percent of the total 16,783,000 acres of forest land in Maine. Graphically a strip 286 miles long and $1\frac{1}{8}$ miles wide, extending from Fort Kent to Kittery, would be equivalent to the area burned.

The timber resource loss was estimated at \$7,171,000. It has been stated that in southwestern Maine the loss in the annual timber growth of the future would have provided 200 man years of work. This will be continuing yearly for the next 75 to 100 years, or until the forest is reestablished.

Many municipalities, individuals, and protective agencies gave their services and use of equipment without charge. The action

of many fire departments in sending cancelled fire bills to stricken towns is heartwarming. Inability of many towns to pay suppression bills still presents a problem. The forest fire suppression payments were approximately \$300,000. A complete cost figure will never be accurately determined due to confusion. At the time of the fires it was an impossible task to keep a clear account of all services rendered by labor and equipment.

In order to understand what took place it is necessary to be familiar with certain background facts such as character of the season, ground and weather conditions, forest fire hazards resulting from heavy cutting operations, and organizational setup.

The weather for the entire season was unusual, going from one extreme to the other. The snowfall of 1946-47 was normal. There was very little frost in the ground. In early March, an abnormal warm period with temperatures in the high eighties broke long standing weather records, causing the snow to quickly melt and disappear from the woods and fields at the same time. To those engaged in forest fire control this was an ominous sign and many early spring fires resulted. However, the months of April, May, and June were cold and wet. Precipitation averaged 5 inches per month for this period. Heavy rains and drizzles helped build up a soil moisture content to almost a saturation point. Starting in the middle of July, a complete reversal of weather and ground conditions took place and continued for the next four months. This marked the beginning of a prolonged drought which built up to a period of 108 days without any appreciable rain. Rains finally came on November 8 and brought to an end the extremely dry forest condition.

The question has often been asked if there were any warnings that an unusually dry situation was developing. In retrospect, by late summer it was known that conditions were getting dry based on rain deficiencies, low stream and lake levels, and reports from forest fire danger stations. The public was warned by the press, radio, and the State Forestry Department to be careful with fire. The real grave warning was the low level of wells which forced farmers to haul water for crops, livestock, and family use. Ground water level is a factor that should be considered in future studies along with rainfall, stream flow, fire occurrence, and forest fire danger readings. A ban was declared by Governor's proclamation on October 17, closing the woods to smoking and building of fires, which was amended to include hunting.

It is interesting to note here the accumulative effect of the dry condition which made it possible for the forest fires to run rampant. Between July and November there were several periods of 25 to 35 continuous days without any trace of precipitation. Continued days of warm, drying, gentle winds from the southwest and northwest quarters began to have a marked effect upon the soil moisture, wells, lakes, streams, ponds, and vegetation. By October the water level of wells, ponds, and lakes had receded to unprecedented low marks, small streams dried up leaving here and there little stagnant pools, and stream flow of rivers was considerably below normal. Bogs and marshes were without any sign of wetness and the forest floor was practically without any moisture.

The dryness of the soil began to reflect in the foliage, especially with hardwoods and lack of moisture caused the leaves to dry prematurely. These leaves could be pulverized when crushed in the hand. In many hardwood stands the fires actually crowned. Fire fighters were often hampered in their efforts as the hardwood leaves would fall thickly on the hot ground, ignite, and cause fires to jump across trenched fire lines. There were several early killing frosts and very little fall coloration but more often the nights were hot with hardly any dew.

The soil was so void of moisture that farmers could do little plowing because of the difficulty of turning furrows. When crews were constructing fire lines the soil would spill off the workman's shovel like loose sand. Bulldozers establishing fire breaks around dwellings in the fields and woods, often had to make a second run to lay up sufficient mounds of dirt for the crews to work with or for fire stops. Wooden buildings became tinder dry. The moisture in shingles, clapboards, foundation timbers, and wooden steps was greatly reduced by lack of rain, low humidity, and the evaporating rays of the sun.

Fire danger stations reported class 4 fire danger days for periods of 15 to 20 consecutive days. There were several reports of class 5 danger days. (The purpose of the fire danger station is to determine the fuel moisture content of various types of forest growth and under what condition certain types of forest fuels will ignite. This gives the ignition point which is important in forest fire control. There are 5 classifications, in a numerical order of 1 to 5. Number 1 class day is wet and each class day progresses in dryness to class 5, which is explosive.)

Within the last 10 years four very distinct factors contributed toward the accumulation of the 1947 serious forest fire hazard. First, the slash hazard caused by the hurricane of 1938 had not been entirely eliminated; second, a severe snowstorm in 1945 caused heavy tree bending, branch and top breakage; third, the accelerated cutting operations during the war to supply wood so essential during the national emergency; and fourth, the continuing lumber operations to meet a program of post-war construction.

Mention should be made about the organizational setup in the organized towns of the state. This will be helpful in understanding the forest fires which burned in 1947 in the incorporated areas. In forest fire control the municipalities by statute were responsible for extinguishment of their own fires, with the state having no legal authority within the towns. This system had been in effect since 1891 or a period of 56 years. The Forestry Department served only as a cooperating agency. In most instances the state wardens had been deputized by the towns. Over the years the state had cooperated by constructing and maintaining lookout towers and storehouses; providing services of trained wardens with trucks, tools, and equipment; and assisted on general forest fire control programs. All this service was at no cost to the towns. The state further helped by paying one-half the suppression costs of forest fires up to 1 percent of the town's valuation. However, because the state had no legal authority or responsibility it was not prepared to take over immediately.

Normally, the state closes lookout towers and storehouses, and lays off some of the wardens by the first of October. Functioning within a limited budget, and expecting fall rains, the state had closed out some districts. As fires began to occur during the second week of October, all facilities were reopened at full strength, although they were pitifully inadequate to handle the situation that arose a week later. Some of the lookout towers were manned on a 24-hour basis and special coordinators were appointed to assist in the Augusta office and to relieve the field personnel.

The week of October 20 will long be remembered. The state as a whole was powder dry and many scattered small fires were burning deep in the ground. By Governor's proclamation the hunting season was suspended in all sections of the forests of the

state and smoking or building of any fires was banned. This was effective at sunrise, October 17, and continued in force until November 12, making one of the longest periods of woods closure on record. On October 21, strong winds blew all day and several fires broke out of patrol lines and then began the race of terror, climaxed by the all-day gale on the twenty-third. What happened that day and subsequent days is a nightmare to all who had any connection with the fires. It must be remembered of 1947 that it was not one major fire but a series of forest fires in scattered sections of the state.

Many stories have been written about these fires. They have appeared in national magazines, leading and local newspapers, and periodicals. For purposes of this report only general observations will be made with the detailed descriptions to be left for a more comprehensive study. Records show that there were over 204 separate forest fires burning in October throughout the state but only the four major ones will be reviewed.

The largest forest fire occurred in York County, in southern Maine, and burned over a gross area of 131,000 acres of which 113,000 acres were forested. Some idea of the size of this fire can be shown by the fact that it burned in 15 towns and had a perimeter of nearly 150 miles of fire lines. The situation prior to the big wind of October 23 was this: The county had been cut heavily for 10 years leaving behind a tremendous volume of pine slash which was powder dry. Conditions were ripe for the development of forest fires with a protracted drought, scarcity of ground water, and plenty of dry fuel to feed upon.

In describing the York County fire it must be remembered that three separate fires were involved. The Ossipee lookout reported a fire on Shapleigh Plains near Poverty Pond at 11:58 a. m., October 17. During the next few days, this fire reached 1,000 acres in size burning in scrub oak and pitch pine. Line patrols had been lessened but were continued. On October 21, the Ossipee lookout spotted a fire at 9:54 a. m. in Wakefield, N. H., just over the Maine line. A third fire was reported by the Ossipee lookout at North Kennebunkport at 11:05 a. m., October 14. This was fought for several days and again picked up by the lookout at 1:02, October 20. These fires were at widely separated points. On the day of the big wind of October 23 these three fires were whipped into a fury never experienced by native fire fighters in

that section. The Wakefield fire jumped across the state line into Maine and raced until it met the Shapleigh fire, a distance of 8 miles. In the meantime the Shapleigh fire was racing through towns southward and ending at a point 19 miles from its point of origin. The North Kennebunkport fire, fanned by the wind, carried a solid wall of fire clear to the Atlantic Ocean, wiping out valuable summer beach properties.

After the smoke had cleared away it was found that the Wakefield fire was blown to a junction with the Shapleigh fire near where the latter had started at Poverty Pond. It also traveled around the Shapleigh fire on the south and merged with it again in the spread toward the North Kennebunkport fire. These two joined fires did not catch up with the North Kennebunkport fire being separated by the barrier of the new Maine turnpike.

It was an awesome sight to see the solid walls of roaring fire sweeping over mountains and across level areas, consuming everything in their path. At times when the fires reached timbered growth the flames shot into the air to heights of 100 to 300 feet. For days the smoke hung so thick and heavy over the area that it was difficult to determine at times just how near or far away the fires were. The sun did not penetrate through the thick pall of smoke for over ten days. Men using trucks, cars, and bulldozers had to use their headlights in the daytime.

The state forest fire watchman on Ossipee lookout had to abandon his tower and together with a State Police radio technician ran down the trail to safety. Fortunately, the fire slowed down at night and just crept over the top of the mountain, causing negligible damage to the tower.

The sound of the onrushing fires on fronts of several miles was described as a continuous roar. The blackout conditions caused by several communication and power lines added to the problems of fire suppression and evacuation. Heroism was everywhere; fire fighters making last ditch stands; families just escaping before their homes became enveloped with flames; and efforts to rush help where needed.

Appreciating that water was scarce, whole fleets of big and small tank trucks were moving bumper to bumper to areas where they were emptied on burning buildings, woods fires, and for wetting down protective strips. One cannot mention here the

names of all those who provided this heavy equipment. Offers to assist came from most everywhere. Grateful acknowledgment is made to all of them.

The intensity and kinds of fires is of special interest. Fanned by gale velocity winds, some fires crowned through stands of pine and yet did not drop down to develop a surface fire. In other instances, crown fires traveled hundreds of feet ahead of the surface fire. In still other places, the fire was blown so hard that only an inch of the humus was burned. It was mystifying to see some where the fire virtually blew itself out. Charred leaves and twigs rained down on some sections to actually blacken the ground but contained no live fire brands.

A heavily wooded island a half-mile out to sea burned like a flaming torch.

The burning of the settlement of Newfield was especially tragic. It is hardly conceivable that a settlement could be so completely consumed. In the Goose Rocks and Cape Porpoise district in Kennebunkport, over 200 dwelling places, most of them summer cottages, were destroyed. The State Forestry Department lost its storehouse at Alfred but practically all of the equipment was out on the fires. Insurance coverage permitted rebuilding in the spring of 1948.

The Fryeburg-Brownfield forest fire, in southern Oxford County, started at about 2:30 p. m., on October 21, and was quickly detected by the Pleasant Mountain lookout and at the Fryeburg Air Park. The big wind of October 23 caused this fire to break out of lines and to travel a distance of 13 miles. Five towns were involved and over 20,120 acres were burned of which 17,180 acres were forested. The behavior of this fire was similar to the York County fires, flame and smoke roaring madly over mountains and sweeping across valleys with unrelenting fury. Jump fires were carried great distances ahead of the main fire, making it difficult for fire fighters to make a determined stand. The technique of back firing was used to good advantage in some instances. Miles of back fires were started from wide bulldozed fire lines and old dirt roads. It is said that this was the battle of the bulldozers although this method of fire suppression did not always save the situation. The oncoming head fire was too unpredictable and much effort unfortunately was wasted.

Conditions were very dry in this area with numerous cut-overs to feed the fire. The loss of the two communities of Brownfield and East Brownfield was indeed tragic. Roads were crowded with people, livestock, cars and teams, all fleeing before the fire. One could drive for miles and see where telephone poles were completely consumed, while in other places just the tops of poles and the crossarms were dangling in mid-air.

The dry stubble of cut hay fields burned like spring grass fires, often igniting house and barn foundation timbers. Pilots engaged to assist in the control work could see but little due to the dense rolling clouds of black smoke.

The watchman on a nearby lookout had to abandon it for two days because of the choking smoke and haze conditions. Typical "yellow days" hung over the area for nearly a week.

In a fire damage survey made by the U. S. Forest Service for southwestern Maine, approximately 110 million board feet of softwoods and 10 million board feet of hardwoods were recommended for salvage. By late spring of 1948 most of this fire damaged stumpage had been sold to sawmill operators.

The forest fire which started on Mt. Desert Island on October 17 has been referred to frequently as "the Dunkerque of Bar Harbor." So far as can be determined, this fire started at a dump at the edge of a swamp or bog and burned over approximately 17,188 acres. Its location was only a few miles from Acadia National Park. Damage to this summer resort town was estimated at \$10,000,000. This loss is even greater if one is to consider the aesthetic value which made Bar Harbor one of the scenic spots of the country. Many of the palatial homes and estates were quickly consumed by the fire. On October 21 the fire had entered Acadia National Park and by the 23rd, whipped by a strong wind, burned over 8,750 acres inside the Park. Since federal land was affected a form of martial law was in effect.

On October 17 this fire appeared to have been controlled through the efforts of the local fire department and Federal Park Service. However, it burned deep under the surface of the swamp. When the winds of October 21 and 23 came, it broke out of bounds and raced out of control. Because of the rugged terrain, characteristic of Bar Harbor and Mt. Desert, the problem of fire fighting was different and difficult. The dense growth of spruce

and other softwoods provided sufficient fuel for the fire to travel rapidly, crown heavily, and fan out into many fingers.

There were many dramatic scenes. At one time the main avenue of escape from the island was cut off. Fleeing residents were evacuated by Coast Guard patrol boats, the Navy, and small private crafts. Many were landed at Gouldsboro on the shore of Frenchman's Bay. Later, when the causeway road to the island was reopened, the exodus continued by motor vehicles. Over this same causeway poured men and equipment from all sections to help the local facilities combat the fire.

The "Dunkerque" scene was all the more dramatic when it is realized that the telephone exchange was evacuated and all power cut off. Previously the Mt. Desert government radio station had gone out of commission. Only a sudden shift in the wind saved the main business section of Bar Harbor from being destroyed.

By an act of Congress an appropriation was made available for Acadia National Park for fire suppression bills, clean-up, fire hazard reduction, repairs, and construction. A remarkable job was done in salvaging merchantable timber but more especially the removal and disposal of the slash and brush. While the scars of the fire still remain, the areas have been very well cleaned up.

The Centerville-Jonesboro forest fire, in Washington County, is the last of the four major fires to be reviewed. This fire started on October 21 and fanned by strong winds on that day and the 23rd burned over 19,970 acres, of which 17,410 acres were forested. Much of the area burned was on land owned by the St. Regis Paper Company and the Eastern Pulp Wood Company. A survey of the fire damage shows a net volume for salvage of 37,900 cords of pulpwood and 6,900,000 board feet of sawlog material. Approximately 2,200 cords of pulpwood cut and piled were burned by the fire.

The wind was so strong on the afternoon of October 23, that the fire traveled over six miles in less than an hour. Although no villages were burned several were seriously threatened. Lack of water necessitated long hauls by trucks and tractors and laying long lines of hose. Bulldozers opened up miles of fire lines through heavy forest growth. It was on this fire that winter set in before all the equipment had been picked up. Smoke was reported coming from burning logs, roots, and stumps late in December.

Other forest fires of less acreage, but major in a sense, burned in Richmond, Topsham-Bowdoin, Cherryfield-Steuben, Madison-Norridgewock, and Fayette-Livermore.

The question has often been asked if there was any warning of the strong winds of October 21 and 23. Forecasts made by the U. S. Weather Bureau to the Forest Commissioner had predicted fresh winds but nothing of gale strength. Apparently they were a development which no one could determine or predict. It has been stated that possibly the large fires burning out of control created wind velocities which were well above those recorded at weather stations. In various areas affected by the fires wind velocities were reported between 50-70 miles per hour.

It is frankly admitted that there was no fire control action plan to meet such a conflagration. Certainly there was insufficient equipment and preparation for forest fire fighting operations on such a gigantic scale. As previously stated, the municipalities had always handled their own fires. It was only when the fires spread beyond town lines and whole communities were engulfed or threatened, that the State Forestry Department was asked to take over. The Governor, on the evening of October 23, declared a state of emergency and broadcast to the people of the state requesting that all should turn to and give whatever help was at their command to the Forestry Department. The response to this appeal was magnificent. The department was placed on a 24-hour schedule for the duration of the emergency.

The President of the United States, at the request of the Governor and the Maine Congressional Delegation, declared a state of emergency in Maine. This action cut red tape and made immediately available War Assets equipment and tools of the Office of Civilian Defense for the fire areas.

It was not until two days later that things began to smooth out and all organizations functioned under a single head. Fire headquarters were established at the State Forestry Department office in Augusta. From here originated all orders for coordination of suppression effort. The agencies of the Red Cross, National Guard, State Police, State Fish and Game Department, State Highway Commission, Army, Navy, Coast Guard, Federal Works Administration, American Legion, Civil Air Patrol, Boy Scouts, U. S. Forest Service, municipalities, colleges, public utilities industries, and many others contributed toward the tre-

mendous task of extinguishing and patrolling fires and rehabilitation.

The U. S. Forest Service was especially cooperative in sending personnel to take assignments under the Augusta office, and in providing equipment and supplies which were flown in from the West coast, the filming of the picture "Then It Happened", and in making a timber salvage survey of the principal burned areas.

The State Police with their car-station radio control systems rendered a most valuable service of communication. Ham radios and National Guard sets were also used.

During the time of the fires many letters were received suggesting various methods of combating the flames. Some were ridiculous, while others had merit but had not yet been proved practical. The Forestry Department did not overlook or neglect any possibility or ideas which might be helpful in bringing the fires under control. Water bombing was thought of but this practice was still in an experimental stage. Even dry ice was dropped by planes in an effort to make rain.

Over 150 separate fires were going or being patrolled at one time or another during the week of October 20. It was natural that the state as a whole should revert to a set-up reminiscent of the days of the O. C. D. (Organization for Civil Defense). Towns not affected by fires mobilized manpower and equipment. Rumors of sabotage and hysteria caused the forming of vigilante groups. Towns maintained 24-hour road patrols, established road blocks, and watches from many vantage points. The state issued special car stickers for entrance to and from restricted fire areas. Look-out towers were manned around the clock on a 24-hour schedule for over two weeks. Even the coastal lighthouses cooperated in this detection work.

The public was so thoroughly aroused to the fire danger that new fires could almost be "ringed" by crews of men. In one instance over 200 men with every conceivable fire tool and equipment converged on a small 2½ acre fire. It would have had to go between the legs of men to escape. Even a septic tank was mounted on a truck and used to haul water.

This vigilance continued until the crisis was over. Welcome rains came on November 8 and brought to an end one of the worst periods of forest fire devastation known in Maine. It is significant to state that man and the facilities at his disposal did

in a large measure bring under control most of the fires before the rains came. In retrospect it should be noted that not a single life was lost among the thousands engaged in actual fire fighting. The reported 16 deaths were due to indirect causes brought about by the fires.

It is especially noteworthy to state that in the Maine Forestry District, where over 10,000,000 acres of vast, wild timberlands are located, having about the same weather and ground conditions, there were no major fires such as occurred in the organized towns. This was probably due to better organization and preparation through centralization since the State Forestry Department has full responsibility and authority for forest fire control. Such authority had been in effect since the creation of the Maine Forestry District in 1909.

In summary, what was the most valuable lesson learned from the disaster? It was the need for centralized control, giving the State Forestry Department full responsibility for the prevention, control, and extinguishment of forest fires in all areas of the state. At the same time a maximum amount of responsibility and authority should remain with each community but with the state having final authority. Another apparent need was for better training of state and town forest fire wardens, more state owned equipment, towers, storehouses, and improved communications by use of radio.

A master state fire plan must be drawn up and maintained, combined with the appropriation of sufficient funds to enable it to function. It should contain the best combined thoughts and ideas of all cooperating agencies and be an expression of what the people of Maine want and are willing to pay, to get adequate forest fire protection.

This report would not be complete without a tribute to the fortitude of the people of Maine during and following the disaster. It is significant to mention that the state as a whole was calm and martial law was not declared. The general spirit of a willingness to help was the best. There were many outstanding accomplishments by towns, state, federal, and private protective agencies. Credit is due all who took part in the protective, relief, and fire control activities. All this support was not enough to prevent disaster. Volunteer public cooperation to control forest fires usually develops only after a disaster has taken place, which is too late to prevent hardship and loss.

INSECT CONTROL

H. B. Peirson, State Entomologist

The work on insect control is divided into four major phases.

First, the state entomologist plans projects, answers several thousands of inquiries, keeps records and gives tree surgery examinations, and handles licenses. An entomology library and insect collection, with card indexes, are maintained.

The second phase of the work covers all research and control projects. At the present time work is being done on the spruce budworm, bronze birch borer, beech scale, balsam woolly aphid, arborvitae leaf miner, yellow-headed spruce sawfly, insects on the burned areas, mosquitoes, and biting flies. A summer field station is located at Salem for work on the bronze birch borer and another is located at Cross Lake in Aroostook for work on the spruce budworm. Survey work is being carried on in connection with the dutch elm disease in southern Maine.

The third phase of work is that of forest insect detection which is handled by six forest insect rangers and by the forest fire wardens. Assistance is received from the licensed tree surgeons of the state. Detection work is basic to all future control projects for it supplies data showing insect conditions throughout the state. It makes it possible to locate outbreaks before they become widespread. It also permits forecasting of possible outbreaks. Although the work of the rangers is directed primarily on the spruce budworm, other forest insect pests are watched for and collected. Light traps scattered through the spruce-fir regions are being used.

The fourth major phase of work is carried on at the laboratory in Augusta. The laboratory is equipped to handle the 2,000 or more field collections and reports sent in each year; also life history studies and the propagation of parasites when needed in the field. The laboratory is also used for research projects on the bronze birch borer, beach scale, and spruce sawfly.

The work of the division is aimed primarily at the control of forest and shade tree insects. It is estimated that over \$3,500,000 worth of timber is destroyed in Maine each year. The purpose of the forest insect work is to locate outbreaks before they become widespread and then do everything possible to control

them. Studies are made on the life history and habits of insects to learn the cause of outbreaks and to find means of prevention through forest management. Control methods are through cutting, airplane spraying, rearing of parasites, and use of insect diseases. Cooperation of timberland and mill owners is essential and this has been freely given.

Many hundreds of inquiries are received each year in regard to insects attacking shade and ornamental trees and shrubs, food, clothing, man, animals, gardens, stored products, lumber, and buildings. Every effort is made to give the latest and best information available. Whenever possible, new methods of control and new insecticides are tried out. Cooperative projects on mosquito and fly control are being carried on.

The public is being encouraged to maintain the health of our valuable shade trees. Well attended meetings, sponsored by the Maine Forest Service and the Maine Arborists Association, were held in Portland and Augusta, and a number of smaller meetings were held in other parts of the state. A meeting of the Federation of Garden Clubs was attended by over 700. There is an ever increasing interest being developed in shade tree problems. Women's organizations throughout the state are cooperating by taking a census of elm shade trees because of the threat of the dutch elm disease. Cities, towns, highway crews, and public utility line clearance crews are all showing more interest in the care of shade trees.

The widespread burns of 1947 have brought on a number of insect problems, some of which cannot be answered without more research. The possibility of planting the burned areas brought up the question of insects destroying the planted stock. Eight planting projects were started to answer this question. Projects were started to find a means of protecting logs from borer attack. Studies were started to determine connection between attack from insects and degree of burn.

During the past two seasons the state has been faced with a number of serious insect and disease problems. To evaluate conditions it is necessary to analyze the two thousand and more reports received from the rangers and wardens together with inspection of areas by the entomology staff and then to compare these with the previous season's records. The following table shows the more important of these:

Insect or Disease	1947	1948	Increase or Decrease
Arbor Vitae Leaf Miners	Generally medium	Generally medium	Same
Balsam Woolly Aphid	Light on coast	Heavy—eastern Maine	I
Beech Nectria	Heavy—west to Moosehead	Heavy—west to Moosehead	I
Beech Scale	Heavy—eastern and central Maine	Heavy—central, northern, western Maine	I
Birch Case Bearer	Light on coast	Heavy—near Owl's Head	I
Black-headed Budworm	Medium—central, northern Maine	Heavy—northern Maine	I
Bronze Birch Borer	Heavy—widespread	Heavy—widespread	I
Forest Tent Caterpillar	Medium—central Maine	Light—central Maine	D
Pales Weevil	Light—southern Maine	Heavy—southern Maine	I
Spruce Budworm	Light—146 towns	Light to medium—181 towns	I
Sugar Maple Borer	Medium on shade trees	Heavy on shade trees	I
White Pine Weevil	Generally heavy	Generally heavy	Same
Wood Borers	Medium—southern Maine	Heavy—southern Maine	I
Yellow-headed Spruce Sawfly	Heavy—Sagadahoc County	Heavy—Sagadahoc County	I
False Mistletoe	Medium—coastal areas	Heavy—coastal areas	I

Detection Service. The forest insect detection service was started in a small way in 1921 through forest fire wardens. With the threat of a spruce budworm outbreak at hand it was realized that the fire wardens could not possibly handle their own work and give adequate attention to the insect detection work. To be effective this work must be continuous and cover as nearly as possible each township in the spruce-fir regions of the state, so that control measures can be started immediately whether it be through use of parasites, airplane spraying, or cutting.

Since 1945 funds have been available to employ six part time forest insect rangers who would give all their time from May until mid-October making insect collections and observations throughout the spruce-fir regions of the state. Each ranger has an assigned district. In his work he contacts wardens, patrolmen, lookout men, and woods operators in his district. Rangers are given a two weeks course of instruction at the laboratory in Augusta each year.

The six districts are roughly as follows:

1. Rangeley and Dead River regions
2. Kennebec watershed and area just north of Moosehead Lake
3. Moosehead Lake through to Patten
4. Washington and Hancock Counties
5. Area east of the Allagash watershed
6. Allagash and St. John River watersheds

Collections are made by placing a six by nine foot sheet of unbleached cotton cloth beneath a tree, beating the branches with a heavy pole and putting the insects that fall on the sheet into a mailing can together with a form which is filled out for each col-

lection. Collections are also made by hand and with pole pruners. These collections and reports are sent to the laboratory in Augusta for identification and recording. In this way a good record of insect collections throughout the spruce-fir regions of the state is maintained. The following table summarizes the collections:

Year	Collections and Reports Made by			Total Collections
	Insect Rangers	Fire Wardens	Others	
1945	476	550	86	1112
1946	655	433	223	1311
1947	1348	580	208	2136
1948	1555	581	206	2342

Inaccessible areas have been covered by plane to observe browning of foliage or dying of trees; suspicious areas have been checked on the ground.

Laboratory. Upon receipt at the laboratory the insect collections and reports from the field are separated into groups by collector and district; the reports are dated, checked, and numbered; the insects or injured plant materials in the cans are then identified and a report of the findings sent to the collector. Each year these collections contain many thousands of specimens and hundreds of species. The identifications are recorded on permanent records so that the data on each species is available for future reference. The larvae are checked for possible disease and parasites. Many of the larvae are reared to get much needed information on the habits, characters, and life history. Larvae are often different after each molt. Most larvae pass through five stages, on each of which information must be assembled. To assist in this identification work and to assist the men working in the field, collections showing the different stages are being built up at the laboratory. A small amount of research work is being carried on in connection with some of the most injurious species. Cooperative projects by the laboratory between the department and the Acadia National Park and the Reef Point Gardens at Bar Harbor have been continued with a survey of both, twice each year. The research plots on beech in Acadia National Park were continued and the annual forest insect report prepared for the park service by Dr. Brower.

Forest and Shade Tree Insects. Although hundreds of different species of insects are received each year, only those which

seem to be of paramount importance are being discussed in this report.

Arborvitae Leaf Miners. *Argyresthia* and *Recurvaria* spp. Four species of these tiny moths are concerned in the attacks on arborvitae, and can be found throughout most of the state. The larvae are present most of the year eating out the scale-like leaves toward the tips of the branches. Noticeable browning has been seen at several places in eastern Maine and in the area from Belgrade west to Wilton. Trees continually attacked appear in poor condition. Severe injury was seen on pasture arborvitae in June 1948 and a handful of branch ends was collected in Belgrade. Although part of the moths had already emerged, the heaviness of this infestation is shown by the fact that from this single handful of tips 561 moths and a considerable number of parasites were reared.

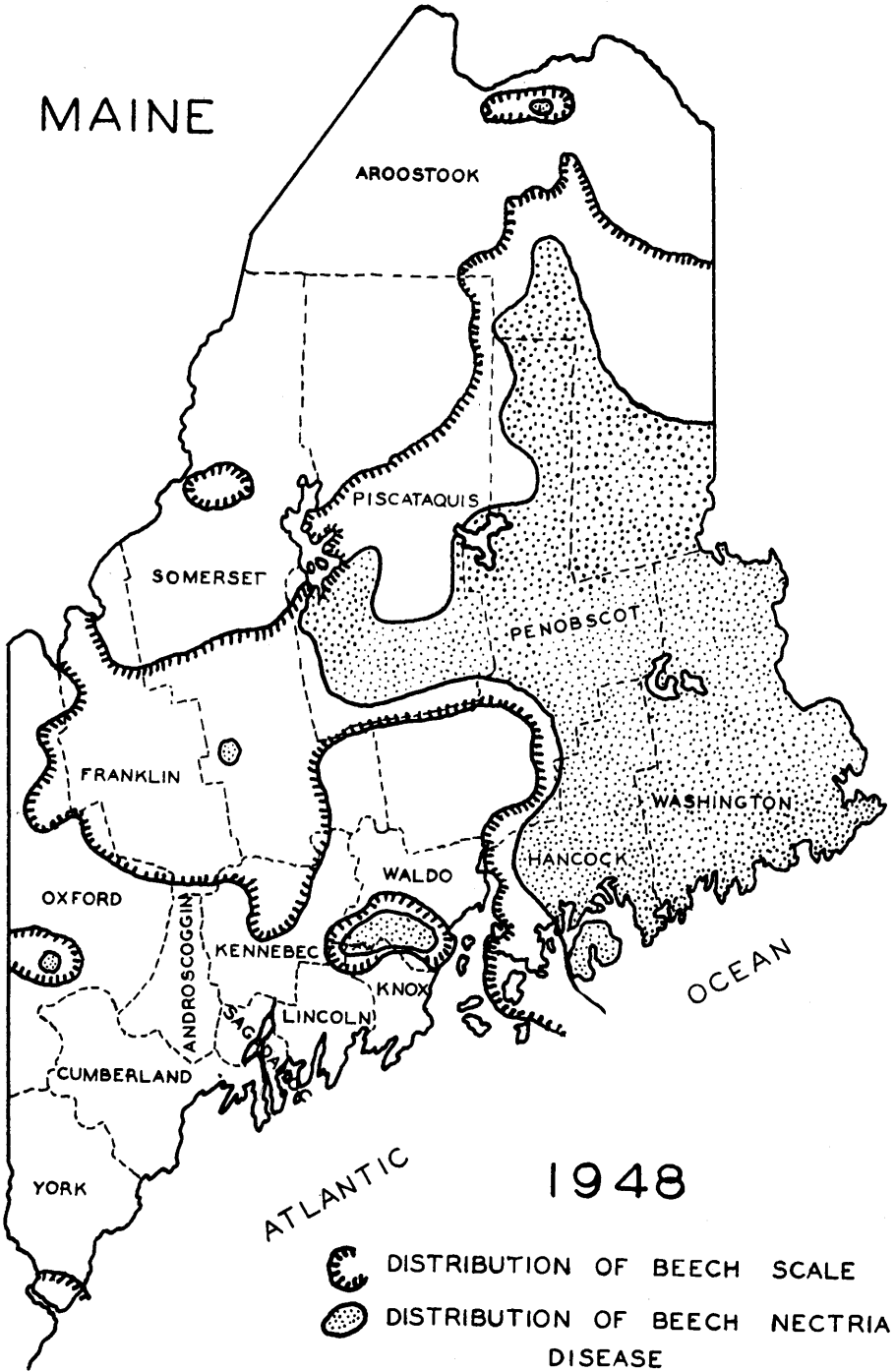
Balsam Woolly Aphid. *Adelges piceae*. This introduced bark-infesting aphid is increasing steadily, and if it is not checked by climatic conditions is going to cause increased destruction of fir. Heavily infested or dying trees have been seen at various places in Washington and Hancock Counties and in Lowell and Phillips. In the area from Stonington and Blue Hill east to New Brunswick and northward through Washington County many reports have come in of heavy infestations, with estimates up to 50% of the trees dead or injured in some areas. Native predatory syrphid fly larvae were found in greater numbers than ever before. This would indicate an increased predatism by native syrphids upon this aphid.

Beech Scale. *Cryptococcus fagi*, has now spread throughout Washington and Hancock Counties, southern half of Aroostook, northern two-thirds of Penobscot, southern two-thirds of Piscataquis, southern half of Somerset, north central part of Kennebec and almost all of Franklin County. Isolated spots are found in northern Aroostook, northern Somerset, southwestern Oxford and in parts of Waldo, Knox, and Lincoln Counties.

A Nectria disease which does the real killing follows areas of heavy scale infestation; this condition is found in over two-thirds of the above localities.

In the fall of 1948 two weeks were spent by the forest insect rangers in an effort to determine the extent of the present out-

MAINE



DISTRIBUTION OF BEECH SCALE



DISTRIBUTION OF BEECH NECTRIA DISEASE

break. The results of their work have been plotted on the previous map. Information received from the fire wardens, insect rangers, and others during 1948 indicates that in the state as a whole 28% of the beech has been killed and an additional 18% is dying. It has been estimated that already over 50% of the merchantable beech has been killed in eastern and central Maine. This is a noticeable increase of dead and dying beech as compared with 1946.

Due to the dwindling supply of birch in recent years there has been an ever increasing demand for the use of beech as a substitute. There is a need for more research studies on the beech scale and the closely associated *Nectria* disease. It is extremely important for landowners to cut areas of beech that are mature and overmature and particularly areas of infested trees to slow down and help prevent its further spread. The twice-stabbed lady beetle *Chilocoris stigma* which feeds on the beech scale is very abundant in some areas.

A cooperative project carried on in cooperation with the National Park Service at Bar Harbor showed that the scale can be held in check on ornamental or valuable clumps of trees by spraying with lime sulphur. A report on this work has been prepared by Dr. A. E. Brower and is to be published.

Birch Casebearer. *Coleophora salmani*. This insect has continued to spread with a new outbreak in the vicinity of Owl's Head and Ash Point south of Rockland. A new infestation had evidently been building up during the past several years and at the present time severe defoliation is taking place on scattered areas involving some 100 acres of white birch. It was first found at Bar Harbor in 1927 and has spread fairly rapidly to the east along the coast. The westward spread has been much slower, although it has been found as far west as Pemaquid. To date the outbreaks in Maine have been confined to coastal stands of birch.

Black-headed Budworm. *Peronea variana*. This insect, which defoliates both spruce and fir, is becoming extremely abundant over wide areas and it is not at all uncommon to be able to collect six hundred or more larvae per tree. There has been an increase of nearly one hundredfold in specimens received at the laboratory in the period between 1941 and 1948. Without care-

ful observation the feeding can be mistaken for that of the spruce budworm. At the present time it is generally more abundant than the spruce budworm. The insect feeds on the developing buds and shoots and when the new growth needles are eaten they may feed on the older needles. Serious damage is confined largely in or near mature balsam stands. The larvae are light green in color with a dark head.

Bronze Birch Borer—See Birch Studies

Forest Tent Caterpillar. *Malacosoma disstria*. This insect which heavily defoliated many thousands of acres of poplar and birch in fifteen townships in northern Maine during 1946 was definitely on the decrease during 1947. This outbreak has been brought under control largely by parasites which were present in great swarms in 1947. However, there was one area near Trout Brook Farm in T. 6, R. 8 and another area near Howe Brook, T. 8, R. 4, where the poplar and white birch continued to be stripped of its foliage. Field inspections made during 1948 indicate that these outbreaks are definitely on the decrease with the parasite population still building up.

Pales Weevil. *Hyllobius pales*. The severe widespread 1947 burns in southern Maine have brought up a number of important insect problems. It has been known for some time that it is not safe to plant pine on freshly cut-over white pine or pitch pine lands due to the ravages of the pales weevil which is attracted to such areas and feeds on the bark of transplants or natural seedlings killing an average of eighty percent of them by girdling. There was no knowledge as to what would happen on cut-over burned areas. In order to get this information the Western Maine Forest Nursery furnished 600 white pine, red pine, and Norway spruce four year transplants which were set out April 23, 1948 on eight sample plots in Fryeburg, Brownfield, Alfred, and Lyman. Test plots in the latter two areas were established and planted in cooperation with the U. S. Forest Service. Various types of age class sites, soils, and original stand species were chosen to obtain as many variations as possible. All plots were on severely burned areas. On each plot ten standing burned trees or stumps were chosen and marked and around these twenty-five of each of the three species of transplants were planted. Plots were examined August 25-26 for summer feeding and November 9 for fall feeding. During 1949 the plots will

again be examined twice to check on further damage to the trees, which is expected. It is evident that overwintering adults hibernating in the soil were not killed by the fire. It is also evident that population of weevils is fairly heavy in all areas where there had been cutting in the vicinity. Plot 8 showed no damage and this seems to be explained only by the fact that there had been no cutting in the vicinity so that there was no population of weevils present. The plots to date show distinctly that no planting of pine or spruce should be done on recently burned white, red, or pitch pine land whether cut over or not. Past experience has shown that cut over pine land should not be planted until the third year, after cutting.

Damage on Pales Weevil Plots During First Year

Plot No.	Location	Type	Percent attacked and killed		
			White Pine	Red Pine	Norway Spruce
1	Lyman.....	White pine cut over after burn...	56	45	0
2	Alfred.....	White pine not cut.....	32	24	12
3	Alfred.....	Pitch pine cut over after burn...	40	12	12
4	Alfred.....	Pitch pine not cut.....	48	40	16
5	Brownfield...	White pine cut over after burn...	48	52	12
6	Brownfield...	White pine not cut.....	56	68	24
7	Fryeburg....	Red pine cut over after burn.....	56	32	16
8	Brownfield...	Pitch pine not cut.....	—	—	—

A plantation of white pine just set out in a freshly cut pine area was sprayed April 28, 1948 with a 12% solution concentration of D.D.T. from a mist blower. An examination on August 25, 1948 indicated that the spray was of little if any value.

Spruce Budworm. *Archips fumiferana*. This is unquestionably the most destructive forest insect in the Northeast, if not in the entire country. Maine's spruce-fir forests have been repeatedly ravaged by this insect and the present outbreak moving into Maine from Quebec again threatens these vast forest resources.

The Maine Forest Service has been working in close cooperation with both Federal and Canadian authorities on the budworm problem. The U. S. Bureau of Entomology has been concentrating on airplane spraying, life history studies, and parasite introduction. The U. S. Forest Service is working on methods of control through forest management. The Canadian government is concentrating heavily on control through parasites, diseases, and forest management. As no recent outbreak has

been found in Maine previous to 1948, the work by the state has been concentrated on detection. On one extensive area near Cross Lake in northern Maine the budworm is now in epidemic numbers. It is also building up in the vicinity of T. 15, R. 9, Ashland, Mt. Chase, T. 6, R. 7, and just north of Moosehead Lake. There are also indications from light trap collections that small flights of moths may be coming into the state as numbers of moths were caught at Oquossoc, Millinocket, and Augusta. The problem in Maine is no longer one of detection alone but must now be broadened to include biological and chemical warfare against the budworm. Since 1943 there has been a steady increase in the spruce budworm population in the state.

The following table gives a summary of the number of towns in which budworm specimens were collected and the number of specimens collected each year:

Year	Towns	Moths	Larvae	Pupae	Pupal Cases	Egg Masses	Total
1941	2	12	—	1	—	—	13
1942	6	18	4	—	—	—	22
1943	3	3	—	—	—	—	3
1944	5	—	4	1	—	—	5
1945	31	21	56	1	—	—	78
1946	49	13	304	—	—	—	317
1947	146	71	424	60	149	—	704
1948	181	128	1123	43	157	218	1669

The plans for the coming season are to intensify the detection work so as to obtain detailed information on outbreaks that may be building up. To do this additional help is needed. The area around Cross Lake must be carefully surveyed for airplane spraying this year. The plans at this time are to spray 20,000 acres in cooperation with the landowners and the Federal Government. It is expected that other areas will require spraying in the coming years. Spraying of 4,200 acres in Oregon in 1948 for the control of the spruce budworm gave excellent results and form the basis for the present planned project in Maine. In addition to this it is planned to start rearing parasites at the laboratory in Augusta. During 1947 and 1948 the following parasites of the spruce budworm were liberated north of Moosehead Lake and at Castle Hill:

1269	<i>Ceromasia auricaudata</i>
247	<i>Madremyia saundersii</i>
300	<i>Phytodietus fumiferanae</i>
300	<i>Agria affinis</i>

These parasites were furnished by the U. S. Bureau of Entomology, the first two being liberated north of Moosehead Lake

approximately on the town line between T. 6, R. 15 and T. 6, R. 16.

Sixty permanent observation plots have been established by the rangers which are examined in detail each year for spruce budworm population. Twenty light traps are run during July.

Sugar Maple Borer. *Glycobius speciosus*. During the past two years this insect has become particularly abundant and destructive to ornamental and shade trees. A general slowing up in growth of sugar maples, brought out by increment studies, has weakened the trees making them more susceptible to borer damage. Reports of dying maple in the forests appear as yet unfounded.

White Pine Weevil. *Pissodes strobi*. During 1947 this insect was found to be relatively light in northern Maine but very much heavier south of Lincoln. In 1948 extensive damage was done to plantations of white pine and Norway spruce and to natural reproduction of white pine and red spruce throughout the state. Within the last four years there has been an evident increase of this insect in the spruce regions of the state where it is attacking red spruce in some areas quite heavily. There is real need of more research work on control of this insect which greatly lowers the timber value of trees by killing the leaders causing forked bushy trees.

Wood Borers. The severe burns of 1947 have greatly intensified the danger from wood borers due to the large amount of dying timber left standing in the woods. Some of this timber is now being attacked by wood borers and bark beetles. The fire destroyed a large part of the normal population which was living in slash so that it is expected that the population of wood borers which was relatively light the first year following the fire will increase rather rapidly in the next few years.

In cooperation with the Shell Oil Company two experiments were carried on in Alfred spraying three stacks of piled pine logs with a twelve percent solution of D.D.T. by means of a mist blower. These logs were sprayed June 2, 1948 before any adult beetles had appeared. The spray was applied at the rate of one pint per cord. The spray went completely through each pile of logs so that there was good coverage.

The first two stacks of pine logs were located in a new mill yard bordering on the fire area. One stack consisted of 46 logs,

average diameter 11 inches, average length 18 feet. The second pile had 56 logs, average diameter 11 inches, length 12-16 feet. Similar check piles were established. These logs were carefully examined on August 25 and no borers or bark beetles were found in the sprayed logs. A very small number of round headed borers and bark beetles were found in the check piles.

The third set of sprayed logs were located in a mill yard where sawing had been going on for many years and which was out of the fire area. This pile had forty-seven logs, average diameter 14", length 12-18 feet. On August 25 an examination of this pile showed practically all logs to be heavily infested with round headed borers. The results would indicate that the spray was not effective.

A stand of burned pine was also sprayed with a twelve percent D.D.T. mist but results were inconclusive as neither the sprayed nor check areas were attacked.

In an Alfred plantation a flat-headed borer was found tunneling in the stems of four year old red pine transplants. These were identified as a species of *Chrysobothris*. The larvae on August 26 were nearly half as large in diameter as the stems of the pine.

Yellow-headed Spruce Sawfly. *Pikonema alaskensis* (Roh.) was first recorded in Maine at Readfield in July of 1934 by Mr. Nash of the Maine Forest Service. By 1939 this spruce defoliator was found to be well distributed over the entire state and in more recent years has been of economic importance to ornamental plantings, plantations, and to spruce trees growing in the open or along the edges of stands. At no time has there been any record where the larvae were found attacking closed spruce stands.

In 1947 this insect was called to our attention when an area of serious infestation was found in Phippsburg and Georgetown along the coast. A close inspection showed that the red spruce on 300 acres were heavily defoliated and an additional 1,200 acres were found to have a light to medium infestation. This is the first record of this sawfly causing defoliation and killing of stands of timber sized spruce. On one of the heavily defoliated areas well over 75% of the spruce has already been killed including trees 40 to 50 feet in height. An outbreak of this kind

could be very serious and has the possibility of spreading throughout the spruce areas along the coast of Maine.

Following the detection of this outbreak entomologists of the Maine Forest Service made surveys and mapped the infested areas. During the fall of 1947 and during the spring and early summer of 1948 cocoon, adult sawfly, and larval collections were made. In 1947 what appeared to be a wilt disease destroyed a high percentage of the larvae. In 1948 no signs of disease was found and the sawfly was present in large numbers and there was a definite lack of normal parasites. Collections of eggs made during the last of June and early July, indicated that there would be a medium to heavy infestation of this sawfly which would involve some 1,500 acres of spruce. At this time Mr. J. V. Schaffner, Jr., of the U.S.D.A. Bureau of Entomology, visited the infested areas and it was found that due to the late spring of 1948 the normal life cycle of this sawfly was greatly retarded. A cooperative airplane spraying program was carried out during the second week of July at which time the sawfly was in the early larval stages.

Through the cooperation and donations of individuals and through funds received from Georgetown, Phippsburg, Maine State Park Commission, and the Maine Forest Service it was possible to spray 700 acres of infested spruce between July 8 and July 13. At the same time an additional 727 acres were sprayed by the U.S.D.A. Bureau of Entomology. Due to the lack of funds it was impossible to cover all of the spruce areas in the vicinity. Therefore, spruce areas only slightly attacked, or nearby areas where the sawfly was not found, were not sprayed.

Eleven experimental plots were selected which had natural boundaries ranging from 10 to 150 acres in size. These areas were sprayed by an experienced pilot from the Division of Forest Insects Investigations, Bureau of Entomology. The plane used was fully equipped with special tanks and spray nozzles which were arranged along a boom located directly under the lower wing of the plane and on either side of the fuselage. Helium filled balloons were used to mark the 120 foot swaths in all of the larger plots wherever natural landmarks were not available for the pilot to orient himself. Short wave radio equipment was used to contact men in the field with the pilot at the airport. This equipment was operated by several men from the

Beltsville Station of the Division of Forest Insects Investigations and proved only partially effective.

The D.D.T. solvents and solutions used in the experimental spraying were prepared at the Brunswick Airport in a power mixing machine operated by a man from the Division of Gypsy and Brown-tail Moths Control, U.S.D.A. At the time of the spraying exact quantities of the spray material were measured by a meter as they were pumped directly from the mixing machine into the plane. By this method the pilot knew exactly what he was carrying and was in a position to apply the desired amount of spray to an individual experimental plot.

Collapsible 3' x 3' cloth trays which were developed by the New Haven Station were placed on each plot just previous to the spraying. These trays were placed under spruce trees which showed evidence of feeding so as to catch samples of dead larvae and larval excrement which dropped. A card with a square inch hole cut in the center was used as a measure in counting the excrement pellets. This card was moved from place to place on an individual tray so as to determine the average number of pellets showing within the square inch hole. This data was collected for a period of two weeks following the spraying and determined the success of the various spray treatments as based on the number of dead larvae found on the trays and the decrease or increase of the larval excrement.

Good control was obtained on most of the 700 acres sprayed with one pound of D.D.T. in one gallon of fuel oil per acre. On the remaining areas, 464 acres were sprayed with one-quarter pound of D.D.T. in one-half gallon of fuel oil, 65 acres with one-half pound of D.D.T. in one gallon of fuel oil, 123 acres with three-quarters pound of D.D.T. in one and one-half gallons of fuel oil, and 75 acres with one-half pound of D.D.T. in one gallon of water emulsion. The results of these lower dosages showed that the infestation has been slowed down but there is still a rather heavy population in several localized areas.

The results of this year's spraying has made it evident that increased dosages must be used to obtain the desired coverage on trees with long crowns. Due to the fact that there did not seem to be any disease present in 1948, and also as the parasite population still appears to be light, it is certain that some spraying will have to be carried out in 1949, using one pound of D.D.T. in

one or two gallons of fuel oil per acre. This additional spraying should give good control on all areas and will prevent continued defoliation of the spruce.

The Maine Forest Service expects to continue this study and control of the Yellow-headed Spruce Sawfly during the spring and summer of 1949 in cooperation with the towns of Phippsburg and Georgetown. (Report by Joel W. Marsh.)

General Forest and Shade Tree Insects. Large numbers of insects are received each year for identification. Only the more common of these are listed.

Host and Insect	Locality Affected	Status	Injury
Beech Beech Leaf Tyer <i>Psilocorsis faginella</i>	Coastal and eastern Maine	Increase	Skeletonizer
Birch Argid Sawflies <i>Arge</i> sps.	General	Low except in northern Maine	Defoliation
Birch Leaf Miner <i>Fenusa pusilla</i>	General	Abundant	Leaf Miner
Birch Leaf-mining Sawfly <i>Phyllotoma nemorata</i>	General	Increase	Leaf Miner
Rusty Birch Leaf-beetle <i>Syneta ferruginea</i>	General	Increasing	Defoliation
Elm Elm Flea Beetle <i>Haltica ulmi</i>	Central and southern Maine	Medium	Defoliation
Elm Leaf Beetle <i>Galerucella xanthomelaena</i>	Central and southern Maine	Medium	Defoliation
Fall Webworm <i>Hyphantria texor</i>	General	Medium	Webs and defoliates
Spring Canker Worm <i>Paleacrita vernata</i>	Livermore Falls	Heavy	Defoliation
Hemlock Hemlock Looper <i>Elloppia fuscicollaria</i>	General	Increasing	Defoliation
Hemlock Web Worm <i>Recurvaria apicitruncellata</i>	Southern Maine	Increasing	Webs and destroys needles
Juniper Juniper Webworm <i>Dichomeris marginella</i>	Coastal	Heavy	Webbing
Locust Locust Borer <i>Megacyllene robiniae</i>	Scattered	Heavy	Bores in trunks
Maple Maple Bladder Galls <i>Vasates quadripedes</i>	Scattered	Medium	Galls on leaves
Mountain Ash Mt. Ash Sawfly <i>Pristiphora geniculata</i>	General	Heavy	Defoliation
Oak Oak Twig Pruner <i>Hypermallus villosus</i>	Eastern and central Maine	Medium	Cuts off twigs

Host and Insect	Locality Affected	Status	Injury
Pine			
Pine Bark Aphid <i>Pineus strobi</i>	General	Abundant	Sucking insect
Pine Needle Scale <i>Chionaspis pinifoliae</i>	Central and southern Maine	Medium	Foliage of ornamentals
Pine Spittle Bug <i>Aphrophora parallela</i>	General	Heavy	Sucking insect
False Pine Webworm <i>Lyda</i> sp.	Bowdoinham	Heavy	Defoliation
White Pine Sawfly <i>Neodiprion pinetum</i>	Southern	Medium	Defoliation
Twice-marked Looper <i>Semiothisa bisignata</i>	General	Medium	Defoliation
Spruce and Fir			
European Spruce Sawfly <i>Gilpinia hercyniae</i>	General	Decreasing except in Washington County	Defoliation
Balsam-fir Sawfly <i>Neodiprion abietis</i>	General	Increased	Defoliation
Greenheaded Spruce Sawfly <i>Pikonema dimmocki</i>	General	Unchanged	Defoliation
False Sawflies <i>Lyda</i> sps.	General	Unchanged	Defoliation
Northern Smoky Moth <i>Lexis bicolor</i>	General	Increasing	Defoliation
Spruce Tufted Caterpillar <i>Panthae acronyctooides</i>	General	Unchanged	Defoliation
Chameleon Caterpillar <i>Anomogyia elimata</i>	General	Decrease	Defoliation
Fir Harlequin <i>Elaphria versicolor</i>	General	Increasing	Defoliation
Phalaenid Larva <i>Zanclognatha</i> sp.	General	Unchanged	Defoliation
Spruce Harlequin <i>Palthis angulalis</i>	General	Increasing	Defoliation
Rusty Tussock Moth <i>Notolophus antitqua</i>	General	Unchanged	Defoliation
Grey Spruce Tussock Moth <i>Olene</i> sps.	General	Unchanged	Defoliation
Brown Spruce Looper <i>Eupithecia palpata</i>	General	Unchanged	Defoliation
Fir-needle Inchworm <i>Eupithecia luteata</i>	General	Unchanged	Defoliation
Transverse-banded Looper <i>Hydriomena divisaria</i>	General	Unchanged	Defoliation
Green Spruce Looper <i>Semiothisa granitata</i>	General	Unchanged	Defoliation
Pine Measuring Worm <i>Paraphia piniata</i>	General	Unchanged	Defoliation
Dotted-line Looper <i>Protoboarmia porcelaria</i>	General	Unchanged	Defoliation
False Hemlock Looper <i>Nepytia canosaria</i>	General	Increasing	Defoliation
Grey Spruce Looper <i>Caripeta divisata</i>	General	Unchanged	Defoliation

Host and Insect	Locality Affected	Status	Injury
Spruce and Fir—Cont. Spruce Cone Worm <i>Dioryctria reniculella</i>	General	Some increase	Defoliation
Spruce Needle Miner <i>Taniva albolineana</i>	General	Low numbers	Mines needles
Spruce Bud-moth <i>Zeiraphera ratzeburgiana</i>	General	Slight increase	Defoliation
Yellow-headed Spruce Bud-worm <i>Zeiraphera fortuneana</i>	Northern Maine	Slight increase	Mines buds and tips
Spruce Webworm <i>Epinotia nanana</i>	General	Common	Mines and webs Needles
Fir Tortrix <i>Tortrix packardiana</i>	Northern Maine	Small numbers	Defoliation
Fall Spruce Needle Moth <i>Argyrotaenia lutosana</i>	General	Unchanged	Defoliation
Red Spruce-leaf Miner <i>Recurvaria piceaella</i>	General	Increasing	Mines needles
Large Spruce Weevil <i>Hypomolyx piceus</i>	General	Unchanged	On twigs
Aphids <i>Aphididae</i>	General	Abundant at present	Suck sap of fir and spruce
Gall Aphids <i>Adelgidae</i>	General	Unchanged	Form galls on spruce
Balsam Gall Midge <i>Cecidomyia balsamicola</i>	Scattered	Heavy in 1947	Swelling of needles
Fir Tip Borer <i>Pleuoneura borealis</i>	Rangeley	Decrease	Kills new shoots

Tree Diseases

Dutch Elm Disease. This serious threat to our elm shade trees has rapidly been moving across New England toward Maine from the south and across Quebec toward our northern borders and may already be present in the State. On the south it has been found within twenty-five miles of the border and on the northwest within thirty-two miles. The disease is spread by two species of elm bark beetles—the American and the European. In order to be effective, control measures must be started immediately when the disease appears. This means that thorough scouting must be carried on. No funds have been available for this type of work to date so the department has had to depend upon educational meetings and the help of licensed tree surgeons. Regional meetings have been held in Portland and Augusta and two meetings in Boston.

The garden clubs of the state have done a splendid piece of work in taking a census of the number of elms in thirty-seven cities and towns to date. It is hoped that this coming year the work can be continued so as to cover the state. It is estimated

that there are at least 135,000 elm shade trees in Maine, probably valued at one hundred dollars apiece, and 6,750,000 forest growing elm trees.

As bark beetles which carry the disease are particularly attracted to weakened trees it is highly essential that everything possible be done to improve and maintain the health of our elms. Through talks and newspaper articles people are being told how best to do this.

Willow Scab Fungus. *Fusicladium saliciperdatum*. This disease continues to kill many trees in the state and was particularly heavy in northern and central Maine.

Winter-killing and Sunscorch. In the spring of 1948 warm dry winds drew the moisture out of large numbers of evergreens at a time when the roots were frozen so that they could not resupply lost moisture. The consequences were that many evergreen stands were severely browned just as if scorched by fire. This situation was further aggravated by the dry fall of 1947. *Arborvitae*, hemlock, and white pine suffered the most.

During the summer of 1948 the foliage on many maple trees were quite severely scorched on the south side due to excessive evaporation of water from trees that were weakened by the previous drought.

Eastern Dwarf Mistletoe. *Arceuthobium pusillum*. This parasitic plant has killed a great deal of red and white spruce in the area from Boothbay Harbor to Pemaquid particularly on the points of land and the islands off the coast even as far out as Monhegan. The infestation shows up as large bushy masses of branches which eventually involve the entire tree. These masses die in a few years as the minute parasitic mistletoe plants drain the life of the tree. Cutting of infested trees is being advised in these areas to check the spread of the infestation.

Insects and Other Pests Found in Buildings

Each year approximately six hundred requests were received requesting help in identifying and controlling insects found in houses, stores, and factories.

Frequent calls were received in regard to insects swarming in houses which prove to be beetles coming out of stored cord or firewood. Three very common species are the Ash Bark Beetle, *Leperisinus aculeatus*. Pine Wood Borer, *Neoclytus muricatulus* which attacks pine and spruce, and the Round-headed Beech Borer, *Phymatodes testaceus*. Many calls for assistance were re-

ceived in regard to other pests such as mice, rats, squirrels, bats, spiders, sow bugs, centipedes, and ticks, which invade houses and camps.

A few of the more common insects feeding in buildings are listed below :

Insects Attacking Household and Stored Products	Locality Affected or Reported	Infestation	
		Status	Type of Damage
Ants (house) (Several species)	General	Common	In houses
Ants <i>Crematogaster lineolata</i> near variety <i>cerasi</i>	Ogunquit	Heavy. First record in Maine	Swarming from wood-work in camp
Black Carpenter Ant <i>Camponotus herculeanus pennsylvanicus</i>	General. Mostly central and southern Maine	Common	Tunneling and destruction of building timbers
Bean Weevil <i>Acanthoscelides obtectus</i>	Mostly central and southern Maine	Common	Injury to dry beans
Bed Bug. <i>Cimex lectularius</i>	General	Local reports	Bites humans
Blow Flies	Augusta	Swarming	In houses
Carpet Beetles (Three species)	General	Common	Destruction of woolen goods
Clothes Moths (Two species)	General	Common	Destruction of woolen goods
Cockroaches (Three species)	General	Common in municipal buildings	Attracted by food waste
Confused Flour Beetle <i>Tribolium confusum</i>	Mostly central and southern Maine	Common	Found feeding on flour, grain, meal, etc.
Crickets	General	Occasional	Feeding in houses
Fleas (Cat and Dog)	General	Common with presence of cats and dogs	Troublesome house pest
Fruit Flies <i>Drosophila repleta</i>	Portland	In January	Swarming in house
Indian-meal Moth <i>Plodia interpunctella</i>	General	Common	Infesting dry food products
Larder Beetle <i>Dermestes lardarius</i>	General. Mostly central	Common	Animal food products
Mites (Bird)	Portland, Gardiner, Augusta, Old Orchard	Fairly common	Getting into houses and buildings from nests and biting people
Powder Post Beetles (Several species)	Mostly central and southern Maine	Common	Tunneling and destruction of timbers, furniture, and wood products
Saw-toothed Grain Beetle <i>Oryzaephilus surinamensis</i>	General. Mostly central and southern	Common	Feeding on dry food-stuffs
Silverfish (Two species)	General	Common	Feeds on starched paper and cloth goods
Strawberry Root Weevil <i>Brachyrhinus ovatus</i>	Central	Occasional	In houses
Wasps	General	Common	In houses
Yellow Mealworm <i>Tenebrio molitor</i>	General. Mostly central	Common	Feeds on meal, flour and exposed food stuff

Miscellaneous Insects and Pests

Many requests are received each year in regard to insects attacking vegetable and flower gardens, lawns, shrubs, and vines. Moles have been quite troublesome in lawns. At Christmas Cove the upper third of ten to fifteen foot high balsam trees were almost entirely stripped of bark by squirrels even to the small branches. The trees were in a fairly heavy stand of spruce. Considerable experimentation with good results have been carried on using Ammate and 2-4-D to control poison ivy and stag-horn sumach. The 2-4-D is also being tried out on ground juniper.

Green-headed Flies, Mosquitoes, Midges, and Black Flies. Many calls for assistance are received each year in regard to methods of controlling these biting flies. The green-headed fly *Tabanus nigrovittatus* is becoming quite troublesome at Popham and Prouts Neck. Work has been started to make a study of breeding places and best methods of control, as spraying to date has not been too successful. The use of fog machines to eradicate flies and mosquitoes in camp buildings, mist blowers for treating wooded areas around camps, and airplane spraying to treat breeding places in marshes and swamps is becoming quite common. A number of concerns are specializing in this work. Considerable airplane spraying was done in 1948 around summer vacation resorts. Damage to bees, gardens, and fish was reported but checks indicated that the damage was over exaggerated and was not wholly the fault of the spraying. In the case of fish reported as being killed by spray it was found that damage was really caused by people exploding fireworks in cans thrown in the water the previous day.

There is a great deal of interest in mosquito control along the coast. In order to be sure that no damage was done to clams on the extensive clam flats which are adjacent to mosquito breeding places a cooperative project was arranged with the Sea and Shore Fisheries Department. This was carried out by Gordon Tower of this department and Dana Wallace of the Sea and Shore Fisheries Department.

The following report prepared by Gordon Tower summarizes the work to date:

Effect of DDT on Clams

There is an increasing public demand to have coastal areas sprayed with DDT by either ground blower machines or by airplane to control mosquitoes, black flies, midges, and green-headed flies.

Following several sprayings which took place during 1946 there was some talk that the DDT was killing clams along the coast. Therefore, during the spring of 1947 representatives from the Maine Forest Service and from the Sea and Shore Fisheries decided that plots should be established and various concentrations of DDT used to determine whether there was any detrimental effect on clams.

On May 1, seven experimental $\frac{1}{4}$ acre plots were established on the clam flats at Mussel Cove, Falmouth. Each plot was square with 104 feet 4 inches on a side. Corner stakes were established with permanent stakes and landmarks located on the shore for relocation purposes.

On May 2 a square yard was marked with stakes in each of plots No. 4 and No. 5 and in each of these areas the ground was turned over and all clams, living or dead, were removed. The surface of the dug areas was leveled and suitable live clams were measured and counted before being replaced with their digging ends down. The following two days gave every clam time to have the opportunity to dig down to its normal position in the sand. Each plot was also divided into 12 square-foot sections plus a center section.

On May 5 plots 1, 2, 3, 5, 6, and 7 were sprayed with various concentrations of DDT and solvents; No. 4 was left unsprayed for a control plot. These plots were visited on May 10 and May 15 when clams were dug, counted, and measured in the square-yard replanted sections. Further digging and measurements were made in the foot-square sections which were chosen at random in each of the seven plots.

The table following shows the concentrations of DDT and solvents that were used in each of the seven $\frac{1}{4}$ acre plots; also the percentage of the recently dead clams found:

Plot No.	Concentration and Solvent Used	Percent of Recently Dead Clams	
		5th Day	10th Day
1	1 pt. PD544C (Socony Solvent) plus 5% DDT on $\frac{1}{4}$ acre Rate: 0.2 lb. DDT per acre	0.0%	0.3%
2	2 pts. PD544C (Socony Solvent) plus 5% DDT on $\frac{1}{4}$ acre Rate: 0.4 lb. DDT per acre	0.0%	0.2%
3	5 Pts. PD544C (Socony Solvent plus 5% DDT on $\frac{1}{4}$ acre Rate: 1.0 lb. DDT per acre	0.2%	3.4%
4	Control Plot—No Application	6.3%	7.5%
5	2 pts. Mistoil D12 (Shell) on $\frac{1}{4}$ acre Rate: 1.0 lb. DDT per acre	4.6%	1.7%
6	2 pts. PD544C (Socony Solvent) on $\frac{1}{4}$ acre Rate: 1 gallon of Solvent per acre	0.0%	2.2%
7	2 pts. PD544C (Socony Solvent) on $\frac{1}{4}$ acre Rate: 1 gallon of Solvent per acre	1.1%	3.6%

The total number of alive and recently dead clams that were dug at the end of the five-day period, from all plots and sections, was 495 with 11 recent deaths which gave a mortality rate of 2.2%. At the end of the ten-day period, there was a total of 535 clams and 19 recent deaths which gave a mortality rate of 3.5%.

These experiments indicate that concentrations of DDT from 0.2 to 1.0 lbs. per acre do not have any visible effect on the growth of clams for a period of 10 days following the spraying; although, there may be an accumulative effect from repeated applications. The recommended applications of DDT for mosquito control comes within the above concentrations and therefore may be used safely without any apparent immediate effect on the mortality of clams.

Further work is planned in 1949 to study the effects of DDT on the free swimming stages of both clams and lobsters. This is to be carried on under controlled laboratory conditions.

Tree Surgery

The present tree surgery law was passed by the legislature in 1933 and has proved beneficial in raising the standard of work being done on our shade trees. To date 296 men have taken the examination and 255 have been granted certificates. As of February 1, 1949 there are 117 now holding certificates. Part of these hold complete certificates covering spraying, pruning, and cavity work; and part limited to one or two phases of tree work. During the past two years only two licenses were revoked as the result of poor work.

The licensed tree workers of the state have an active organization known as the Maine Arborists Association. During the war years this organization was inactive but was revived in 1948. One meeting was held in Portland in the spring and another in Augusta in the fall. A 1949 spring meeting is now being planned. At these meetings specialists in various phases of tree protection are invited to talk to the men and in this way keep them posted on new developments. Special emphasis is now being given to the Dutch Elm Disease and new methods of spraying using mist blowers and airplanes. These meetings have been open to others interested in tree protection such as municipal authorities and garden club members.

The use of the airplane in spraying for forest and shade tree insects, as well as for black flies and mosquitoes, has brought about a need for revision in our present law. It is planned to increase fees so as to have funds for better carrying out of the law.

Publications

- (1) Suggestions for Mosquito Control around Camps. G. C. Tower. Maine Forest Service Circular No. 7. 1947.
- (2) Beetle in the Birch. H. B. Peirson. Reprinted July, 1947 from American Forests, Vol. 53, No. 7.
- (3) Bronze Birch Borer Project. R. W. Nash. December, 1947. Mimeograph.
- (4) The Balsam Woolly Aphid in Maine. A. E. Brower. Reprinted January, 1948 from Journal of Economic Entomology 40: (5): 689.
- (5) Pruning of Roadside Trees. J. W. Marsh. April, 1948. Mimeograph.
- (6) Forest Insect News Letters. H. B. Peirson. 1947-48. Sent out monthly or bi-monthly April to December. Mimeograph.

STUDIES OF BIRCH

R. W. Nash

One major part of the program of the division of entomology of the Maine Forest Service in the past biennium has been the study of the underlying causes of dying yellow and white birch. This followed preliminary work by the division which was started in 1941 subsequent to the first evidence of trouble in the state in 1939. Sixty percent of the birch in the state is now estimated to be dead with twenty percent of the remaining birch in a dying condition. Damage of at least the same severity occurs in New Brunswick, and to a lesser degree west to New York State. One large hardwood operating company ceased operations in northern Maine due to the lack of suitable birch. Mills are experimenting with southern woods, and are faced with increased hauling distances, lower quality and size of birch, and the need for substituting other species for birch at consequent lowered unit production. Findings and recommendations have been set forth in reports of the department from 1942 to 1947.

Present Birch Resource and Outlook

While the merchantable birch supply is in a precarious situation, the picture is by no means hopeless. With 1943 estimates of original stands of 2,351,298,000 board feet of yellow birch (now estimated 60% dead) and 3,846,809 cords of white birch (now estimated 63% dead) there should remain 940,519,200 board feet of yellow birch and 1,423,300 cords of white birch. These estimates do not take into account growth or cut since 1943.

The seriousness of the situation is intensified by the fact that major loss is in the large mature trees; young or vigorous stands are mainly coming through well. In eastern Maine where damage first started in the state, birch is in general healthier than in other badly damaged sections. Permanent plots in that section, however, show a continuance of damage. New Brunswick officials say that the dying has slackened in their northern areas. Damage occurred there before it did in Maine. In 1947 there was an indication of some improvement in the situation; 3.2% of the trees on the sample plots showed an improvement in their crown condition. In 1948 this situation became further apparent with a rise to 11% of the trees improving. This along

with other facts obtained from the detailed plot data shows indications of an easing off of the situation which gives all concerned a good incentive for continuance of an aggressive program on birch problems.

Cooperative Funds

The Maine Hardwood Manufacturing Association deserves much credit for their joint support with the state in the study of birch problems during the past two years. Reports concerning the serious loss of birch and the need for research work were made by the department and the Hardwood Association to the 1947 Maine legislature, which appropriated to the department for each of the two years July 1, 1947 - June 30, 1949 a maximum of \$10,000 to match funds raised by the association, which raised and turned over to the state \$6,000 for 1947-1948 and \$6,500 for 1948-1949, with more expected. There were contributions, particularly in the latter year, by landowners, especially the large pulpwood companies, and from the Wood-Turners Service Bureau, Boston.

The Association gave support in 1945 and 1946 to our work on birch and financed a publicity program to better acquaint woods owners with the situation.

Program

The present study, as set up, had two major goals: (1) to find all factors involved in the present severe damage to both yellow and white birch, the extent and continuance of damage, and the finding of remedial measures; (2) to find means most favorable to the maintenance and regeneration of birch stands—this being of importance to offset the damage and the increased demand for birch.

Extent and Continuance of Damage

Although the seriousness of the birch situation is still apparent with rough estimates by the fire warden force of the department showing an increase in the amount dead, the sample plots this year for the first time indicate an easing off of the damage. This was supported in more than one case in the data as shown in summary table 1. Table 2 shows injury by classes in all plots, pointing out the downward trend in injury from the dominant to the suppressed class. The large, overmature and

non-vigorous trees, mainly in the dominant and co-dominant classes, have suffered the severest damage although plots show that in the regions of older damage, trees that were originally in the intermediate and suppressed classes are fast catching up in the percentage dead. This is indicated in the gains shown in the column “% trees with increased injury.” Exceptions to these statements are of course found. There are thirty-eight quarter-acre plots established, comprising nearly two thousand trees.

TABLE 1
SUMMARY OF DAMAGE TO BIRCH

	Permanent Study Plots					Fire Warden Estimates Averaged			
	% trees damaged	% trees severely injured	% trees dead	% trees with increased damage	% trees with improved condition	Yellow	Birch	White	Birch
						Dead	Dying	Dead	Dying
1943	58.1	—	—	—	—	18.7	26.6	19.8	23.8
1944	64.0	—	—	—	—	30.2	25.6	33.8	19.4
1945	75.7	—	—	—	—	37.3	31.1	41.5	26.9
1946	78.6	42.1	21.0	19.4	—	49.6	26.9	51.5	24.5
1947	82.8	45.5	25.6	20.0	3.2	59.9	23.8	58.9	22.8
1948	79.9*	48.1	29.4	16.4*	11.1*	60.4	23.8	63.3	20.9

*Indication of improved situation.

The percentage of trees dead on the permanent sample plots should be the better indication of trends because it is based on the same trees each year.

TABLE 2
CROWN CLASSES AND BIRCH DAMAGE

Crown Class	% trees damaged	% trees severely damaged and dead	% trees dead	% trees with improved condition	% trees with increased injury
Dominant.....	71.1	38.9	22.3	11.7	12.8
Co-dominant.....	66.0	30.9	17.3	7.7	17.2
Intermediate.....	55.3	30.4	18.6	8.8	21.8
Suppressed.....	49.7	26.6	13.6	10.5	21.1

The damage is most severe in eastern and northern Maine and westerly in the central portion through the Jackman-Bingham region to Rangeley and the New Hampshire line. Damage does vary considerably within this region as shown particularly in the Moosehead section by figures which the Hollingsworth and Whitney Co. showed us from their cruises. In the southwestern section, generally south of Rumford and Bethel, the damage is present but much lighter than in the other sections.

Causes

The actual cause or more probable multiple causes of the depredations of birch have proved to be very complicated and not easy of definite explanation. Until a virus was found, lately, to be associated with dying of trees, the only organism found involved was the beetle known as the bronze birch borer. For that reason a major part of the time has been spent on this insect. At the same time other possible causes have been investigated. The following summary of our work should help in the explanation of the complications encountered.

1) **General:** The first studies in 1941 and 1942 showed that there was some factor adverse to normal tree growth during the 1930's, as shown in examination of four hundred increment cores of birches and other trees. This phase was gone into in more detail in 1947 by obtaining two thousand increment cores and examining them.

Summaries of increment for all species studied is shown in plate 1, "growth retardation." The pattern is remarkably similar for all species, showing a definite downward trend from the early thirties through 1936 and 1937. Hardwoods then showed some recovery later followed by further downward trends. The fact that the softwoods showed the same trends during the 1930's seems more significant in view of the fact that all the hardwoods showed increases in 1947 while the softwoods showed decreases. Recent studies of yellow and white birch show that both decreased in growth in 1948.

The general downward trend in all tree growth indicates some common adverse factor, not a condition peculiar to the birches. Hence, climatic conditions would appear to be involved. Periods of sub-normal precipitation, especially during the growing seasons, have been general since the early thirties. Low winter temperatures and late spring freezes after new growth of trees started have also occurred. The winters of 1933, 1934, and 1935 were exceptionally severe. Low record temperatures in the winter of 1942-1943 were apparently responsible for light to severe killing back of some trees, particularly beech and white oak. The effect of late spring freezes has been most apparent from the killing back of the new growth of conifers in several of the last twenty years. However, on May 26, 1936 a severe freeze over the state generally killed new foliage and shoot growth which

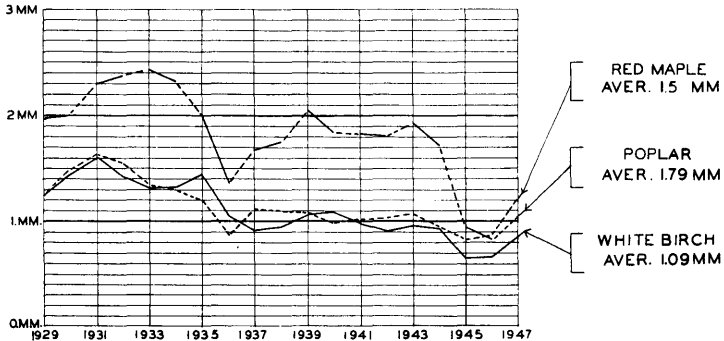
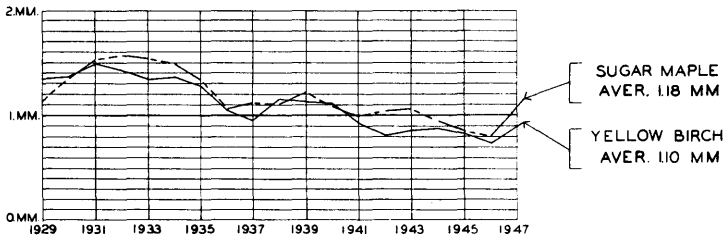
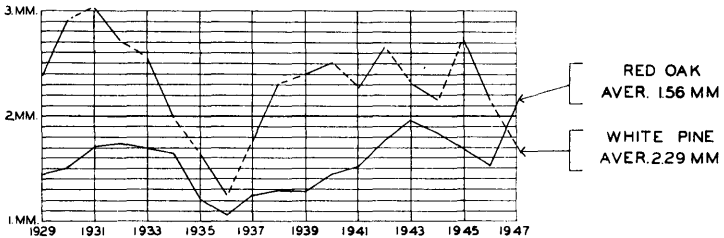
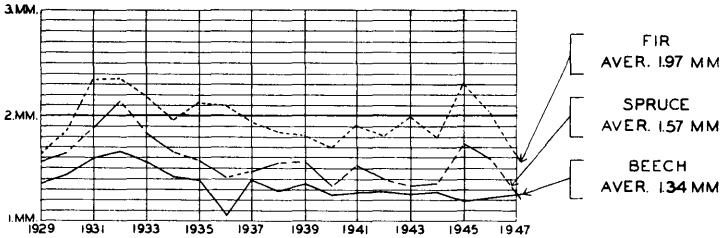
GROWTH RETARDATION IN FOREST TREES

ANNUAL RADIAL INCREMENT AND AVERAGES

1929 - 1947

IN MILLIMETERS

1 MM. = .039 INCH



was well started on the hardwoods. Similar damage occurred in 1944 and 1945. These factors would have a serious and lasting effect when coincident with other adversities.

During the thirties, birches were subject to widespread outbreaks of defoliating insects which reduced growth and no doubt lowered their resistance.

Other further factors are that birch had become dominant and overmature over large sections of the state due mainly to removal of other species, inaccessibility, and lack of markets. The net result has been an abundance of trees low in general vigor.

In southwestern Maine where birch has been generally utilized for a long time, the damage is present but nowhere near the severity of other sections. The lack of large areas of overmature birch has been felt to be a reason for the lighter damage.

2) Moisture: Damage is favored by overmaturity, unfavorable growing conditions, and lack of moisture. In a section of heaviest damage, a small area of large, vigorous white birch growing on a moist, springy site was found in excellent condition last year. In order to check the effect of moisture two groups of young birches were selected in the fall of 1947 on hillsides in Salem. Above these, trenches were dug two feet deep. The ground over the root area was then covered well with tar paper which is still in place. The purpose was to divert moisture from the roots and to note the ensuing reaction. In the summer of 1948 one group showed definitely thin, small foliage in their upper crowns; whereas the other showed no effect.

3) Root Washings: To determine if root troubles precede or were involved in the dying of birch tops, three small, healthy looking birches were selected in the fall of 1947. After felling the trees, two were found to have a few dead twigs. The root area was exposed by washing out the soil. Examinations of the roots and rootlets showed nothing significant in the way of dead rootlets. A few fair-sized scars or wounds were found on roots but in every case these had not progressed and were apparently healing well.

4) Fungi; Virus: The extent of our efforts has been to turn over material to the Federal Division of Forest Pathology, New Haven, Conn. office, which has conducted the detailed work along these lines—studies of fungi being done by Dr. J. R. Hansbrough

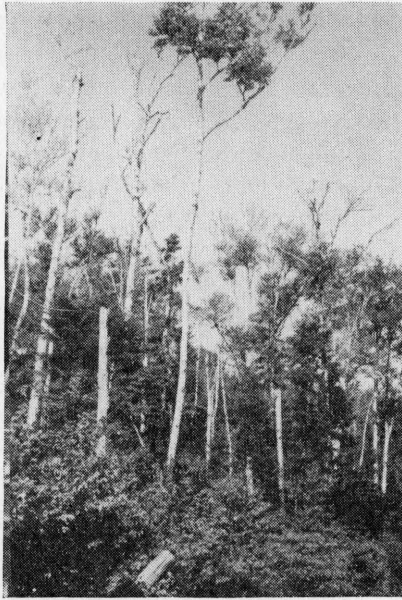
with virus research by Don C. Stout. It is understood that to date no fungi have been found which are considered to be involved in the dying of birch. On the other hand there have been found to be definite indications of the activity of a virus in affected trees and at least in the early stages of the dying back whereby leaves in the upper crown are small, yellowish, or rolled, and top twigs are dead. This has opened up an entirely new possibility as a cause which needs evaluation as a factor in death of birch.

5) **Bronze Birch Borer:** Throughout our work the bronze birch borer *Agrilus anxius* (Gory) has been found associated with the damage. Birches of all species, sizes, age, and vigor are being attacked by this insect. Old, weak, slow-growing, dominant trees are attacked most commonly and are most favorable to the insect's increase. On the other hand young, vigorous trees are commonly being attacked. However, some trees have been found having the first stages of damage in which this insect has not been found. This indicates that the borer is not the sole responsible factor in the start of damage. In healthy trees the insects are rarely successful in completing their life cycle. Each attack, however, has a weakening effect on the tree and as trees or parts become weak the insect attack does become successful.

The present unusually heavy attack of this native insect, particularly on young healthy trees, shows the presence of abnormal populations. Such an insect abundance, coinciding with other adverse factors, can well be fatal to trees. The conclusion is that: although the trees may be weakened by other factors, or by a direct infection of a virus acting alone or in combination; the bronze birch borer is a major factor in the severe damage and death of birch. Since knowing the cause of any problem is basic, investigations for further proof of the factors mentioned should be continued.

The bronze birch borer is a beetle which lays its eggs, preferably in sunny locations, under loose flaps of bark in late June and July. Grubs hatch from these eggs and tunnel through the bark to the face of the wood. They then tunnel between the bark and the wood, zig-zagging back and forth generally in a horizontal direction, which causes the damage to the tree. The grubs pupate in June and change over to beetles in the bark, then leave the tree, fly about, feed, mate, and lay eggs to start the cycle again.

Field studies of the borer were made at Salem. Large rearing cages were built in which infested birch logs were placed in order to obtain emergence of a supply of beetles and parasites. Beetles like strong sunlight in their activity, flight, feeding, and mating. This goes along with their preference for trees in an open or dominant condition for egg laying. They do not par-



DEAD AND DYING WHITE BIRCH

ticularly favor birch foliage for feeding, but show a preference for willow if available. Screen cages were constructed and placed in a suspended position around birches in three conditions: healthy, partly dead, and girdled with an axe. Beetles were then placed in these cages to study their development of attack. These cages are still in place and will be examined for grub development in the trees next season.

(a) **Parasites:** In the winter of 1947-1948 logs from four sections of the state were caged inside the Augusta laboratory for analysis of parasite emergence and to obtain a supply of beetles for testing insecticide formulae. Parasites from these cages and from those at Salem were sent to the Bureau of Entomology at Washington, D. C. for determination of species. 85%

parasitism of borer grubs was obtained from the log material from the Oquossoc region. In the summer of 1948 parasites were obtained in the Salem cages and were released in Salem and Bingham areas where parasites were found only in small numbers. In 1948 the department's six forest insect rangers caged logs in their respective districts to obtain data on parasite presence. This work showed the only additional area with appreciable numbers of parasites amounting to 26% was around Greenville. It is planned to do more with transplanting of parasite material into areas where needed. Logs have been obtained for caging again this winter as a start for more information.

(b) Spraying: A six acre block of white birch in Salem was sprayed June 20, 1947 for the bronze birch borer. The Federal Division of Forest Insect Investigations, New Haven, Conn. office, cooperated and supplied stock concentrate consisting of thirty pounds D.D.T., thirty-seven and one-half quarts of xylene, and four and one-fifth pints of Triton X-100 as the emulsifier. Eighteen and eight-tenths gallons of water were added to this concentrate to make a total of thirty gallons of emulsion for the six acres. The applied dosage, therefore, amounted to five pounds D.D.T. in five gallons of emulsion per acre. The spray was applied by means of a mist blower supplied by the Maine Department of Agriculture. The control experiment was set up primarily to eliminate the borer from the stand through high insecticide dosage and thus supply evidence that the borer was or was not the major factor in birch damage. A study plot in the sprayed area, which had shown annual increases in damage to the trees through 1946, showed no increases in 1947. Five unsprayed plots in the general region showed considerable increases in damage, ranging from fourteen to forty percent of the plot trees.

Laboratory tests with D.D.T. on beetles obtained from the caged lots in the Augusta laboratory in the winter of 1947-1948 showed that fairly high dosages had to be used to be effective against the beetles; for example, at least two and one-half pounds and preferably five pounds D.D.T. per acre. The beetles seem to be the only stage in the life cycle where spraying would be effective, except for the possibility of killing the grubs as they hatch and leave the eggs to tunnel into the bark. There is no chance of killing grubs under the bark.

Spraying of the same block of birch in Salem at the same dosage was repeated June 22, 1948. Materials, mist blower, and application were supplied by the New Haven office of the Federal Division of Forest Insect Investigations. A plot in the sprayed area showed that of sixty birches only one had increased damage whereas the check plot in the unsprayed area showed twenty-six trees had increased damage out of eighty-seven birches. In both years cloth sheets and trays, representing a sample of about .1% of the sprayed area, were laid on the ground beneath the trees. In 1947 only one dead beetle was obtained from the sprayed area—none on the unsprayed or check area. In 1948 no beetles were obtained from the sprayed area. Evidently this method and degree of sampling for kill is not suitable for this insect.

The spraying experiments will be repeated in 1949 and in addition it is felt that tests of airplane applications of D.D.T. for protecting birch against the borer are justified.

6) Other Insect Studies: The presence of a virus in dying birch as previously mentioned called attention to the need of studies in 1948 of other insects such as leaf-hoppers, which occur commonly on birch. Virus infections of plants are commonly spread among plants by these insects. The work so far has consisted of making collections of leaf-hoppers. These are to be prepared and sent to specialists for determination of species.

An abundance of a scale insect was noted on dying birch trunks in 1948 at Salem. This was identified as *Aspidiotus ancyclus* (*Putnam*) by Dr. Harold Morrison of the Federal Division of Insect Identifications, Washington, D. C. and is not considered of importance at present.

A small amount of time has been given to the pith fleck miner which causes brown streaks in living trees but does not affect the life of the tree, and to ambrosia beetles and timber beetles which attack recently killed trees lowering their commercial value.

Seed Collection—Transplanting

As a result of interest in regeneration of birch stands there is work now under way with seeding and transplanting of birch. The objective is to find methods of making successful birch plantings.

At the June 20, 1948 annual meeting, at Strong, of the Maine Hardwood Manufacturer's Association, the Western Maine For-

est Nursery, at Fryeburg, agreed to do propagation work with birch provided seeds were supplied to them. Accordingly, the department collected fourteen pounds of white birch and one pound of yellow birch seeds. This weight included catkin scales. The majority of the seeds were sent to Fryeburg. A small amount was sent to the State Forest Nursery at Orono. Some were also sent to the Massabesic Experimental Forest of the U. S. Forest Service at Alfred to be sown on snow in the winter on two areas which were burned over in the fall of 1947—one where the burn was severe with exposed mineral soil and one where the burn was moderate so that it was not exposed.

In the spring of 1948 at Salem, transplanting tests were started. One hundred small wild white birch seedlings of one to two feet in height were dug with a shovel, placed in wet moss and then set out in three locations—old field with full sunlight, old field beneath gray birch giving partial shade, and woodland with full shade. A small group was removed by simply driving a shovel in close to the trees to loosen the soil and then pulling up the seedlings. These were set in open field and by September 10 five percent more were dead than in those dug up. This test was severe as the new foliage was from one-half to two-thirds grown in size when transplanted. To overcome this adverse factor the foliage was partially stripped. Rabbit browsing was severe under full shade conditions. In many cases repeated browsing removed the seedling down to the ground level. Survival of transplants on September 10 is shown in Table 3.

TABLE 3
SURVIVAL OF 100 BIRCH TRANSPLANTS

	No Browsing		Rabbit Browsed	
	% Alive	% Dead	% Alive	% Dead
No Shade.....	76	20	4	—
Partial Shade....	80	15	—	5
Full Shade.....	29	12	12	47

Sprout Growth

Past cuttings of birch have been examined to see if there were any relationship of sprout prevalence with ground conditions, cutting intensities, stump height, and season cut. Four operators cooperated by cutting areas in ways requested. Trees were

cut from ground level up to six inches, six inches to one foot, and others one foot to two feet from the ground. These trees before cutting were recorded as to their crown condition, D.B.H., age, and vigor. Three areas were cut in the fall of the year and one in August. It is now necessary to duplicate this work in the other seasons. The cooperating parties were Peirce and Rowe, Bingham, Bingham Water Co. of Bingham, William Philbrick of Skowhegan, and Forster Manufacturing Co., Strong.

To date the findings indicate that low stumps from vigorous young trees cut in the spring of the year give the best sprout growth. There was little difference between stumps cut at ground level and one foot in height. A medium to high degree of sunlight also favors sprouts. A discouraging feature was found to be common in the old cuttings examined—namely, that sprouts which did start particularly from large stumps lived for only a few years and then died. Sprouts were browsed on heavily by deer and to some extent by rabbits. Whether the browsing is the major responsible factor for their death should be determined. Sprouting condition of stumps on areas cut for the study at the end of one year is shown in Table 4.

TABLE 4
SPROUTING OF 370 BIRCH STUMPS

Height of Stumps	Per cent of stumps showing		
	Vigorous Sprouts	Intense (60 or more) good sprouts	No sprouts
Ground level to 6 inches...	68	24	16
1 foot.....	73	21	19
2 feet.....	59	15	30

Natural Seeding and Cutting

The work on natural seeding of birch so far has consisted of examination of past cuttings. The findings indicate that successful seedlings of either yellow or white birch depend on near or complete exposure of soil and a high degree of sunlight. Heavy hardwood leaf litter, softwood duff, or shade is not favorable to birch reproduction. These factors support present clear or group cutting to get birch reproduction. They may also indicate the desirability of summer and mechanical logging. Where residual advance reproduction of other species is present, there is

little chance for good growth of birch. It is generally recognized that advance reproduction indicates the next tree crop.

Both yellow and white birch are very sensitive to the opening up of stands. In present commercial operations a majority of the birches remaining after the cut die outright or decrease seriously in physical condition. Cuttings which do not appreciably open up the crown canopy, and which are so light that residual birch are not adversely affected, are on the other hand considered not economically practical in large operations. Studies have been started to find if there is a degree of cut which is economical and which at the same time will maintain residual birch. Results may vary as to whether the birch is in pure or hardwood stands, or mixed with softwoods. Through the cooperation of S. G. Hile, District Ranger at the South Paris, Maine office of the White Mountain National Forest, U. S. Forest Service, two areas were made available for this study, one in uncut white birch and one in yellow birch recently cut.

A meeting was held with foresters of the Northeastern Forest Experiment Station, U. S. Forest Service, for discussion of the proposed study. These men were V. S. Jensen and K. Butterfield, Laconia, N. H.; J. A. McGuire, Alfred; T. F. McLintock, Bangor; and S. G. Hile. Their ideas and suggestions formed a basis for the procedure to be used.

The projects were set up in the fall of 1948; notes being taken so that final data could be analyzed statistically. Variables used were diameter class and percentage of cut.

Ten trees in the four inch diameter class in cutting intensities ranging from twenty to thirty percent, ten trees of the same diameter class in cutting intensities of forty to fifty percent; and a like method for the eight inch diameter class, to total forty trees, were taken at random in the white birch area. The cutting intensity around each tree was calculated after determining the total basal area and the basal area to be removed in a one-fifth acre circular area of all trees 2 inches and up D.B.H. around the tree as a center point. Exposure and age of the stand; diameter breast high, crown class, and crown condition of each tree used were recorded and each tree was numbered with paint.

In an effort to find the effect on residual trees, another sampling method using a one-acre block (two by five chains)

was laid out in the white birch stand. The percentage of cut by basal area for this acre block was determined. In addition the same information as above was also recorded.

A study was also set up in the yellow birch area in a mixed stand. It is planned later to establish another study for yellow birch on a hardwood site. The diameter class variables for yellow birch differed from those for white birch in that ranges of 5.1 inches to 9.0 inches and 11.1 to 15.0 inches were used for each degree of cut. Otherwise the same procedure was followed as for the white birch study.

Annual checks of the trees in each area will be made, noting the condition of each tree.

Miscellaneous

Numerous meetings have been held with the Maine Hardwood Manufacturer's Association and its Executive Committee to discuss the work. Two field demonstrations of projects have been held at the annual meetings of the association in 1947 and 1948. Mimeographed news letters on progress were issued during the period. Talks have also been given before other interested groups on the work.

Educational exhibits were prepared and set up at three fairs explaining the birch situation and steps owners could take with their birch woodlots. A series of Kodachrome slides have been taken of phases of the problem and a quantity of "Riker" display boxes showing the bronze birch borer were made up and distributed to members of the Maine Hardwood Association, landowners, and other interested people.

The following men assisted Robley W. Nash who is in charge of the project:

C. A. Fenderson—1947	}	—During summer, student vacation from the University of Maine.
R. S. Rupp—1948		
H. N. Bullock	}	Forest Insect Rangers of the division from October to May of 1947-1948 and 1948-1949.
F. W. Manning		
E. J. Duda, Field Entomologist,		October-May of 1948-49.

Conclusions

This is a progress rather than a final report on the present work. Any conclusions or recommendations attempted are necessarily based on too short a period to be conclusive. Previous reports and bulletins of the department should be consulted for over-all descriptions of the damage and recommendations concerning birch.

The general situation with birch should not be considered by owners as demanding that they cut any or all stands in order to realize stumpage returns. Stands which are showing a high degree of damage and increases in injury are the ones that need cutting while they can still be used. Healthy stands should on the other hand be left alone.

Clear cutting of birch is still the best known method of managing birch stands. Where other species are cut birch should not be left more than one to two years afterward. Where partial cutting is desired by the owner it seems that from present information the cut should not exceed forty percent. In such cuttings desirable birches which are to remain should have other trees of about the same height left close to them to afford protection particularly on the south and west sides. No birch of value should be considered safe when left along roads, yards, or wherever they are badly exposed with root areas disturbed and injured.

If birch stands to be cut indicate good possibility of seedling or sprout regeneration and birch is desired, clear cutting or group methods should be used. Summer, mechanical operations may be of benefit in regeneration of birch. Good clear cutting methods will entail removal of all trees including culls.

WHITE PINE BLISTER RUST CONTROL

The following is a report on control work performed in Maine to protect its pine forests from blister rust, the fungus *Cronartium ribicola*, Fischer, which escaped from its Asian home and established itself first in Europe, and then in America about 1898. New hosts with which it came in contact proved most congenial and within a comparatively few years the rust spread nation-wide; in fact, became epidemic in some states.

Blister rust control is conducted under a cooperative agreement between the Forest Commissioner and the Bureau of Entomology and Plant Quarantine, of the U. S. Department of Agriculture, in which they cooperate with towns and pine owners. Certain federal funds are matched on a dollar for dollar basis by combined state, town, and private expenditures. The federal government agrees to furnish the educational, scouting, and supervisory work; the state, towns, and pine owners furnishing the labor for eradication of *Ribes* (currant and gooseberry bushes), the host plants of the disease. Town appropriations are supplemented liberally by state and/or federal funds. During the past several years, under the Lea Act, Maine has been allotted sums of federal money for *Ribes* eradication purposes, to be matched by the state and its cooperators. With these funds, we have been able to supplement town appropriations on at least a dollar for dollar basis.

The present supervisory force consists of the following federal-paid men: W. O. Frost, State Leader, with headquarters at the office of the Maine Forest Service, State House, Augusta, and three District Leaders, viz., H. G. Bradbury, P. O. Building, Belfast; M. G. Calderara, 53 Court St., Auburn; and J. B. Pike, Jr., 40 Main Street, Bridgton.

For many years, because of the range and abundance of white pine, Maine has been known as the Pine Tree State. White pine is our official tree, and recently its cone and tassel was legally adopted as the State Flower. For over three centuries white pine has played an important role in Maine's history and economic life; many towns and several cities were founded during the early logging days, and when sailing ships carried white pine lumber and squared timber to many foreign ports. Bangor for years was the leading lumber port of the world; ships from this port not only supplied part of our own country's needs, but car-

ried cargoes to England, Portugal, Spain, Africa, the West Indies, and even to densely forested Madagascar. The reason one could sell white pine to jungle countries can only be explained by recalling that most tropical woods are heavy and hard; they lack the qualities of lightness and softness in which white pine excels. Weighing only 25 pounds to the cubic foot, dry weight, it is the lightest of our pines, yet in proportion to its weight it is strong, durable, and adaptable for innumerable purposes. For many years, Maine has been one of the Nation's top-ranking pine producing states; in fact, Maine has been the leading state in recent years. Lumber production estimates furnished by the U. S. Department of Commerce, Bureau of the Census, for Maine during the period 1943 to 1947, show a production of 1,630,976,000 board feet:

1943	—	186,633,000	bd. ft.
1944	—	295,723,000	“ “
1945	—	313,641,000	“ “
1946	—	519,646,000	“ “
1947	—	315,333,000	“ “

Not included are many millions of board feet represented by pine bolts and other short lengths used for wood pulp, fabricated building materials, etc.

Department records show 455 licensed portable mills in 1947 and 501 in 1948. Assuming that the 276 stationary mills reported in 1944 are still operating, there were 777 mills in the state in 1948, the majority sawing white pine, and within the blister rust control area.

The logging, milling, and manufacturing of white pine furnishes employment to many thousands of workers, because of its adaptability for innumerable purposes. Undoubtedly it is the most valuable renewable natural asset in southern Maine. It is used for more purposes and brings a far larger return than any other tree in that part of the state. It is truly "The King of Softwoods." Its preservation through good management is essential to maintain the prosperity of the region. The virgin growth is gone, but it is being replaced by thousands of acres of reproduction, which, if protected from fire, insects, diseases, and improper cutting practices, will supply our future requirements.

Throughout the commercial range of white pine in this country and in Canada, foresters and timberland owners are greatly concerned over the rapid advance of the blister rust. This dis-

ease has an interesting life history. Part of its life cycle is spent on five-needle pines (white pine) and the other stage of its development occurs on wild and cultivated currant and gooseberry plants belonging to the genus *Ribes*. White pine blister rust does not spread from pine to pine. Infection on pines comes from blister rust spores on the underside of currant and gooseberry leaves, which in turn are infected by spores from blister rust infected pines. The disease attacks white pine by entering through the needles, whence it works through the bark of the branches, eventually reaching and girdling the main trunk. Young white pines usually die from the disease in a few years, but older and larger trees are killed more slowly.

Climatic conditions play an important part in the spread of blister rust, seasons of extreme moisture being most favorable for its development. In regions where currant and gooseberry plants have not been removed, nearly 100 percent infection may be found. Once established in a pine lot, a high degree of infection may occur in a few years unless control measures are practiced immediately.

As white pine blister rust is a two-host disease and cannot go directly from one pine to another, but is carried to healthy pines from infected currant and gooseberry bushes, its control is assured by the removal of these bushes for a distance of nine hundred feet from the pines.

During the 1947 and 1948 control seasons, 65 towns in 14 counties made \$17,407.30 available for *Ribes* eradication, and expended \$14,921.09. The following table shows appropriations and expenditures by towns:

County and Towns	1947		1948	
	Appropriated	Expended	Appropriated	Expended
Androscoggin				
Leeds	\$200.00	\$196.00	\$200.00	\$197.28
Lisbon			500.00	362.77
Livermore	200.00	189.60	200.00	199.84
Webster	100.00	43.90	*57.10	43.84
Cumberland				
Brunswick	200.00	198.40		
Casco	300.00	295.60	300.00	299.74
Freeport	300.00	298.40	300.00	299.73
Gray	200.00	198.40	200.00	198.66
Harpwell	200.00	199.30	100.00	99.52
Raymond	200.00	196.00	200.00	200.00
Franklin				
Eustis	200.00	51.20		
New Sharon	200.00	200.00	100.00	66.75
Weld	100.00	99.40		

County and Towns	1947		1948	
	Appropriated	Expended	Appropriated	Expended
Hancock				
Bar Harbor.....	\$500.00	\$499.05	.....	.....
Bluehill.....	600.00	596.80	.....	.....
Bucksport.....	100.00	99.30	.....	.....
Franklin.....	200.00	200.80	.....	.....
Hancock.....	100.00	99.75	.....	.....
Lamoine.....	100.00	97.50	.....	.....
Mt. Desert.....	300.00	300.00	.....	.....
Penobscot.....	200.00	198.60	.....	.....
Kennebec				
Litchfield.....	100.00	28.80	\$100.00	\$99.03
Manchester.....	*100.00	.....	300.00	299.60
Oakland.....	.....	.....	*200.00	.....
Rome.....	*200.00	.....	150.00	149.40
Sidney.....	.....	.....	.....	.....
Vienna.....	200.00	198.40	.....	.....
Wayne.....	100.00	100.00	100.00	100.00
Winslow.....	.....	.....	*200.00	199.40
Winthrop.....	250.00	249.60	.....	.....
Knox				
Appleton.....	100.00	99.61	100.00	99.94
Hope.....	100.00	99.90	.....	.....
Lincoln				
Bristol.....	200.00	182.40	200.00	65.33
Jefferson.....	.....	.....	300.00	299.19
So. Bristol.....	.....	.....	200.00	148.32
Wiscasset.....	*200.00	184.00	100.00	86.29
Oxford				
Buckfield.....	*100.00	100.00	.....	.....
Fryeburg.....	200.00	192.00	200.00	95.20
Hebron.....	.....	.....	300.00	138.00
Paris.....	*200.00	195.20	.....	.....
Rumford.....	200.00	198.95	.....	.....
Penobscot				
Enfield.....	200.00	199.50	.....	.....
Glenburn.....	100.00	99.75	.....	.....
Greenbush.....	100.00	99.75	.....	.....
Lincoln.....	200.00	199.50	.....	.....
Veazie.....	100.00	99.75	.....	.....
Sagadahoc				
Arrowsic.....	200.00	198.40	.....	.....
Bowdoinham.....	200.00	198.60	200.00	199.84
Georgetown.....	200.00	49.80	*150.20	62.54
Somerset				
Anson.....	.....	.....	300.00	299.98
Madison.....	.....	.....	300.00	300.00
Pittsfield.....	200.00	199.50	.....	.....
Waldo				
Belfast.....	300.00	299.70	300.00	299.87
Monroe.....	100.00	98.55	100.00	99.91
Swanville.....	100.00	99.30	100.00	99.75
Washington				
Cherryfield.....	*100.00	.....	.....	.....
York				
Berwick.....	200.00	197.60	200.00	90.00
Buxton.....	.....	.....	100.00	99.73
Hollis.....	200.00	200.00	.....	.....
Lebanon.....	*100.00	98.60	100.00	45.00
No. Berwick.....	300.00	289.60	.....	.....
Parsonsfield.....	.....	.....	400.00	385.28
Sanford.....	300.00	294.00	200.00	40.00
So. Berwick.....	200.00	181.60	.....	.....
York.....	.....	.....	200.00	21.00
65 Towns.....	\$10,150.00	\$9,190.36	\$7,257.30	\$5,730.73

*Held over from previous year.

During the biennium, 831,168 Ribes were destroyed from 324,388 acres, protecting 125,635 acres of pine lands.

Summary	1947	1948
No. acres worked	158,788	165,600
" " pine protected	55,463	70,172
" ribes destroyed	530,205	300,963
Labor cost to federal government	\$32,467.30	\$9,211.28
" " towns	9,190.36	5,730.73
" " state	2,047.72	5,509.66
Total ribes eradication cost	43,705.38	20,451.67
Per acre cost	0.28	0.12
Ribes per acre	3.3	1.8

EXPENDITURES (Supervision Included)

Year	Federal	Town	State	Total
1947	\$67,135.73	\$9,190.36	\$5,394.23	\$81,720.32
1948	34,278.54	5,730.73	8,951.46	48,960.73
Total . . .	\$101,414.27	\$14,921.09	\$14,345.69	\$130,681.05

In order to conduct blister rust control work, type maps showing pine areas are essential. Federal funds have been used on this project. 263 towns have been entirely mapped, and 16 partly mapped, leaving 27 unmapped. Three men are now employed to map white pine areas and to make corrections in towns where pine types have drastically changed.

Maine's present blister rust control area comprises 2,477,841 acres, of which 970,197 acres is pine land, in 306 towns and 15 counties. Initial control work has been completed on 91 percent of the control area, and 49 percent reworked. A small acreage has been examined for the third time. Approximately 725,000 acres, or 29 percent of the control area, are on a maintenance basis; i.e., the Ribes plants have become so scarce through eradication that they are no longer a menace, and no further control work on these areas is necessary for an indefinite number of years.

Destruction of currant and gooseberry plants checks the spread of blister rust, but does not prevent pine trees already infected from dying. Pines with trunk infections may be saved by removing all of the diseased bark for a distance not exceeding half way around the tree. This type of work is not recommended for large wooded areas. It is practically impossible to locate every young infection on the first examination.

In 1947, canker removal work was performed on Acadia National Park lands with Department of the Interior funds, and 227 ornamental pines were examined:

No. of fatally infected pines removed	22
“ “ “ “ left standing	7
“ “ pines treated	85
“ “ branch cankers removed	250
“ “ stem “ “	34
“ “ pines topped	24
“ “ man hours labor	586

The blister rust disease has been generally distributed on pines and Ribes throughout Maine for nearly forty years, having probably spread from imported Ribes planted at Kittery Point. Within a few years every pine growing town in the state showed infected pines. The amount of pine infection varies in different localities, and is influenced by such factors as the location of original centers of infection, distribution, amount and age of pine, abundance and species of Ribes, topography, weather conditions, and the thoroughness of control measures. In the 1920's and 1930's, vast numbers of young pines and a considerable percent of merchantable sized pine became infected. The young trees died in a few years and disappeared, but an abundance of merchantable size pines in a dead or dying condition are now in evidence. One pine owner in Cumberland County reports that in a 5-acre pine lot of 100 M board feet, about 30 of the trees, representing 8 M board feet, have been cut for lumber because of blister rust infections. Several other pines had fallen and were not worth salvaging.

Dr. P. L. Rusden, of the Bureau of Entomology and Plant Quarantine, of the U. S. Department of Agriculture, reports on an area of 1.4 acres that a total of 283 pines was tallied, and the height, D.B.H., dominance (crop or non-crop) and condition of health with respect to blister rust recorded as follows:

15.5%	or	44	Healthy
4.6%	“	13	With branch cankers only
53.3%	“	151	Alive, but with stem cankers
26.6%	“	75	Killed by the rust

84.5% were killed or infected by the rust. The trees averaged 57.5 feet in height, 13.3 inches in diameter, and 148 board feet. There were 260 crop pines, or 186 per acre:

39	pines healthy	—	6,155	bd. ft.
13	“ with branch cankers only	—	3,817	“ “
144	“ alive, but with stem cankers	—	34,274	“ “
64	“ killed by the rust	—	7,591	“ “

The impressive fact is not the loss of 7,591 board feet through the killing action of the rust, but the very large figure of 77.5%, or 34,274 board feet of the *living timber* in trees bearing stem cankers.

As nearly as could be determined, the blister rust had been in this stand for about 20 years. The 7,500 board feet lost by the death of 64 crop trees, is figured at the low stumpage value of \$8.00 per M, means nearly \$40.00 per acre loss.

White pine produces an abundance of seed; consequently, many old fields, pastures, and cut-over lands are reverting to pine. In order to measure the relative amount of young blister rust infection in such areas, a survey is being made as rapidly as possible. 157 sample plots in 59 towns in 12 counties, taken in 1948 on pine 11½ to 10 feet in height, show that the rust is present in varying degrees of intensity.

Each year the supervisory force renders a large amount of informational and service work through the press, service clubs, colored sound films, granges, posters, descriptive literature, radio, field demonstrations, temporary and permanent exhibits, etc. After many years of service, the permanent 2.2-acre roadside exhibit on Route No. 137 in Belfast still attracts hundreds of visitors each year.

During the summer of 1948, the Maine Forest Service, the Maine Extension Service, and the White Pine Blister Rust Control organization of the U. S. Department of Agriculture, cooperated in the development of *thirteen demonstration areas in thirteen counties*, to acquaint the public with the seriousness of blister rust. These well-marked areas showed the rust and Ribes in various stages of development:

1. Damage to old and young pines on unworked areas.
2. Effect of heavy infection in young reproduction on cut-over areas where skunk currants came in following logging.
3. The several varieties of wild Ribes in their natural habitat, etc.

The well-placarded areas are of a semi-permanent nature, and their usefulness can be continued.

What the blister rust situation might be without the efforts that have been made since 1918 to control it, no one can say. However, there is no question that the loss to the pine crop would have been tremendous.

One major handicap in our present control work is the small amount of state and town money available. Another is the necessity of employing inexperienced local resident labor. It is costly not to have latitude in the use of funds so work can be done when and where it is most needed. For this reason, a substantial increase in the state appropriation (\$7,100 to \$15,500) for blister rust control has been requested to speed up the work. In particular, losses should be prevented in areas of pine reproduction that are succeeding the harvested crops. The heavy cutting and burns of recent years gives emphasis to this factor. Increased state funds would permit the use of thoroughly trained scouts wherever needed, and eliminate the costly and inefficient system of training a separate crew for each town.

Maine's blister rust control area comprises 2,477,845 acres, of which 970,197 acres are pine-bearing lands. Initial control work has been conducted on 2,256,144 acres; 1,345,035 acres have been reworked; and 724,928 acres of the control area are on a maintenance basis.

However, 221,697 acres still need initial examination, and 1,531,066 acres initially worked prior to 1943 should be scouted in the near future. Our objective is to place the entire control area on a maintenance basis as rapidly as possible.

FARM FORESTRY

W. Robert Dinneen

In cooperation with the Maine Forest Service and the Maine Agricultural Extension Service, the U. S. Forest Service established two farm forestry projects in Maine. One began on February 22, 1943 in charge of W. Robert Dinneen, with headquarters at Bridgton, and the other in Dover-Foxcroft which was taken over from the Soil Conservation Service on July 1, 1945. This position was not filled, however, until November 1, when C. W. Hutchinson became the forester.

The purpose of this cooperative program is to provide specific in-the-woods assistance to the small woodland owner. Working with these woodland owners the farm forester assists in the marketing of the timber and marking the trees to be cut. If necessary, a management plan for the area is made covering all phases of handling the woodland according to good forestry practices. Information on planting, thinning, pruning, protection from fire, and grazing may be included in the management plan. Showing the owner how to carry out the various forestry practices and instructing him in the procedures to be followed, and then checking to see that the recommendations are understood and are being properly applied, are also part of the work of the farm forester.

From the inception of the program until July 1, 1948, both of these projects were supervised and paid for from federal funds by the U. S. Forest Service. Maine was one of the few states in which such projects were 100% federally financed. Practically all of the other states paid for half of the salaries and expenses of the foresters employed. In addition to this, with only a few exceptions, all of the states in Region 7, from Kentucky to Maine, had a farm forester for every county in the state. In contrast to this, Maine had two in widely separated areas, and then wholly federally financed.

With states in other regions clamoring for additional farm foresters and willing to pay their share of the costs, but with only a very limited budget which has not been increased, the U. S. Forest Service felt that they should change their policy. They accordingly notified the three states in which farm foresters were federally financed that all projects of that nature

would be discontinued on July 1, 1948 unless the states wished to contribute one-half of the expense and salaries and assume the supervision of the projects.

Unfortunately, 1948 in Maine was a year that the legislature did not meet and consequently it was not possible to raise any state funds to continue the projects. Landowners, sawmill operators, and paper mill representatives who were interested in the project and wished to see them continued, held several meetings to discuss plans on how to raise the necessary money. Before plans had progressed very far, Mr. Hutchinson, at Dover-Foxcroft, resigned to enter private business, so nothing further was done in that area. In the Bridgton area, however, work went ahead on planning the financing of the project. It was finally decided that the simplest and easiest way of raising the money immediately, so that it would not be necessary to abandon the project, was by private contributions. A committee was appointed to obtain the funds and within a few days the necessary money was raised. An interesting point on this is that the bulk of the money came from independent sawmill operators. These men feel that the project and its accomplishments are definitely needed in Maine if they are going to continue to operate with adequate stumpage and on a sustained yield basis with future timber supplies assured. At the same time the project area was extended to cover all of Oxford County and the major parts of Cumberland and York Counties.

As mentioned previously, many of the states have a farm forester for every county. When it is considered that in very few states in Region 7 does the importance of the timber crop to the state's economy even approach its importance to that of Maine, where 75% of the income is derived from the timber crop in one form or another, it is apparent that Maine is lagging far behind other areas in protecting and perpetuating its, and the nation's, only renewable resource. Timber is a crop, but a long term crop. The mistakes in handling it cannot be corrected in one season as in other crops, but takes many years. The years wasted while endeavoring to correct the mistakes can be disastrous to the economy of the state. The best solution is to prevent the mistakes from happening. With this thought in mind a program of developing farm forestry projects in Maine has been suggested. Twelve farm foresters have been proposed,

one for each county in the organized area of the state, with a supervisor in charge to work out of the Augusta office. This program will be introduced into the 1949 legislature. With the bulk of the timber ownership in the organized towns in the hands of the small landowners who do not hire private foresters, but often allow their lands to be cut destructively, the impetus to good forest management practices through this program is needed.

As an example of the volume of work accomplished by such a project and its value to the area serviced, a few figures for the six month period ending December 1948 are given below. During this period 92 woodland owners were given assistance, with a backlog of 54 requests still to be serviced and new ones being added constantly. The area involved in aiding these woodland owners is 14,180 acres. 2,480,000 board feet of saw timber and 212 cords of wood, involving 857 acres of land, were marked for harvesting by the farm forester. The approximate stumpage return for this and other services amounted to \$34,180 with a gross return of \$36,980. This was in return for a cost of \$2,500 from supporters of the program. Most important-woodlots that have been marked for cutting are left with growing trees, which means increased growth rate. These lots, instead of being stripped by destructive logging practices, will continue to grow and produce another crop within a relatively short time, to give more work and more income to the area. On a stripped lot, there is a minimum of 50 years, and more often closer to 100 years, before another merchantable crop is produced. In the meantime, it does not produce income or give labor to support the owner or the area.

From the few figures given for this one project for a six month period it is possible to visualize the tremendous importance to the woodland economy of the state the addition of farm foresters to other areas could make.

NORTHEASTERN INTERSTATE FOREST FIRE PROTECTION COMPACT

On June 4, 1948 a meeting was called in Boston of the Committees on Interstate Co-operation of the Northeastern States, more specifically the New England States and New York. This meeting was called as a result of an application by the International Association of Fire Chiefs to the Massachusetts Commission on Interstate Co-operation, through Executive Secretary John W. Plaisted, to take action toward legalizing interstate assistance in cases of serious fires or conflagrations, where aid is now being given and accepted without specific authorization under state laws.

As a result of this meeting, and several which followed under the guidance of the Eastern Representative of the Council of State Governments, Mr. B. E. Carihfield, a forest fire compact was drawn up and after various minor changes, ratified by the committees representing the participating states.

This compact is being presented by the Commission on Interstate Co-operation to the legislative bodies of the participating states in 1949 for their consideration and action. The following paragraph is quoted from the first chapter of the compact as it will be presented and explains the purpose of the act:

“The purpose of this compact is to promote effective prevention and control of forest fires in the northeastern region of the United States and adjacent areas in Canada by the development of integrated forest fire plans, by the maintenance of adequate forest fire fighting services by the member states by providing for mutual aid in fighting forest fires among the states of the region and for procedures that will facilitate such aid, and by the establishment of a central agency to coordinate the services of member states and perform such common services as member states may deem desirable.”

KEEP MAINE GREEN

The "Keep Maine Green" movement, which was introduced into Maine during the early part of 1948 by the American Forest Products Industries, Inc., is part of a nation-wide movement. The program is a plan of public education in forestry with the expressed objective of forest perpetuation largely through prevention of forest fires.

The organizational meeting was held in Bangor, March 24, 1948, at which time the following board of directors and officers were elected:

Chairman
Vice Chairman
Secretary

Arthur A. Hauck
R. I. Ashman
A. D. Nutting

County Chairmen

Androscoggin
Aroostook
Cumberland
Franklin
Hancock
Kennebec
Knox
Lincoln
Oxford
Penobscot
Piscataquis
Sagadahoc
Somerset
Waldo
Washington
York

Raymond Keene, Hebron
George Sawyer, Houlton
Kenneth Hancock, Casco
Lloyd Morton, Farmington
Charles Haynes, Ellsworth
Ralph Cutting, Fairfield
Leroy M. McCluskey, Warren
Spencer Gay, Damariscotta
Arthur Stowell, Dixfield
Leon Williams, Clifton
Ray Davis, Guilford
Mrs. Burton Preston, Bath
Orrin Hill, Bingham
Seavey Piper, Troy
George Marston, Jonesboro
Curtis Allen, Sanford

Directors at Large

Morton Havey, Augusta
L. J. Freedman, Old Town
E. R. Hendrick, Chisholm
Kendrick Burns, Westbrook
William Rines, Portland
Russell Peters, Bangor
Guy Gannett, Portland
J. M. O'Connell, Bangor

William Hilton, Bangor
George T. Carlisle, Bangor
Mrs. Bert McKenzie, Orono
Clyde Russell, Augusta
Curtis Allen, Sanford
D. B. Demeritt, Orono
Samuel King, Orono
Harland Ladd, Augusta

Following this general meeting and prior to the various county meetings two field representatives of the A.F.P.I. traveled over the state contacting all the newspapers, acquainting them with the plan and its objective and soliciting their aid in promoting advertising.

During the spring and summer of 1948, county chairmen held organization meetings within their respective counties and usually a representative of the forestry department outlined

the program. The department offered the services of a speaker and movies to any group interested and subsequently showed various fire prevention and conservation movies at many meetings throughout the state.

The directors of the state program are leading public figures interested in conservation of woodland, and are men from professional, civic, industrial, and governmental groups. The plan is that most of the actual work be done on the county level. As a measure of assistance to these groups the American Forest Products Industries, Inc. furnished free material such as fire prevention booklets, fire posters, motion pictures, stickers, advertising mats for newspapers, and spot announcements for radio stations. While these materials are for local units to distribute through their locality, encouragement is given the county committees to devise their own means to promote the slogan of "Keep Maine Green" and keep it before the general public.

The manner in which the program was accepted in Maine by the members of the various county committees this past year showed definitely that there was a large number of public spirited citizens ready to push any program designed at reducing our forest fire losses. A very important part of the program was the excellent support donated by the radio and press. The radio stations issued many spot announcements throughout the fire season and the press published many timely articles dealing with forest fires.

Although the program has only operated through one fire season in Maine the county committees found many and novel ways to broadcast the slogan. Some of these methods were the large and attractive roadside signs at entrances to the state, county and town lines; companies operating fleets of trucks painted the slogan on them; the printing of the slogan on bread wrappers and on the stationery of many companies and institutions; and the many sponsored ads in the papers and on the radio.

This nation-wide program has been in operation for a number of years and is now in effect in more than three-fourths of the major timber growing states. In the states where it has been in operation for a number of years the effects have been noticeable in the large reduction in man-caused forest fires. Inasmuch

as better than 90% of Maine's forest fires normally are in this category a program such as this "Keep Maine Green" movement will be very helpful. The department gladly cooperated in the program by sending men and movies to any group who might desire them. The department also served as the dispersing center for all the literature, posters, etc., furnished the program by the A.F.P.I.

BURNED TIMBER SALVAGE

The Northeastern Forest Experiment Station and the Regional Office of the U. S. Forest Service, in Philadelphia, contributed much to sizing up the salvage problem and later in helping to organize a program after the 1947 forest fires.

An aerial survey, with ground checks, was made soon after the fires (November and December) by the Northeastern Forest Experiment Station. This showed that there were 211,580,000 board feet of burned timber in York and Oxford Counties and 6,900,000 board feet in Washington County.

The Governor and Council provided money from the contingent fund to hire foresters to assist landowners in sizing up their problem and helping them market their timber. The Regional Office of the U. S. Forest Services provided the services of David W. Tabbutt to organize this phase of the program. He was very helpful because of his experience in disasters of a similar nature. Mr. Tabbutt organized the salvage program in Maine after the 1938 hurricane. Norman H. Gray, Earl H. McChesney, William E. Parsons, and Earle B. Watson were employed for a period of three months during the winter of 1948. During that time, under Mr. Tabbutt's leadership, they assisted landowners in marketing over 100,000,000 board feet of lumber.

A corporation of timber operators, known as Western Maine Timber Salvage, was formed to purchase burned timber but never functioned for that purpose.

The state, especially the areas affected by the 1947 fires, owe much to the excellent cooperation and help given by the U. S. Forest Service.

In the fall of 1948, the Northeastern Forest Experiment Station began studies on the rehabilitation of the burned areas. Their findings will give information on areas which should be planted and the forest nursery problem. Their report will be made in 1949.

Experiments on planting are reported in the insect section of this report.

PUBLIC LOTS

The administration and care of the reserved or school lots, commonly known as public lots, is the responsibility of this department. This duty was originally a part of the work of the land agent, a title which was abolished by the legislature of 1923 and the duties transferred to the forest commissioner.

The past biennium has called for considerable survey and cruise work on some of these lots. The proposed Central Maine Power Company dam to be constructed on the Dead River will flow part of the public lots in that area. The Eastern Pulp Wood Company plans construction of a log dam on Tomah Stream which will flood some of the public lot lands in Codyville Plantation. In 1947 the landowners in Allagash Plantation petitioned for a division of their lands in T. 16, R. 10 and T. 16, R. 11 (Allagash) and the public lots were at that time located in these two towns. A large number of stumpage sales have taken place. Tables on public lots will show the location of the cutting and the income from continuing various leases and timber sales. Returns were turned over to the State Treasurer for credit to the account of the school funds.

Forester Lyman C. Poole, who had been working since 1945 on management plans for the many public lots primarily not having long term cutting leases on them, resigned in June of 1948. Inasmuch as public lots are so widely scattered over the state, it was considered inadvisable to replace him but instead have some of the regular personnel trained in this branch of work supervise and take care of the lots in their vicinity with the major part of the work being done in the fall and winter.

Under the benefits of the law passed by the 1945 and 1947 legislatures, assigning \$5,000 to the department, a more efficient administration has been made possible. Under previous conditions the annual appropriation of \$1,000 was even insufficient to retrace boundary lines in order to make stumpage sales. Nothing was left to check on cutting, trespass, or other management problems.

During the past biennium lines have been retraced and rerun on several public lots which had not been touched for 50 to 75 years. It was also possible to give more adequate attention to

cutting permits, the many camp site leases, and to guard more carefully against trespass. This is a start toward working out a program of better management for the school lots. A good program is difficult because of the large number of small, scattered areas involved. Only through close coordination with other forestry work can any reasonably economical program be worked out.

The income from public lots in organized plantations goes into their individual school fund for maintenance of their own schools. In some instances it is large enough to support their entire school program. In the case of school lots in unorganized towns the income goes into the general school fund for unorganized communities. The forestry department receives no income from these lands. It serves only as the administrative agency.

INCOME FROM PUBLIC LOTS
CALENDAR YEARS 1947-1948

	Stumpage	Leases	Other
Aroostook County			
T. 16, R. 10, WELS	\$213.12	\$ 2.15	—
T. 16, R. 11, WELS	35.56	—	—
T. 17, R. 10, WELS	5,179.38	—	—
T. 17, R. 11, WELS	3,265.73	—	—
Cary Pl.	—	—	\$300.00
Winterville Pl.	15.00	301.33	—
Hamlin	7,311.83	—	—
T. 17, R. 5, WELS	2.65	24.31	—
Reed Pl.	—	45.00	—
Glenwood Pl.	126.35	73.50	—
T. 10, R. 4, WELS	—	30.00	—
Oxbow Pl.	10.23	—	—
T. 14, R. 6, WELS	62.04	—	—
Silver Ridge Twp.	1,462.81	—	—
T. 3, R. 2, WELS	895.73	20.00	—
St. John Pl.	8,521.00	—	—
T. D, R. 2, WELS	—	—	2.24
T. 18, R. 13, WELS	—	20.00	—
Moro Pl.	485.45	—	—
Cyr Pl.	998.90	—	—
T. A, R. 5, WELS	1,932.28	50.00	—
Franklin County			
Letter E	—	240.00	—
T. 3, R. 4, WBKP	—	1,500.00	—
Coplin Pl.	4,144.09	—	—
T. 3, R. 3, WBKP	—	600.00	—
T. 4, R. 3, BKP, WKR (Wyman)	—	—	916.00
Hancock County			
T. 3, SD	516.24	—	—
T. 4, ND	—	15.00	—
No. 33 Pl.	—	5.00	—
Oxford County			
T. A, No. 1 (Riley)	640.50	—	—
T. 4, R. 2, WBKP	—	515.00	—
T. 5, R. 4, WBKP	—	54.00	—
T. 4, R. 3, WBKP	—	10.00	—
T. 4, R. 4, WBKP	—	10.00	—
Andover No. Surplus	3,342.73	—	—
Penobscot County			
Sebois Pl.	4,457.35	—	—
T. 5, R. 8, WELS	—	20.00	—
Webster Pl.	3,217.86	—	—
Lakeville Pl.	3,075.89	—	—
Piscataquis County			
Elliottsville	692.20	100.00	—
T. 7, R. 12, WELS	—	20.00	—
T. 2, R. 11, WELS	—	25.00	—
Somerset County			
Dennistown Pl.	3,894.81	—	—
West Forks Pl.	72.18	—	—
Jackman Pl.	282.38	—	—
Dead River Pl.	675.20	—	—
The Forks Pl.	4,205.92	—	—
T. 4, R. 3, NBKP	60.60	—	—
T. 3, R. 4, BKP, WKR	—	50,000.00	81.96
Highland Pl.	1,063.80	—	—
Caratunk Pl.	4,355.89	—	—
Washington County			
T. 18, MD	6.60	—	—
Grand Lake Stream Pl.	540.47	—	—
Codyville Pl.	—	20.00	—
No. 14 Pl.	449.06	—	—
No. 21 Pl.	1,646.04	—	—
Total	\$67,857.87	\$53,700.29	\$1,300.20

LAND OFFICE

The original duty of the land office was to supervise the sale of public lands. The office of Forest Commissioner was established in 1891 and included the duties of the Land Agent. The work of the Land Agent was completed in the 1800's and the title dropped in 1923. There still remains in this office, however, all the records of the land office and a negligible amount of land for management. These records are still very valuable, could not be replaced, and therefore are of great value. The records are the original field notes, plans, deeds, and grants issued by the state.

Within the last few years there has been an increasing amount of calls for these records probably due to the increased value of stumpage and the many forest land transactions that have taken place. This office sends out many copies of field notes in answer to requests for this service and charges a small fee to defray the costs of copying or photostating as the case may be.

EXTENSION FORESTRY

Extension work in forestry is part of the University of Maine Agricultural Extension Service program. This program endeavors to teach the woodland owner improved woodland management practices and better marketing of forest products. Assistance in this work is given through the County Agricultural Agents in each county. State leader of the program during 1947 was A. D. Nutting. Fred E. Holt has been state leader since February 1948.

A quarterly publication entitled "Forestry Facts" is sent to over 3,000 woodland owners in the state. This publication carries information on markets and management.

Field meetings have been held to demonstrate good cutting practices, discuss market conditions, and point out good management practices. During the summer of 1948 a series of meetings were held in cooperation with the Maine Forest Service. They were held to explain the blister rust control program and discuss pine management in relation to this disease.

Information and guidance are given to town officials in regard to developing and managing forest lands owned by the town as town forests.

A series of meetings is held each winter in the counties where maple syrup is an important crop. Assistance is given to the members of the Maine Maple Producers Association.

Newspapers and radio have been used as a means of getting wide distribution of information.

Bulletins and other printed information are made available from the county Extension Service offices and directly from the University of Maine, Orono.

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