

MAINE STATE LEGISLATURE

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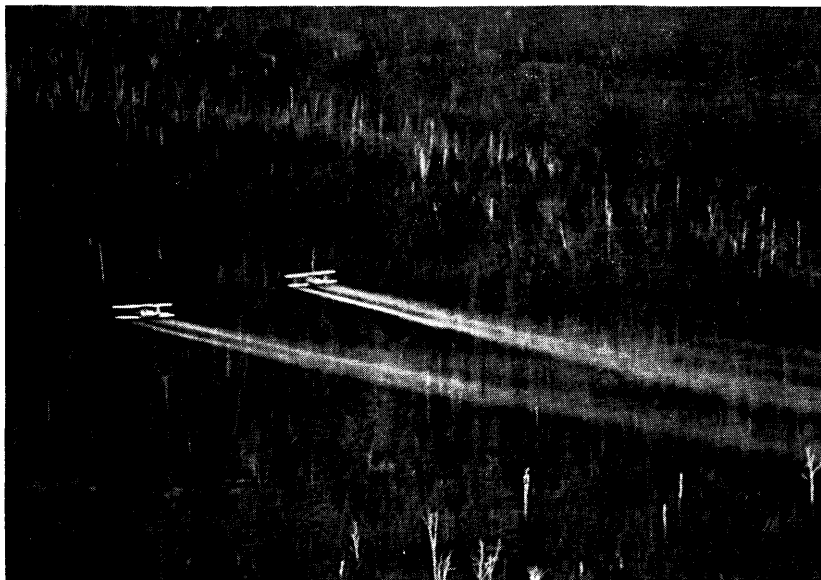
MAINE PUBLIC DOCUMENTS

1952 - 1954

(in four volumes)

VOLUME II

STATE OF MAINE
—
THIRTIETH
BIENNIAL REPORT
of the
FOREST COMMISSIONER
A. D. NUTTING



FOREST PROTECTION AGAINST INSECTS

1953-1954

STATE OF MAINE

THIRTIETH

BIENNIAL REPORT

OF THE

FOREST COMMISSIONER

A. D. NUTTING

1953 - 1954



State of Maine
FOREST SERVICE
Augusta

June 30, 1955

Honorable Edmund S. Muskie

Governor of Maine

Dear Governor Muskie:

In accordance with Section 17, Chapter 36, of the Revised Statutes of 1955, I have the honor to transmit herewith the Thirtieth Biennial Report for the years 1953-1954.

Respectfully yours,

A. D. NUTTING

Forest Commissioner

MAINE FOREST SERVICE PERSONNEL

Forest Commissioner, A. D. Nutting, Augusta

Deputy Forest Commissioner, Austin H. Wilkins, Augusta

Supervisors — Maine Forestry District

Robert G. Hutton, Greenville
Robert E. Pendleton, Island Falls
Willard A. Wight, Great Works
Glen H. Tingley (Asst. Supervisor)

Organized Towns

Fred E. Holt, Augusta

Keep Maine Green and Tree Farm System

Joel W. Marsh, Augusta

Pilots

Earl F. Crabb, Augusta
Charles F. Coe, Tramway

Radio Technicians

E. Arthur Evans, Windsor
Russell Cram, Windsor
Clarence Thurston, Windsor

Radio Operator

Franklin Sargent, Augusta

Dispatcher-Draftsmen

John Walker, Augusta
Albert Willis, Augusta

State Entomologist

H. B. Peirson, Augusta

Entomologists

Dr. Auburn E. Brower, Augusta
Wilfred L. Freeman, Augusta
Charles S. Hood, Augusta
George A. LaBonte, Augusta
Robley W. Nash, Augusta

Laboratory Biologist

Horace Bell, Augusta

Arborist

Edwin R. Grove, Augusta — 1953
John H. Chadwick, Augusta — 1954

Quarantine Inspector

Douglas Seavey, Gardiner

Forest Insect Rangers

Harold Bullock, Greenville
James Holmes, Portage
Frank Manning, Augusta
George McGinley, E. Orland
Carlton Merrill, Lovell — 1954
Benjamin Ouellette, St. Francis —
1954
Henry Willette, St. Francis — 1953
Harry E. Dyer, Stratton — 1953

Service Foresters

W. Robert Dinneen, Supervisor,
Bridgton
William J. Adams, Readfield
Richard Arsenault, Sanford
Sumner Burgess, Dixfield
Edwin R. Grove, E. Machias — 1954
Robert Lawrence, Skowhegan
Robert Locke, Caribou
Joseph Lupsha, Island Falls
Elwin Macomber, Brewer
Blynn Merrill, Dover-Foxcroft
Stephen Orach, Gorham
Robert Umberger, West Rockport
Harold Kilbreth, Machias — 1953
Edwin Gerry, Island Falls — 1953

White Pine Blister Rust

Paul H. Simmonds, Area Leader,
Augusta
District Leaders
Harrington G. Bradbury, Belfast
Martin G. Calderara, Auburn
Joseph B. Pike, Bridgton

State Forest Nursery

Henry Plummer, Supervisor, Orono
Roger Taylor, Asst. Supervisor, Orono

Chief Wardens

Northern Division
Stanley E. Drake, Allagash District
Harold A. Weeks, Aroostook Waters
District
Fortunat Vaillancourt, Chamberlain
District
Scott Davis, East Branch District
Stanley Greenlaw, Fish River District
Emery Grant, Katahdin District
Paul Chamberlain, Madawaska Dis-
trict
H. Ray Smith, Mattawamkeag Dis-
trict — 1953
Lloyd Rigby, Mattawamkeag District
— 1954
Annas F. Bridges, Musquacook Dis-
trict
Earl Adams, Number 9 District —
1953
Chester Goding, Number 9 District —
1954

Harold Pelletier, Seven Islands District

Lionel Caron, Upper St. John District

Western Division

Oscar Gagnon, Chesuncook District

Earle Williams, Dead River District — 1953

Duluth Wing, Dead River District — 1954

John L. Smith, Moosehead District

Charles Lumbert, Moose River District

Isaac Harris, Parlin Pond District

Kenneth Hinkley, Rangeley District

Vaughn Thornton, Seboomook District

Eastern Division

Everett Grant, East Machias District

Luther Davis, Beddington District

Emery Lyons, Passadumkeag District

Ivan McPheters, Pleasant River District

Ralph C. Bagley, St. Croix District

Macey Armstrong, Machias District — 1953

State District Wardens

District 1 — Saco Valley — L. Clayton Weymouth

District 2 — Mt. Zircon Spring — Wilbur Libby

District 3 — Arnold Trail — Howard Rowell

District 4 — Damariscotta Lake — Waldo H. Clark

District 5 — Heart of Maine — Carlton Merrill, 1953

Earle Williams, 1954

District 6 — Down East — Willard Wight

District 7 — Northeastern — Robert E. Pendleton

Business Manager

William Whitman, Augusta

Secretary to Commissioner

Lillian Tschamler, Augusta

Clerical and Stenographic

Marion Blair, Augusta

Madelyn Bullock, Augusta

Ethel Fowler, Augusta

Kathryn F. Larkin, Augusta

Agnes M. Stevenson, Augusta

Donna L. Storr — 1954, Augusta

Blanche L. Violette, Augusta

Olive Corson — 1953, Augusta

IN MEMORIAM

GEORGE G. BUXTON

Watchman — Pleasant Mountain

11 years state employed — 1943 to 1953

Deceased June 26, 1953

ALFRED CLARANCE

Watchman — Lawler Mountain

10 years state employed — 1945 to 1954

Deceased November 1, 1954

NICHOLAS TZOVARRAS

Watchman — Beetle Mountain

9 years state employed — 1944 to 1952

Deceased October 20, 1952

INTRODUCTION

High interest and good cooperation during 1953 and 1954 continued the progress made in recent years in forestry programs.

The 1953 summer was dry which meant deep-burning summer fires, but fortunately there was ample rain in the early fall. Heavy rainfall, well distributed, throughout 1954 resulted in one of the best years in the state's forest fire history with very few fires and a small acreage burned.

Keep Maine Green and Smokey Bear spearheaded the prevention program. The press, radio, and television gave much space and time to forest fire prevention, and public group interest in this phase of our work gave the departmental wardens an opportunity to concentrate more on local prevention problems and contacts. The 1953 legislature passed a forest fire prevention measure which prohibits dropping or throwing lighted smoking materials from vehicles on public or private ways.

Training was emphasized in all forestry programs. Forest fire training continued to be patterned after the system of the Northeastern Forest Fire Protection Commission so Maine has the same training as nearby states. Deputy Commissioner Austin H. Wilkins was advisor to the Compact training team, and his efforts and the interest of the men resulted in a trained force becoming better trained.

The policy of gradually providing good forest fire headquarters, with living facilities, was stepped up in 1954 as a result of available warden time for construction work during a wet season. These quarters have helped build a faith among the warden force that the department and the public want efficient wardens with good facilities and equipment.

Two-way radio facilities were stepped up and the recording of good forest fire danger build-up kept the organization alert to forest fire danger. The fire danger stations could not have been effectively operated without two-way radio. The communication system was used by Civil Defense and Public Safety during hurricanes Carol, Edna, and Hazel.

Forest fire equipment was improved and increased.

Two major aerial spray projects were successfully carried out in 1954 — gypsy moth in southwestern and coastal Maine, and spruce budworm in northern Maine. Planes and new insecticides have changed the concept of insect control by providing extremely useful means of carrying out forest pest protection. The success of the two projects indicates that good detection and prompt control offers a challenge and responsibility to entomologists and the forest managers. Team work given by departmental fire wardens and foresters to the entomologists in the control work was important and should serve as a pattern for the future.

The past experience gained by service foresters was used to bring about major accomplishments in this biennium. Cooperative agreements with pulpwood companies provided definite markets for marked timber in young stands. Additional foresters offered forestry assistance to all small woodland owners in Maine for the first time.

Timber marking became more common, with one major industrial company marking its entire cut and several others a sizable portion of their cut.

Tree Farms increased in number to one hundred. Maine's first Tree Farm Family was initiated by Hollingsworth & Whitney Co., Waterville, and Diamond Match Co., Oakland, in the summer of 1954, at Unity.

Both the Eastern and Western Maine Forest Forums continued to be popular and probably increased in average attendance.

Too few people in Maine are conscious of the importance of forests to the state's and their own economy. The support of all organizations, groups, and citizens is essential to protect and develop Maine's greatest resource, its forests. The basic policy of the department is to increase cooperation among its employees, forest industries, other forest users, and the general public.

FINANCE AND ACCOUNTING

The Forestry Department is financed through eleven appropriations, subdivided into twenty-seven activities. Separate accounting records are kept for each appropriation. By means of a single voucher register form designed by departmental personnel, records of receipts, allotments, encumbrances, and disbursements are kept, so it is known currently the status of each appropriation. At the close of each month a statement by appropriation is prepared showing current and cumulative expenditures and their relationship to quarterly budgets. Careful budget planning and execution assures proper spending of available funds and brings about good relationships with State Finance Departments.

Recognizing that departmental personnel is hired for ability to do field work, the policy is to operate with a minimum of reports and paper work. Requirements are:

1. Personnel forms to put men on or take off payroll.
2. A weekly report of activities.
3. Fire payrolls and reports.
4. Inventories and requisitions once a year.

Payroll. With more than 300 employees scattered over the entire state, 90% of whom are on a seasonal basis, the payroll problem presents difficulties. No employee is paid until proper forms and approvals are received from his immediate superior, and when employees are to leave the payroll, post cards or radio messages are required to notify the Augusta office.

Fire Payrolls. A method of paying men in the Maine Forestry District for fire fighting has been devised that is a fast and practical improvement. Each week, or upon extinguishment of a fire, the chief warden prepares a payroll giving the name and mailing address of each individual, number of hours, and rate of pay. Upon receipt of the payroll at Augusta, it is processed immediately and sent to the Controller for payment. Checks are mailed to fire fighters the day after payrolls are received. As many as 750 checks were mailed to fire fighters in a single day in August 1952. The very fine cooperation of the Controller's office, by giving preference to fire payrolls, has made it possible to pay without delay. With the new method, supervisors no longer use petty cash funds and are freed from the job of being payroll clerks for more important duties.

Inventories and Requisitions. Toward the close of the season a complete inventory is taken by each field employee of every item at his location. Each chief warden and state district warden summarizes the inventories for his district. This is sent to the supervisor who then summarizes for his entire Division. Each supervisor is responsible to Augusta for his Divisional inventory, each chief or state warden is responsible to the supervisor, and each watchman or patrolman responsible to his immediate superior.

When the inventory is taken, each individual requisitions the items he feels will be needed at his location for the next season. The supervisor reviews these requests and prepares his requisitions based upon them. All requisitions for major items have to be approved by the Forest Commissioner. Annual inventories are also taken of Augusta office furniture, entomology, nursery, and all other departmental equipment and supplies.

During a season items are consumed, damaged, condemned or lost, and transferred. The inventory form provides the supervisor with the quantities of each item. It is his responsibility to condemn items no longer usable and he furnishes the Augusta office with sufficient detail to enable it to remove the items from the state inventory record. The 1954 inventory listed 928 different items. The following is a reproduction of the supervisors' summary of our combination inventory and requisition form:

Location..... District..... Division.....
 Taken by..... Date.....

Fire Tools & Equipment	Chesuncook	Moosehead	Moose River	Parlin Pond	Dead River	Rangeley	Soboomook	Inventory '53	Received '54	Condemned, Lost or Damaged	Trans. '54	Inventory '54	Requisition '55
Lamps (Head — Electric)	6	8	3	9	8	1	4	29	12	2		39	12
Pumps (Back — Indian)	18	24	30	36	24	10	20	138	30	6		162	24
Pails — Galv. — 10 qt.	20	8	14	15	6	19	10	108	20	24	12	92	36

Keeping accurate inventory records is required by the State Controller and correct accountability of tools, equipment, and supplies is one of the conditions necessary to enable the state to receive federal moneys. It is good business and is the best means the department has to prove that the taxpayer's money is wisely spent and the items purchased are conserved. It serves to instill a sense of pride and responsibility.

At the close of 1954 the following was the inventory of major fire fighting equipment:

1954 INVENTORY SUMMARY

	Augusta	Northern	Eastern	Western	Total M.F.D.	Organized Towns	Totals — State	
							1954	1952
1" Linen Hose	1,000'	29,900'	8,000'	9,000'	47,900'	5,100'	53,000'	12,500'
1½" Linen Hose	2,500'	82,750'	47,200'	67,750'	200,200'	86,350'	286,550'	258,900'
1½" R. L. Hose	—	6,950'	3,350'	3,550'	13,850'	88,675'	102,525'	83,950'
Power Pumps	6	53	30	50	139	79	218	186
Hand Pumps	—	981	777	383	2,141	1,643	3,784	3,222
Forestry Axes	—	705	215	296	1,216	390	1,606	1,943
Other Axes	—	352	103	441	896	654	1,550	1,251
Miscellaneous Hand Tools	—	358	300	240	898	2,526	3,424	3,000
Shovels	—	1,236	525	703	2,464	1,020	3,484	3,729
Trucks	—	32	22	26	80	42	122	122
Cars	1	2	1	1	5	—	5	4
Planes	2	—	—	—	2	—	2	2
Boats	—	18	5	10	33	—	33	38
Canoes	—	45	23	12	80	—	80	80
Outboard Motors	—	35	11	19	65	—	65	73
Radios — Mobile	17	30	16	17	80	46	126	86
Radios — Portable	14	24	13	15	66	69	135	103
Radios — Base Stations	—	3	1	3	7	5	12	14

Approx.

The State Purchasing Agent is responsible for purchases. To avoid conflict and to insure getting the correct needs, requisitions must be clear with complete specifications. Open market purchasing of commonly-used items is contrary to the state purchasing policy. During the past two years, the department and the Purchasing Agent have had a very workable agreement on small tools and household items that allows for personal selection.

Weekly Reports. The weekly report form is so designed that practically all information is reported by use of figures. This makes the report simple to use and furnishes the Augusta office with information in a form that can be readily statisticized. It is used to report activities, time spent doing the various jobs, truck operation costs, receipt of supplies and equipment, and is a direct report to the immediate superior as well as a report to the Forest Commissioner.

Mid-way during the season, and at the end, weekly reports are summarized and the information gathered is sent to the supervisors. Even with employees scattered over large areas, a supervisor is thus informed of each man's performance and activities. He can make comparisons between men with the same jobs. He is informed concerning supplies, equipment, vehicle performance, accidents, violations, and general conditions in each man's territory.

The weekly reports supply the answer to many questions such as what the men do when there are no fires, what prevention work they do, what improvements and repairs have been made, etc. The following partially summarizes the Maine Forestry District for 1954:

Contacts with fishermen, woodsmen, municipal officials, etc.	No. 23,305
Telephone maintenance	Hrs. 37,603
Repair and construction of buildings	Hrs. 35,823
Work on roads and trails	Hrs. 16,563
Work on equipment and tools	Hrs. 30,834
Miles traveled	619,380

Finances and Budget. During a biennium, the department prepares budgets for the legislature, the federal government, and for its yearly work programs by quarterly periods.

The legislative budget is completed in August for a period ending $2\frac{3}{4}$ years later. In its preparation an attempt is made to anticipate

every departmental need. Weather and fires have a direct influence on expenditures, and inasmuch as they cannot be forecast for the future the past must be used as a basis for estimates, taking into consideration probable salary changes, tool and equipment additions, and replacements and every other situation that will require money. An appropriation like the Maine Forestry District, operating on a fixed tax, should have a reserve for emergencies; otherwise, temporary borrowing becomes necessary.

Work Program Budget. Based upon appropriations, federal cooperation, and Maine Forestry District tax, etc. and anticipated receipts, a work program is prepared annually on a quarterly basis. To meet conditions that may have changed since the legislative budget was passed, minor changes are permitted. Any quarterly expenditures that exceed budget estimates in each of the four main categories — personal services, contractual services, commodities, and capital expenditures — must be explained through the State Finance Officer to the Governor and Council. The Finance Officer has been most cooperative and understanding of the problems that arise due to conditions beyond our control.

Federal Budgets and Cooperation. For each appropriation that receives federal funds, an annual budget is prepared. These budgets serve as the basis for the allocation of federal funds. The nursery appropriation receives funds to match expenditures, less receipts from the sale of trees. The management appropriation may receive up to 50% of its expenditures, but because sufficient funds were not available, allotments during this biennium have been less with small additional amounts when funds were made available as other states were unable to qualify for their original allotments. The fire appropriations received funds based upon a combination of two formulas, the first being based on estimated cost of "adequate protection," and the second is based upon expenditures, and varies from year to year as other states vary their expenditures.

Each year expenditures are audited by federal auditors. It is a pleasure to quote the following comment from Mr. Charles L. Tebbe, Regional Forester, concerning the audit of the 1953 and 1954 fiscal years: "The auditor was impressed with the apparent accuracy and reliability of your fund and property account records, and supporting documents as well as the efficiency of your personnel."

Receipts and Expenditures. The following statements are on a calendar year basis. State finances are on a June 30 fiscal year basis. December 31 balances are for operating expenses until June 30 of the following year. A comparison of the expenditures for the two years very clearly indicates the effect of weather upon operations and expenditures, and shows the advantage of making plans sufficiently far in advance to take advantage of favorable conditions.

Maine Forestry District Operating Statement. To maintain comparisons with previous years, on the Maine Forestry District operating statement expenditures have been classified as in past years. This will explain any difference between individual items on the State Controller's analysis and those on the statements of expenditures. The total amounts agree with the Controller.

MAINE FORESTRY DEPARTMENT EXPENDITURES

January 1, 1953 to December 31, 1953

	FIRE CONTROL			PEST CONTROL		MANAGEMENT & ADMINISTRATION				Total
	Organized Town Reimbursement	Organized Towns	Maine Forestry District	Blister Rust	Entomology	Forest Nursery	Management Aid	Administration	Public Lots	
Personal Services	—	\$172,025.11	\$273,973.77	\$ 6,329.58	\$ 51,215.16	\$ 6,263.19	\$36,991.75	\$ 8,961.79	\$ 1,635.80	\$ 557,396.15
Special Services	\$ 121.96	758.28	—	—	2,252.85	840.00	—	—	22.95	3,996.04
Fire Suppression	—	—	215,810.45	—	—	—	—	—	—	215,810.45
Reimbursement to Cities and Towns	58,882.87	—	—	7,255.14	—	—	—	—	—	66,138.01
Traveling Expenses	—	8,167.39	8,210.73	—	8,594.86	26.89	12,710.01	—	378.92	38,088.80
Plane Rentals	5.00	—	2,267.13	—	—	—	—	—	—	2,272.13
Operation State Vehicles	—	22,317.53	29,164.47	—	629.65	530.36	—	—	—	52,642.01
Operation State Planes	—	—	4,613.66	—	—	—	—	—	—	4,613.66
Utility Services	—	6,504.08	4,576.76	45.75	243.67	174.22	21.20	1,866.43	—	13,432.11
Rents	—	(131.21)	523.53	—	—	—	1.00	—	—	393.32
Building and other Repairs	—	9,593.30	18,744.31	2.94	686.01	65.90	14.73	155.60	—	29,262.79
Insurance	—	—	3,923.37	—	61.62	—	—	—	—	3,984.99
General Operating Expenses	57.21	2,394.15	2,498.14	6.08	393.43	55.35	168.54	2,734.75	80.01	8,387.66
Food on Construction	—	—	545.74	—	—	—	—	—	—	545.74
Fuel	—	632.16	372.34	—	217.33	—	—	—	—	1,221.83
Office Supplies	—	456.75	1,377.81	1.80	250.47	40.67	82.93	1,682.57	43.50	3,936.50
Camp and Headquarter Supplies	—	3,701.82	8,836.59	3.50	978.10	4,872.76	1,449.16	56.67	35.64	19,934.24
Accident Compensation	—	32.00	842.00	—	20.00	4.00	8.60	—	—	906.60
Land Purchases	—	875.61	205.00	—	—	—	—	—	—	1,080.61
New Buildings and Additions	—	14,493.75	8,430.17	—	81.17	631.80	—	—	—	23,636.89
Equipment	—	23,323.60	58,829.38	—	8,468.03	512.29	48.51	48.51	—	91,230.32
Northeastern Compact	—	—	—	—	—	—	—	2,310.00	—	2,310.00
Retirement Contribution	—	—	7,365.94	—	—	—	—	—	—	7,365.94
Total Expenditures 1953	\$50,067.04	\$265,144.32	\$651,111.29	\$13,644.79	\$ 74,092.35	\$14,017.43	\$51,496.43	\$17,816.32	\$ 2,196.82	\$1,148,586.79
1952 Fire bills paid in 1953	4,461.83	—	108,130.04	—	—	—	—	—	—	112,591.87
	\$54,605.21	\$265,144.32	\$542,981.25	\$13,644.79	\$ 74,092.35	\$14,017.43	\$51,496.43	\$17,816.32	\$ 2,196.82	\$1,035,994.92

FOREST COMMISSIONER'S REPORT

MAINE FORESTRY DEPARTMENT RECEIPTS

January 1, 1953 to December 31, 1953

	FIRE CONTROL			PEST CONTROL		MANAGEMENT & ADMINISTRATION				Total
	Organized Town Reimbursement	Organized Towns	Maine Forestry District	Blister Rust	Entomology	Forest Nursery	Management Aid	Administration	Public Lots	
Legislative Appropriation.....	\$45,000.00	\$189,227.00	—	\$15,104.00	\$ 90,852.00	\$ 6,000.00	\$41,271.00	\$18,153.00	—	\$ 405,607.00
Maine Forestry District Tax.....	—	—	\$669,170.68	—	—	—	—	—	—	669,170.68
Miscellaneous Taxes.....	4,325.26	300.00	510.00	—	—	—	—	—	—	5,135.26
Transfers from Contingent Fund.....	18,291.33	—	—	—	—	—	—	—	—	18,291.33
Transfers from other Appropriations.....	—	—	—	—	—	—	—	—	\$ 5,000.00	5,000.00
Federal Cooperation.....	—	6,847.38	10,162.74	—	—	5,872.02	18,200.00	—	—	41,082.14
Portable Sawmill Licenses.....	—	3,750.00	—	—	—	—	—	—	—	3,750.00
Tree Surgeons Licenses.....	—	—	—	—	485.00	—	—	—	—	485.00
Sale of Nursery Stock.....	—	—	—	—	—	4,862.25	—	—	—	4,862.25
Rent Income.....	—	725.00	165.00	—	—	—	—	—	—	890.00
Miscellaneous Fees and Income.....	—	—	3,173.83	—	—	—	—	96.00	—	3,269.83
Private Contributions.....	—	10.00	159.77	—	5,428.19	—	—	—	—	5,597.96
Repayment of Loan.....	—	—	(270,000.00)	—	—	—	—	—	—	(270,000.00)
Total Receipts 1953.....	\$67,616.59	\$200,859.38	\$413,342.02	\$15,104.00	\$ 96,765.19	\$16,734.27	\$59,471.00	\$18,249.00	\$ 5,000.00	\$ 893,141.45
FINANCIAL STATEMENT										
Balance — January 1, 1953.....	\$ 4,891.74	\$122,828.47	\$302,781.81	\$ 5,506.70	\$ 36,606.84	\$ 3,410.26	\$10,735.37	\$ 8,139.21	\$ 4,334.46	\$ 499,234.86
Receipts — 1953.....	67,616.59	200,859.38	413,342.02	15,104.00	96,765.19	16,734.27	59,471.00	18,249.00	5,000.00	893,141.45
	72,508.33	323,687.85	716,123.83	20,610.70	133,372.03	20,144.53	70,206.37	26,388.21	9,334.46	1,392,376.31
Disbursements — 1953.....	59,067.04	265,144.32	651,111.29	13,644.79	74,092.35	14,017.43	51,496.43	17,816.32	2,196.82	1,148,586.79
	13,441.29	58,543.53	65,012.54	6,965.91	59,279.68	6,127.10	18,709.94	8,571.89	7,137.64	243,789.52
Lapsed to Surplus.....	—	5,050.51	(30.63)	603.98	3,381.13	1,104.56	3,817.76	38.91	2,464.56	16,430.78
Balance — December 31, 1953.....	\$13,441.29	\$ 53,493.02	\$ 65,043.17	\$ 6,361.93	\$ 55,898.55	\$ 5,022.54	\$14,892.18	\$ 8,532.98	\$ 4,673.08	\$ 227,358.74

MAINE FORESTRY DEPARTMENT EXPENDITURES

January 1, 1954 to December 31, 1954

	FIRE CONTROL		PEST CONTROL		MANAGEMENT & ADMINISTRATION				Total	
	Organized Town Reimbursement	Organized Towns	Maine Forestry District	Blister Rust	Entomology	Forest Nursery	Management Aid	Administration		Public Lots
Personal Services.....	—	\$174,296.20	\$269,763.50	\$ 7,621.60	\$ 59,767.31	\$ 6,874.16	\$42,298.75	\$ 9,182.58	\$2,119.03	\$ 571,923.13
Special Services.....	—	933.49	—	—	1,677.53	880.00	—	24.00	24.93	3,539.95
Fire Suppression.....	—	—	2,933.25	—	—	—	—	—	—	2,933.25
Reimbursement to Cities and Towns.....	\$27,218.26	—	—	6,445.78	—	—	—	—	—	33,664.04
Traveling Expenses.....	—	8,414.36	6,850.70	17.07	9,283.67	446.37	13,090.49	—	1,297.67	39,400.33
Plane Rentals.....	—	—	440.41	—	—	—	—	—	—	440.41
Operation State Vehicles.....	—	19,720.51	27,151.24	—	3,230.66	380.92	23.91	—	—	50,507.24
Operation State Planes.....	—	—	4,508.55	—	—	—	—	—	—	4,508.55
Utility Services.....	—	5,835.61	4,179.87	120.14	262.08	224.59	25.65	1,885.32	2.25	12,535.51
Rents.....	—	233.00	653.94	—	256.25	—	—	—	—	1,143.19
Building and other Repairs.....	—	6,246.66	18,939.78	—	643.59	107.28	48.57	148.76	4.50	26,139.14
Insurance.....	—	—	4,720.22	—	(7.15)	—	—	—	—	4,713.07
General Operating Expenses.....	.50	1,811.74	2,052.19	114.28	49,127.94	181.14	2,023.09	2,416.29	71.71	57,798.88
Food on Construction.....	—	—	1,354.01	—	—	—	—	—	—	1,354.01
Fuel.....	—	742.89	358.07	—	246.78	—	—	—	—	1,347.74
Office Supplies.....	—	557.69	811.72	13.15	505.11	47.77	144.07	1,915.38	3.98	3,998.87
Camp and Headquarter Supplies.....	—	2,728.35	7,859.68	1.67	6,378.61	3,823.26	1,462.22	33.94	55.24	22,342.97
Accident Compensation.....	—	84.00	1,234.42	—	765.90	4.60	—	—	—	2,088.32
Land Purchases.....	—	471.00	312.30	—	—	—	—	—	—	783.30
New Buildings and Additions.....	—	9,630.13	8,276.53	—	143.03	—	—	—	—	18,049.69
Equipment.....	—	17,720.66	47,662.70	—	5,302.83	1,756.50	113.56	50.00	47.19	72,653.44
Northeastern Compact.....	—	—	—	—	—	—	—	2,310.00	—	2,310.00
Retirement Contribution.....	—	—	13,950.22	—	—	—	—	—	—	13,950.22
Total Expenditures 1954.....	\$27,218.76	\$249,426.29	\$424,013.30	\$14,333.69	\$137,584.14	\$14,725.99	\$59,230.31	\$17,966.27	\$ 3,626.50	\$ 948,125.25

FOREST COMMISSIONER'S REPORT

MAINE FORESTRY DEPARTMENT RECEIPTS

January 1, 1954 to December 31, 1954

	FIRE CONTROL			PEST CONTROL		MANAGEMENT & ADMINISTRATION				Total
	Organized Town Reimbursement	Organized Towns	Maine Forestry District	Blister Rust	Entomology	Forest Nursery	Management Aid	Administration	Public Lots	
Legislative Appropriation.....	\$45,000.00	\$196,106.00	—	\$15,486.00	\$ 93,452.00	\$ 7,023.00	\$43,072.00	\$19,220.00	—	\$ 419,359.00
Maine Forestry District Tax.....	—	—	\$387,428.23	—	—	—	—	—	—	387,428.23
Miscellaneous Taxes.....	2,390.33	300.00	—	—	—	—	—	—	—	2,690.33
Transfers from Contingent Fund.....	6,000.00	—	—	—	8,389.47	—	—	—	—	14,389.47
Transfers from other Appropriations.....	—	—	4,251.36	—	—	—	—	—	\$ 5,000.00	9,251.36
Federal Cooperation.....	—	76,293.56	144,922.66	—	7,314.53	5,907.78	17,950.00	—	—	252,388.53
Portable Sawmill Licenses.....	—	3,100.00	—	—	—	—	—	—	—	3,100.00
Tree Surgeons Licenses.....	—	—	—	—	648.00	—	—	—	—	648.00
Sale of Nursery Stock.....	—	—	—	—	—	6,349.00	—	—	—	6,349.00
Rent Income.....	—	1,355.00	190.00	—	—	—	—	—	—	1,545.00
Miscellaneous Fees and Income.....	—	1,247.85	556.25	—	—	52.80	—	59.35	—	1,916.25
Private Contributions and Municipal.....	—	(10.00)	1,406.19	499.33	30,683.85	—	—	—	—	32,579.37
Total Receipts 1954.....	\$53,390.33	\$278,392.41	\$538,754.69	\$15,985.33	\$140,487.85	\$19,332.58	\$61,022.00	\$19,279.35	\$ 5,000.00	\$1,131,644.54

FINANCIAL STATEMENT

Balance — January 1, 1954.....	\$13,441.29	\$ 53,493.02	\$ 65,043.17	\$ 6,361.93	\$ 55,898.55	\$ 5,022.54	\$14,892.18	\$ 8,532.98	\$ 4,673.08	\$ 227,358.74
Receipts — 1954.....	53,390.33	278,392.41	538,754.69	15,985.33	140,487.85	19,332.58	61,022.00	19,279.35	5,000.00	1,131,644.54
Disbursements — 1954.....	66,831.62	331,885.43	603,797.86	22,347.26	196,386.40	24,355.12	75,914.18	27,812.33	9,673.08	1,359,003.28
	27,218.76	249,426.29	424,013.30	14,333.69	137,584.14	14,725.99	59,230.31	17,966.27	3,626.50	948,125.25
Lapsed to Surplus.....	39,612.86	82,459.14	179,784.56	8,013.57	58,802.26	9,629.13	16,683.87	9,846.06	6,046.58	410,878.03
	—	10.24	(299.86)	443.35	—	—	—	212.01	1,228.54	1,594.28
Balance — December 31, 1954.....	\$39,612.86	\$ 82,448.90	\$180,084.42	\$ 7,570.22	\$ 58,802.26	\$ 9,629.13	\$16,683.87	\$ 9,634.05	\$ 4,818.04	\$ 409,283.75

MAINE FORESTRY DISTRICT**10,262,455 Acres**

Probably the outstanding feature of the past biennium was the forest fire prevention activities of the Maine Forestry District personnel. More visits were made to lumber camps and cutting operations, making for a better understanding of existing problems, more cooperative effort in fire prevention, and the establishment of a better personal relationship. Personnel was temporarily assigned to projects in adjoining districts, resulting in a broadened conception of their own jobs as well as departmental objectives. Some men assisted on the spruce budworm spraying project, giving them a better idea of the pest problems incidental to their own work.

The continuation of training schools, standardization of methods and procedures, and better solutions of the innumerable problems that confront them, have improved the effectiveness of each individual.

At the beginning of the biennium, the old Northern and Central Divisions were consolidated into one administrative division. In the Eastern Division, the Union River and the Machias Districts were combined into a single chief warden district known as Beddington. The supervisors of the Eastern and Northern Divisions of the Maine Forestry District also serve as State District Wardens in the Organized Town Districts 6 and 7 respectively. This arrangement is logical because the Districts are adjacent. Boundary lines between the Maine Forestry District and the Organized Towns, between supervisory districts, or chief warden districts, are for administrative and financing purposes and do not exist when fires occur.

On March 14, 1953, Rex E. Gilpatrick, supervisor of the Northern Division, retired after 42 years of service, and on February 28, 1953, George A. Faulkner, supervisor of the Eastern Division, retired after 31 years of service. Their fellow employees presented gifts at a testimonial dinner and party held at Augusta.

The Governor and Council, following approval of the Maine Forestry District Advisory Committee, went along with the Forest Commissioner's recommendation that Personnel Board ratings should be used in paying District personnel. The same approval was given to the Legislative increase in the autumn of 1954. Well paid men mean better qualified men, who will return year after year to their seasonal

positions. Forest landowners and woods operators have given increasing cooperation by providing winter work for wardens. This is extremely helpful in providing better morale, which in the end means more efficient wardens.

Fire Season. The past two years were opposite as far as fire conditions were concerned. The 1953 season was marked by a decided deficit in rainfall, and fires occurred from early April until November. It was unusual, too, in that it was drier inland than in the coastal regions. There was only one week during the season when there was not a crew on a fire somewhere in the District. The year 1954 was exceedingly rainy. What few fires there were of any consequence occurred prior to the middle of June. After then, rains fell almost daily until the end of the season.

The following summarizes both seasons:

	1953	1954
Suppression Cost	\$94,824.00	\$2,933.00
Number of Fires	200	75
Acres Burned	4,886	453

Weather Reports, Burning Index, and Danger Measurement.

The radio communication network has made possible an efficient method of collecting weather data and disseminating weather information, burning index, and fire danger build-up. In the Maine Forest District there are 23 forest fire danger stations that record daily conditions such as rain, wind, and the fuel moisture content of the material on the forest floor. Local conditions are reported at 3:00 P.M. and again at 5:30 P.M. Seventeen of the stations radio weather code to Augusta, which in turn is telephoned to the United States Weather Bureau at Boston. Combining the weather observations with its own information, it formulates the weather forecast. Each morning at 7:00 A.M. the Boston Bureau supplies a 36-hour forecast which is broadcast to all field personnel at 7:15 A.M., and again at 9:15 A.M. The fire danger weather predictions have improved and are reasonably accurate. Wardens receive early warning of fire danger build-up. They can plan their activities based upon forecasts. Predictions are especially valuable for planning during going fires and to determine safe issuance of burning permits. The United States Weather Bureau, at Boston, and Mr. John Keetch, of the U. S. Forest Service, have been most cooperative.

Many factors affect Maine weather. The White Mountains influence weather in the southwestern section, the St. Lawrence Valley affects northern Maine, and the ocean and Gulf of Maine determine the coastal weather. Prevailing winds are northwest and southwest during the fire season. There is a lightning storm belt across the central part of the state. These conditions, and the large size of the state, have made it necessary to divide Maine into five separate weather zones.

Hurricanes. Hurricanes Carol and Edna did considerable damage to telephone lines. In many instances, lines repaired after the first hurricane were again damaged in the second. Buildings and towers suffered minor damage. Many roads and trails were washed out. In all but a few areas, blow-down was not severe enough to cause serious forest fire hazard.

Burning Permits. The emphasis of burning after 4:00 P.M. has been encouraged as a basis of issuing permits. This has reduced the number of fires and made lookout towers more effective by cutting down on the number of smokes during the most dangerous part of the day. In the Eastern Division, where much of the blueberry growing prevails, 75% of all burning permits issued were for blueberry burning.

The Central Maine Power Company completed the cutting and burning of 1,200 acres of flowage above their new hydro-electric power installation at Indian Pond. Along with this, a high tension right-of-way, 50 feet by 32 miles, was cleared and burned. The entire operation was controlled by daily burning permits issued by the chief wardens in whose districts the work was being done. As a result of this control, only 37 acres burned outside of the cutting limits.

State Fire Plan. Considerable progress has been made in the preparation of the state fire plan. It is a requisite of the U. S. Forest Service. A state fire plan consists of complete maps of the protected area; an inventory of all equipment, tools, and facilities available, both state and privately-owned; a directory of key industry personnel; location of manpower pools; contacts with recruitment agencies; location of available transport vehicles; and written instructions for personnel who will serve as fire bosses and crew foremen. Fire plans must be kept current, taking into consideration new access roads, recent cuttings, and any other changes that have a bearing on fire prevention and suppression.

Training Activities. The policy of holding training schools for District personnel was continued during the biennium. Industry was invited to send representatives to participate in all phases of the schools. Five separate sectional schools were held. Emphasis was placed on large fire organization, prevention, and presuppression work. Many other subjects were covered, including safety, use of planes on fires, map reading, use of hand tools, weather and fire danger measurement, and time keeping procedure. Many additional training sessions were held by chief wardens for personnel in their own districts and in industry camps for crews. In many instances, they were held in French. The contacts that were established resulted in a better understanding of fire prevention; knowledge of what to do at the outbreak of a fire; and should result in better cooperation, fewer fires, and smaller acreage burned.

The Northeastern Forest Fire Compact, in 1953, held its school in Concord, New Hampshire, and in 1954, in Manchester, New Hampshire. These schools were held for the purpose of instructing training teams of the member states. The six New England States and New York are members; therefore, the combined experience and thinking of seven states form the basis for fire suppression, planning cooperative assistance, and standardization of fire organization on large fires. The following personnel attended and served as the nucleus for in-state training, passing information and experience along to District personnel:

Robert Pendleton	Glen Tingley
Robert Hutton	Kenneth Hinkley
Willard Wight	

A three-day field exercise for Compact trainees was held at Princeton in 1953, at which typical large fire organization problems were presented. Much of what previously had been classroom exercises became actual field practice. Those participating could instruct those wardens that did not attend.

Cooperative Agreements. Many events occurred showing the need and importance of cooperative agreements. Hurricanes Carol and Edna provided a practical test of cooperation. Civilian Defense and Public Safety loaned power generators to Augusta, Medford, Ossipee, and Windsor. This auxiliary equipment kept our radio communication system in operation, notwithstanding power failure.

During the 1953 fire season, Department of Inland Fisheries and Game planes were used by the Forestry Department. Flights were made to survey fires, and to ferry supplies and manpower. They would have been available in 1954, if needed.

Northeast Airlines agreed to report any fire sighted by its pilots.

Industry and the department agreed on the rate that would be charged for the furnishing of meals to fire fighters and for the use of its equipment.

The State Police and the Highway Department have been most cooperative.

Blueberry growers cooperated by burning land when conditions were best, as indicated by the burning index, and decided by Forestry wardens.

Construction and Maintenance. Favorable fire weather in 1954 made it possible to do more than the usual maintenance and construction jobs. To keep costs down and provide better building material, much of the lumber needed was cut by Maine Forestry District personnel. The Northern Division cut 44,000 board feet, the Western Division cut 75,000 board feet, and the Eastern Division 10,000 board feet of logs and had them sawed at nearby mills.

The following new construction projects were completed during the biennium:

Northern Division

Aroostook Waters	Replaced old log storehouse at Oxbow Road with a 20' x 21' building, using salvaged material.
Chamberlain	New boathouse at the Tramway.
East Branch	New boathouses at Millimegassett and Spoon Mt.
Fish River	New 16' x 30' watchman camp on Hedgehog Mt. Watchman's camp burned at DeBoulie Mt. — will be replaced in 1955.
Madawaska	Addition to storehouse at Cross Lake.
Mattawamkeag	New boathouse in T. 3, R. 7 on East Branch.
Musquacook	Addition to storehouse at Umsaskis.
Seven Islands	New boathouse on Shields Branch. Living quarters over storehouse at St. Pamphile.
Upper St. John	A 16' x 30' camp at Baker Lake. A 20' x 18' storehouse and house at St. Cyprien. Remodeled storehouse at Daaquam.

Western Division

Parlin Pond	Small equipment house at The Forks. New well and pump at Kelly Mt. 20' x 32' house at Caratunk.
Dead River	New well and water system at Eustis. Living quarters over storehouse at Eustis.
Rangeley	Patrolman camp at Parmachenee. Watchman's camp on Saddleback Mt.
Chesuncook	Added a room to warden's camp at Chesuncook. 27' x 37' storehouse at Chesuncook.
Moosehead	New equipment room at Greenville.
Seboomook	27' x 37' storehouse near Pittston Farm.
Moose River	27' x 47' storehouse at Moose River.

Eastern Division

Beddington	New warden house at Beddington. Patrolman camp at Eagle Lake.
Passadumkeag	New storehouse at Dobsis Lake. Patrolman camp at Dobsis Lake. Watchman camp at Passadumkeag Mt.

The construction of a watchman's camp on Saddleback Mountain deserves special mention, as airplanes were used for the first time in Maine to deliver building materials for a major construction job. Saddleback Mountain has an elevation of 4,116 feet, and because its radio is an important link in the network, it was decided to build the camp on the summit, near the tower. Logs for lumber were cut by personnel of the Rangeley District. The 14' x 18' camp was prefabricated and constructed at headquarters, each piece of lumber being numbered. It was then dismantled and the material packaged into 50 to 60 pound units which were delivered part way up the mountain by tractor and the rest of the way to the mountain top on the backs of the construction crew. Much of the material such as cement, sand, iron rods, cables to anchor the camp to ledge, tools, paint, and shingles, etc. were delivered to the site by plane by free falling, the material having a total weight of about two tons. In all, 62 drops were made. The camp was well insulated against weather and plans were made to insulate both it and the tower against lightning.

An equipment and tool marking plan was put into effect. Each Division was assigned a base color, and each chief warden district,

that color plus a coordinate color. It is now possible for each chief warden to identify the items belonging to his district, thereby assisting in keeping more accurate inventory and better accountability.

The goal to have 2,000 feet of hose to each pump is soon to be realized. At the close of 1954 the District has 1,800 feet of hose to a pump. During the biennium, Siamese connectors, bleeder valves, pressure relief valves, and other accessories were purchased to improve efficiency on the fire line. An inventory summary will be found in the section "Finance and Accounting."

Use of Aircraft for Fire Protection. One of the most effective tools used on fires and for servicing remote areas is the airplane. The Northern Division has assigned to it a float-equipped Aeronea, stationed at the Tramway. The plane is equipped with radio on the department frequency which increases its efficiency. A second plane is a float-equipped Cessna 170, also equipped with radio, and operates from Lake Maranacook at Winthrop. A hangar for use during the non-fire season is located at the Augusta Airport.

When fires are in progress, the District has had to hire additional planes, the pilots of which include several experienced men who are familiar with the territory and local conditions. Planes owned by the Department of Inland Fisheries and Game, equipped with radio on the Forestry Department frequency, are also available during fire periods.

It is important to survey a fire as early as possible, and because of the time element, the nearest available plane is used. They are frequently used to get the first crew of fire fighters on the fire as quickly as possible.

Planes are put to many uses, one of the most important being detection, especially in mid-summer when visibility from towers is often limited, and following lightning storms. They have been very useful on the Canadian border where many pulp operations have been carried on during the past several years. The International Paper Company has used its plane for patrol over its operations during dry periods.

The planes have been used to direct men to fires, to pick up spot fires, line break-overs, and hot spots on going fires. Ever since the Wassataquoik Mt. fire in 1946, when the first attempt was made to service the men on the fire by free falling the needed materials to them, an efficient and economical method has been sought. During the past few years, extensive use has been made of Army Surplus cargo

parachutes. During a fire in the summer of 1953, every item except the pumper was dropped from planes, either free fall or by cargo parachutes. One plane made over sixty drops. In this area, when manpower was scarce, the planes saved a tremendous amount of labor. The planes were also used in delivering materials and supplies to our more remote watchmen and other stations as well as to move the men in. Bigelow, Barren, and Moxie Bald Mountains were serviced entirely from the air. Aerial reconnaissance was made to ascertain the amount of blow-down as the results of hurricanes Carol and Edna.

Summary and Recommendations.

Robert E. Pendleton, Supervisor, Northern Division. The changes made in the location of some of the patrolmen were due to the expanding network of gravel roads built by timber operators within the past few years. Many of the patrolmen formerly on river patrol are now assigned to roads.

With more tower radios operating all day on the newly developed battery, our Division is much more complete. This permits more freedom of movement by wardens, who no longer have to stand by the telephone in fire weather. Another advantage is that we have been able to discontinue the use and maintenance of some miles of telephone lines, thus freeing the men for more prevention work.

The cooperation extended to our men by industry, Department of Inland Fisheries and Game personnel, Park officials, and the general public has been excellent. This cooperation is appreciated and this Division could not have operated successfully without it.

Consideration should be given to the replacement of the Aeronca plane, as it has had four seasons of use.

Robert G. Hutton, Supervisor, Western Division. In order to better identify the location of headquarters at Parlin Pond and Seboomook, it is suggested that they be named Caratunk and Pittston respectively. Creation of a sub-district in the Moose River District, with headquarters at Holeb on the Canadian Pacific Railroad, is recommended. Railroad travel is necessary to reach much of this area. This would require an additional man.

The Western Division is in a better position to meet fire emergencies than ever before. Equipment inventories are higher, its communication system more efficient, and its personnel better trained in prevention and suppression work and techniques. The attitude of the men is good, morale is excellent, and each realizes the full responsibility placed upon him.

Expansion of fire prevention efforts among woodsmen is needed. Each year more contacts are made with the woods-traveling public, which should reduce the number of man-caused fires.

There is need for storage sheds at the Chesuncook and Seboomook storehouses, a new watchman's camp on Williams Mountain, and a chief warden's house at Moose River.

Willard A. Wight, Supervisor, Eastern Division. Recent road changes, and those to be made in the next few years, should be carefully considered, keeping in mind the need for change in Chief Warden District boundaries.

The introduction of the dial system will make it necessary to rebuild some of our old telephone lines that run into central offices. Radio has made possible the elimination of some of our telephone lines.

The fire record indicates we should do more prevention work with the general public, probably in the form of contacts by our own personnel.

A new storehouse is needed in the Passadumkeag District. The present location is undesirable as the plot is too small. A site large enough for a headquarters storehouse and warden's house is necessary. A storehouse and garage are required at Topsfield.

BUDGET AND OPERATING STATEMENT — MAINE FORESTRY DISTRICT — Jan. 1, 1953 to Dec. 31, 1953

	Budget 1953	Total Expendi- tures	Augusta Office & Planes	Northern (Pendleton)	Eastern (Wight)	Western (Hutton)	Radio	Proposed Budget 1954
Office Salaries	—	—	\$12,539.56	—	—	—	—	—
Supervisors	—	—	—	\$5,375.05	\$4,312.34	\$4,875.00	—	—
Chief Wardens	—	—	—	27,088.59	12,390.00	14,528.75	—	—
Watchmen	—	—	—	37,045.44	17,016.81	28,520.85	—	—
Patrolmen	—	—	—	44,382.89	19,148.91	28,582.58	—	—
Weather Station & Telephone Op.	—	—	—	3,671.50	943.50	1,810.50	—	—
Pilots	—	—	6,876.50	—	—	—	—	—
Keep Maine Green — Tree Farms	—	—	2,600.00	—	—	—	—	—
Radio Technician	—	—	—	—	—	—	2,265.00	—
Total Salaries	\$285,233.00	\$273,973.77	\$22,016.06	\$117,563.47	\$53,811.56	\$78,317.68	\$2,265.00	\$284,000.00
Plane Rentals	1,500.00	2,267.13	—	861.37	18.50	1,387.26	—	2,000.00
Plane Operation	4,000.00	4,613.66	4,613.66	—	—	—	—	4,500.00
Fire Suppression	76,200.00	215,810.45	—	56,198.21	62,671.42	96,940.00	—	75,000.00
Travel Expense	5,800.00	8,210.73	2,794.70	2,474.20	968.66	1,821.67	151.50	8,000.00
Car & Truck Operation	31,000.00	29,164.47	670.05	12,151.43	6,964.68	9,302.28	76.03	30,500.00
Elec. & Tel. Service	5,350.00	4,576.76	12.00	1,695.49	684.37	2,184.70	—	4,500.00
Rentals	450.00	523.53	15.00	24.04	16.50	467.09	—	700.00
Repairs — Radio	—	6,220.15	—	—	—	—	6,220.15	4,000.00
Repairs — All Other	14,000.00	12,524.16	26.18	4,143.02	3,625.14	4,729.82	—	11,000.00
Insurance	4,650.00	3,923.37	497.56	1,444.27	872.72	1,108.82	—	4,000.00
General Operation Exp.	2,850.00	2,498.14	1,775.47	333.18	42.50	342.49	4.50	3,000.00
Food — Tel. Construction	1,300.00	545.74	—	79.91	248.33	217.50	—	1,000.00
Fuel	500.00	372.34	—	263.23	4.40	104.71	—	400.00
Office Supplies	550.00	1,377.81	1,311.48	46.54	6.60	13.19	—	1,000.00
Household Sup. — Small Tools	8,000.00	8,836.59	465.66	2,188.34	1,528.07	4,488.71	165.81	8,000.00
Accident Compensation	4,500.00	842.00	—	101.10	262.50	478.40	—	2,500.00
Retirement Contribution	7,150.00	7,365.94	7,365.94	—	—	—	—	16,000.00
Buildings & Improvements	8,700.00	8,430.17	—	3,290.63	3,201.67	1,937.87	—	10,000.00
Equipment	55,000.00	50,365.00	5,339.99	21,042.06	9,267.87	9,671.36	5,043.72	60,000.00
Land Purchase	250.00	205.00	—	85.00	—	120.00	—	500.00
Purchase of Plane	—	8,464.38	8,464.38	—	—	—	—	—
Total	,516,983.00	\$651,111.29	\$ 55,368.13	\$223,986.39	\$144,195.69	\$213,634.37	13,926.71	\$530,600.00
*1952 Fire Bills paid 1953	—	120,986.23	—	3,443.09	42,073.55	75,469.59	—	—
Net 1953 Expenses		530,125.06	55,368.13	220,543.30	102,122.14	138,164.78	13,926.71	

BUDGET AND OPERATING STATEMENT — MAINE FORESTRY DISTRICT — Jan. 1, 1954 to Dec. 31, 1954

	Budget 1954	Total Expendi- tures	Augusta Office & Planes	Northern (Pendleton)	Eastern (Wight)	Western Hutton)	Radio	Propose Budget 1955
Office Salaries	—	—	\$12,797.70	—	—	—	—	—
Supervisors	—	—	—	\$8,412.72	\$4,470.33	\$5,060.02	—	—
Chief Wardens	—	—	—	23,648.71	11,889.26	14,125.50	—	—
Watchmen	—	—	—	35,398.39	15,801.91	25,906.83	—	—
Patrolmen	—	—	—	43,265.08	20,148.54	29,467.51	—	—
Weather Station & Telephone Operator	—	—	—	3,495.50	851.00	1,870.50	—	—
Pilots	—	—	7,140.00	—	—	—	—	—
Keep Maine Green — Tree Farms	—	—	2,762.00	—	—	—	—	—
Radio Technician	—	—	—	—	—	—	3,252.00	—
Total Salaries	\$291,029.00	\$269,763.50	\$22,699.70	\$114,220.40	\$53,161.04	\$76,430.36	\$3,252.00	\$322,644.00
Plane Rentals	2,000.00	440.41	—	102.88	—	337.53	—	2,000.00
Plane Operation	4,500.00	4,508.55	4,508.55	—	—	—	—	4,500.00
Fire Suppression	65,000.00	2,933.25	—	675.11	1,150.83	1,107.31	—	100,000.00
Travel Expense	6,300.00	6,850.70	2,251.67	1,836.53	750.89	1,853.72	157.89	7,000.00
Car & Truck Operation	29,300.00	27,151.24	814.58	12,419.08	5,553.92	8,258.84	104.82	28,700.00
Elec. & Tel. Service	4,400.00	4,179.87	16.88	1,417.55	758.12	1,983.33	3.90	4,500.00
Rentals	400.00	653.94	77.00	134.94	6.00	436.00	—	600.00
Repairs — Radio	4,000.00	5,588.47	—	—	—	—	5,588.47	6,000.00
Repairs — All Other	8,000.00	13,351.31	630.31	6,023.58	2,350.48	4,346.94	—	14,000.00
Insurance	4,000.00	4,720.22	173.04	1,682.17	987.77	1,637.33	239.91	4,000.00
General Operating Exp.	1,800.00	2,052.19	1,760.45	143.17	22.60	125.97	—	2,600.00
Food — Construction	700.00	1,354.01	—	255.02	247.27	851.72	—	600.00
Fuel	400.00	358.07	—	278.37	2.20	77.50	—	400.00
Office Supplies	1,200.00	811.72	739.25	32.64	12.75	27.08	—	1,000.00
Household Sup. — Small Tools	5,300.00	7,859.68	101.64	3,244.81	2,133.93	2,320.59	58.71	7,500.00
Accident Compensation	3,000.00	1,234.42	—	578.27	550.15	106.00	—	3,000.00
Retirement Contribution	15,000.00	13,950.22	13,950.22	—	—	—	—	15,000.00
Buildings & Improvements	12,050.00	8,276.53	—	706.47	1,082.88	6,487.18	—	12,000.00
Equipment	45,000.00	47,662.70	2,144.40	13,620.59	10,697.80	13,176.82	8,023.09	60,000.00
Land Purchase	750.00	312.30	—	—	12.30	300.00	—	500.00
Total	\$504,129.00	\$424,013.30	\$49,867.69	\$157,371.58	\$79,481.02	\$119,864.22	\$17,428.79	\$596,544.00

MAINE FORESTRY DISTRICT

MAINE FORESTRY DISTRICT FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Aroostook County				
Garfield Pl.	May 5	3.8	Brush or Debris Burning	\$ 8.00
T. 18, R. 10, WELS	May 10	.1	Smokers .....	.....
Reed Pl.	May 10	.....	Smokers .....	.....
Oxbow Pl.	May 10	2.5	Campers	2.00
T. 16, R. 4, WELS	May 24	.....	Miscellaneous .....	.....
Silver Ridge	May 24	.....	Miscellaneous .....	.....
Nashville Pl.	May 24	.....	Miscellaneous .....	.....
T. 14, R. 6, WELS	May 25	.1	Brush or Debris Burning .....	.....
T. 14, R. 8, WELS	May 31	.1	Campers	1.00
T. 7, R. 4, WELS	May 31	30	Campers	150.00
T. 17, R. 5, WELS	May 31	.....	Smokers .....	.....
T. 15, R. 9, WELS	June 3	.1	Campers .....	.....
T. 17, R. 10, WELS	June 12	.2	Campers .....	.....
T. 15, R. 9, WELS	June 13	.....	Incendiary .....	.....
T. 11, R. 17, WELS	June 16	.....	Campers .....	.....
T. 2, R. 4, WELS	June 20	4	Smokers	148.00
T. 12, R. 9, WELS	June 20	1	Campers	13.00
T. 18, R. 11, WELS	June 21	.2	Campers	4.00
T. 18, R. 10, WELS	June 28	2,700	Smokers	10,000.00
T. 17, R. 10, WELS	July 13	2	Lightning	6.00
T. 17, R. 10, WELS	July 13	.2	Incendiary .....	.....
T. 17, R. 5, WELS	July 19	.....	Lightning .....	.....
T. 17, R. 3, WELS	July 19	.2	Lightning	4.00
T. 14, R. 9, WELS	July 19	.3	Lightning	33.00
T. 14, R. 9, WELS	July 19	.1	Lightning	1.00
T. 14, R. 8, WELS	July 19	.2	Lightning	8.00
T. 12, R. 8, WELS	July 19	.....	Lightning .....	.....
Winterville Pl.	July 19	.....	Lightning .....	.....
T. 11, R. 12, WELS	July 20	.....	Lightning .....	.....
T. 16, R. 10, WELS	July 27	.....	Smokers .....	.....
T. 16, R. 10, WELS	July 28	.....	Lumbering .....	.....
T. 17, R. 5, WELS	July 30	.....	Campers .....	.....
T. 3, R. 2, WELS	July 30	.....	Smokers .....	.....
T. 17, R. 4, WELS	Aug. 7	6.5	Smokers	16.00
T. 18, R. 11, WELS	Aug. 8	1.8	Lumbering	329.00
T. 18, R. 10, WELS	Aug. 9	.1	Campers .....	.....
T. 11, R. 4, WELS	Aug. 15	.....	Lightning .....	.....
T. 14, R. 15, WELS	Aug. 23	.....	Lightning .....	.....
T. 14, R. 16, WELS	Aug. 23	.....	Lightning .....	.....
T. 14, R. 11, WELS	Aug. 23	.....	Lightning .....	.....
T. 14, R. 7, WELS	Sept. 4	.2	Lightning	22.00
T. 17, R. 4, WELS	Sept. 10	.....	Campers .....	.....
T. 16, R. 6, WELS	Sept. 15	.....	Campers .....	.....
T. 15, R. 9, WELS	Sept. 23	.....	Campers	2.00
T. 15, R. 9, WELS	Sept. 30	.....	Campers .....	.....
T. 17, R. 4, WELS	Oct. 2	.....	Campers	6.00
T. 16, R. 11, WELS	Oct. 20	.....	Miscellaneous .....	.....
T. 18, R. 10, WELS	Oct. 20	.....	Incendiary .....	.....
T. 15, R. 8, WELS	Oct. 24	.2	Smokers	1.00
T. 1, R. 4, WELS	Nov. 13	.....	Campers .....	.....
Franklin County				
Coburn Gore	May 27	23.5	Campers	70.00
Sandy River Pl.	Aug. 13	.5	Lightning	1.00
Rangeley Pl.	Aug. 17	.5	Smokers	2.00
T. 3, R. 2, BKP, WKR	Oct. 21	.....	Campers .....	.....
Hancock County				
T. 7, S.D.	April 18	.8	Smokers	2.00
T. 16, MD	May 10	4	Smokers	4.00
T. 16, MD & Deblois	May 10	120	Campers	480.00
T. 3, ND	July 3	2.2	Lumbering	18.00
T. 3, ND	July 16	.....	Campers .....	.....
T. 22, MD	July 21	.1	Campers .....	.....
T. 39, MD	July 31	.....	Lightning .....	.....
T. 10, SD	Aug. 3	5	Campers	20.00
T. 10, SD	Nov. 19	150	Smokers	150.00
Oxford County				
T. 4, R. 1, WBKP	June 6	.....	Campers .....	.....
T. 4, R. 3, WBKP	June 9	1	Lightning	6.00
Township C, WBKP	June 28	.....	Lightning .....	.....
T. 5, R. 5, WBKP	Aug. 22	.....	Lumbering .....	.....
Mason	Sept. 8	.....	Lumbering	2.00

MAINE FORESTRY DISTRICT

MAINE FORESTRY DISTRICT FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Penobscot County				
T. 1, R. 7, WELS.	April 3	.....	Smokers	.....
T. 2, R. 6, WELS.	May 5	45	Incendiary	100.00
Kingman Twp.	May 10	.....	Smokers	.....
Kingman Twp.	May 10	20	Incendiary	80.00
Indian No. 4	May 24	1	Smokers	4.00
Indian No. 4	May 24	.....	Incendiary	.....
T. 1, R. 7, WELS.	May 24	3.2	Smokers	13.00
Indian No. 4	May 24	.....	Incendiary	1.00
Indian No. 4	May 26	.....	Incendiary	1.00
Indian No. 4	May 26	.....	Incendiary	.....
Sebouis Pl.	May 31	150	Railroad	300.00
T. 3, R. 7, WELS.	June 9	.....	Lightning	.....
T. 2, R. 6, WELS.	June 17	2.5	Incendiary	8.00
T. 1, R. 6, WELS.	June 23	1.5	Smokers	122.00
T. A, R. 7, WELS.	June 23	1.5	Smokers	2.00
Webster Pl.	June 27	.....	Brush or Debris	.....
			Burning	6.00
Indian No. 3	July 1	.....	Smokers	.....
Medway	July 3	.....	Smokers	8.00
T. 2, R. 6, WELS.	July 17	.....	Smokers	.....
T. 1, R. 7, WELS.	July 17	.....	Smokers	.....
Indian No. 3	July 18	.....	Smokers	.....
Drew	July 18	.....	Smokers	7.00
Indian No. 4	Aug. 1	.....	Smokers	.....
Lakeville Pl.	Aug. 2	1.5	Campers	8.00
Kingman Twp.	Aug. 4	1.5	Smokers	34.00
T. 5, R. 8, WELS.	Aug. 6	.....	Smokers	.....
Grand Falls Pl.	Aug. 13	.....	Lightning	.....
Grand Falls Pl.	Aug. 15	2.5	Lightning	8.00
Kingman Twp.	Aug. 22	2.5	Smokers	92.00
T. 7, R. 8, WELS.	Aug. 23	.....	Lightning	.....
T. 2, R. 9, NWP.	Aug. 26	.....	Lightning	.....
T. A, R. 7, WELS.	Sept. 3	.....	Campers	.....
T. 1, R. 7, WELS.	Sept. 3	.....	Campers	.....
Grand Falls Pl.	Oct. 2	.....	Lumbering	.....
Indian No. 3	Oct. 16	.....	Smokers	.....
T. 1, R. 7, WELS.	Oct. 20	.....	Smokers	.....
Kingman-Mattawamkeag.	Oct. 24	10	Smokers	20.00
Piscataquis County				
T. 2, R. 6, BKP, EKR.	May 4	.....	Brush or Debris	.....
			Burning	100.00
Lake View Pl.	May 11	15	Smokers	165.00
T. 5, R. 9, NWP.	May 11	.....	Smokers	.....
T. 1, R. 9, WELS.	May 30	.....	Smokers	.....
T. 6, R. 9, WELS.	May 30	.....	Campers	.....
Medford-Lake View	May 31	18	Railroad	252.00
T. 8, R. 10, WELS.	June 3	.....	Campers	.....
T. 2, R. 6, BKP, EKR.	June 10	5	Campers	136.00
T. 2, R. 9, WELS.	June 22	4.5	Smokers	14.00
Harford's Point	June 23	.....	Smokers	.....
Sugar Island	June 24	.....	Campers	2.00
Lake View Pl.	June 27	.....	Brush or Debris	.....
			Burning	1.00
Lake View Pl.	June 27	.....	Brush or Debris	.....
			Burning	1.00
T. 2, R. 10, WELS.	June 30	.....	Lightning	.....
Medford	July 1	.....	Smokers	.....
T. 8, R. 13, WELS.	July 1	.....	Campers	.....
T. 5, R. 10, WELS.	July 16	3.5	Miscellaneous	7.00
Lake View Pl.	July 17	.....	Railroad	.....
T. 4, R. 9, NWP.	July 19	.....	Smokers	2.00
T. 7, R. 13, WELS.	July 19	.....	Lightning	.....
T. 9, R. 11, WELS.	July 20	.....	Lightning	.....
T. 4, R. 13, WELS.	July 20	.....	Lightning	.....
T. 7, R. 10, NWP.	July 31	175	Smokers	4,434.00
T. 5, R. 9, NWP.	Aug. 3	1	Smokers	3.00
T. 10, R. 13, WELS.	Aug. 5	.....	Lightning	.....
T. 10, R. 10, WELS.	Aug. 7	.....	Smokers	26.00
T. 5, R. 13, WELS.	Aug. 8	.....	Smokers	.....
T. A, R. 14, WELS.	Aug. 29	.....	Lightning	1.00
T. 10, R. 11, WELS.	Sept. 1	.....	Lightning	2.00
T. 9, R. 11, WELS.	Sept. 1	.....	Lightning	20.00
T. 10, R. 12, WELS.	Sept. 1	.....	Lightning	.....
T. 10, R. 11, WELS.	Sept. 2	.....	Lightning	2.00

FOREST COMMISSIONER'S REPORT

MAINE FORESTRY DISTRICT FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Piscataquis County — Cont.				
T. 9, R. 12, WELS.	Sept. 4	.....	Lightning	.....
T. 9, R. 11, WELS.	Sept. 4	3	Lightning	46.00
T. 10, R. 11, WELS.	Sept. 4	.5	Lightning	1.00
T. A, R. 11, WELS.	Sept. 4	.2	Lightning	.....
T. 7, R. 15, WELS.	Oct. 22	.....	Lumbering	.....
Elliottsville Pl.	Oct. 23	.....	Campers	.....
Lake View Pl.	Oct. 25	.2	Campers	.....
Deer Island (Moosehead Lake)	Nov. 17	.5	Smokers	1.00
Somerset County				
T. 1, R. 6, BKP, EKR	May 1	25	Brush or Debris Burning	50.00
T. 3, R. 5, BKP, EKR	May 8	.8	Smokers	3.00
T. 6, R. 18, WELS.	May 10	96	Smokers	475.00
T. 3, R. 7, BKP, WKR	May 23	10	Brush or Debris Burning	90.00
T. 3, R. 1, NBKP	May 30	.....	Campers	.....
T. 1, R. 4, NBKP	May 31	.....	Smokers	.....
T. 1, R. 6, BKP, EKR	May 31	200	Smokers	600.00
T. 1, R. 5, BKP, EKR	May 31	.2	Smokers	1.00
The Forks	June 3	.1	Smokers	.....
T. 4, R. 17, WELS.	June 3	4	Campers	8.00
T. 5, R. 6, BKP, WKR	June 9	.1	Lightning	.....
T. 8, R. 17, WELS.	June 19	1	Smokers	4.00
T. 2, R. 4, NBKP	June 21	.1	Smokers	.....
Flagstaff Pl.	June 24	.1	Smokers	.....
T. 1, R. 6, BKP, EKR	June 24	12	Smokers	34.00
T. 6, R. 19, WELS.	June 25	20	Smokers	640.00
T. 6, R. 18, WELS.	June 25	350	Smokers	2,850.00
T. 8, R. 19, WELS.	June 29	80	Smokers	3,390.00
The Forks	June 29	.2	Smokers	.....
T. 3, R. 4, BKP, WKR	July 4	17	Smokers	51.00
West Forks Pl.	July 17	7	Lumbering	274.00
T. 1, R. 3, NBKP	July 20	.....	Lightning	.....
Moose River Pl.	Aug. 2	.....	Miscellaneous	.....
T. 2, R. 6, BKP, WKR	Aug. 26	2	Lightning	18.00
T. 5, R. 7, BKP, WKR	Sept. 2	.....	Lumbering	.....
West Forks Pl.	Sept. 30	.2	Miscellaneous	.....
West Forks Pl.	Sept. 30	5	Smokers	10.00
T. 1, R. 5, BKP, EKR	Oct. 24	.1	Smokers	.....
T. 2, R. 5, BKP, EKR	Oct. 24	3	Smokers	6.00
Washington County				
Trescott	April 4	9.4	Smokers	9.00
No. 14 Pl., ED	April 7	3	Smokers	6.00
Trescott	April 30	.2	Smokers	1.00
T. 24, MD	May 3	2.2	Incendary	11.00
T. 19, MD	May 4	.....	Brush or Debris Burning	.....
T. 10, R. 3, NBPP	May 4	4	Smokers	24.00
T. 7, NBPP	May 5	3.2	Smokers	8.00
T. 18, MD	May 6	2.5	Brush or Debris	.....
T. 19, MD	May 10	4.5	Burning	2.00
T. 6, ND	May 22	.8	Incendary Brush or Debris Burning	23.00
Beddington & Deblois	May 24	450	Campers	900.00
T. 1, R. 3, TS	June 23	.2	Smokers	5.00
Edmunds Township	June 23	9	Smokers	27.00
Marion	June 29	4	Campers	1,712.00
T. 18, MD	June 30	.2	Miscellaneous	.....
No. 14 Pl., ED	July 5	.1	Smokers	.....
Cooper	July 6	3	Campers	384.00
T. 29, MD	July 21	.1	Lightning	.....
T. 5, ND	July 31	.....	Lightning	.....
No. 21 Pl., ED	Aug. 2	.....	Campers	.....
Edmunds Township	Aug. 3	.1	Smokers	.....
T. 8, R. 3, NBPP	Aug. 8	1.2	Smokers	308.00
Trescott	Sept. 2	1	Smokers	.....
T. 10, R. 3, NBPP	Sept. 4	.8	Lumbering	28.00
T. 1, R. 3, TS	Sept. 5	.1	Smokers	.....
Marion	Oct. 20	.1	Campers	.....
No. 14 Pl., ED	Nov. 20	15	Campers	15.00

MAINE FORESTRY DISTRICT FIRE RECORD 1954

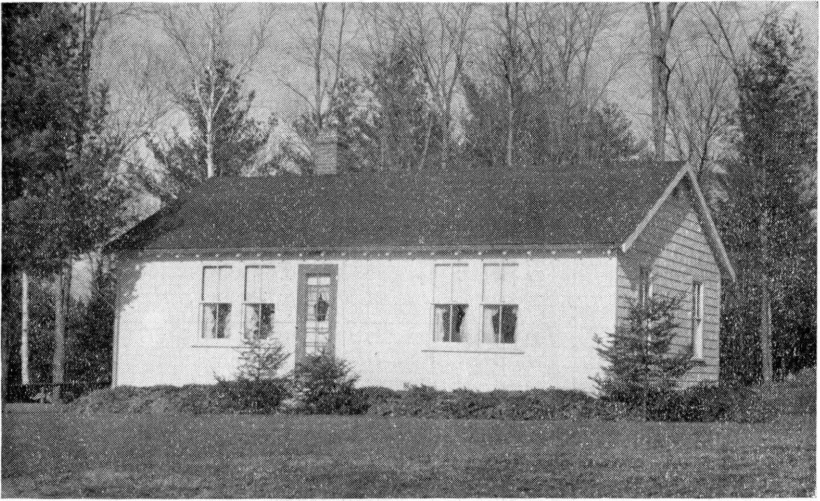
Location	Date	Acreage	Cause	Damage
Aroostook County				
T. 13, R. 10, WELS.	March 15	.....	Lumbering	.....
Macwahoc Pl.	April 12	1.5	Brush or Debris	.....
Garfield Pl.	April 29	13	Burning	\$6.00
T. 8, R. 5, WELS.	April 29	1	Incendiary	26.00
T. 12, R. 8, WELS.	May 17	.....	Railroad	2.00
T. 8, R. 5, WELS.	June 18	2	Lightning	.....
T. 12, R. 8, WELS.	June 18	.1	Smokers	20.00
Wallagrass	June 19	2	Campers	.....
T. 13, R. 15, WELS.	June 19	.....	Brush or Debris	29.00
T. 14, R. 14, WELS.	June 28	.....	Burning	.....
Macwahoc Pl.	July 3	.....	Lightning	.....
Garfield Pl.	Sept. 16	.....	Incendiary	.....
Franklin County				
T. 1, R. 5, WBKP (Jim Pond)	July 11	.....	Lightning	.....
Hancock County				
T. 22, MD	May 1	150	Brush or Debris	2,250.00
T. 9, SD	June 1	.1	Burning	.....
T. 34, MD	July 15	.1	Lightning	.....
T. 16, MD	Nov. 11	4	Incendiary	8.00
T. 10, SD	Nov. 12	150	Incendiary	300.00
T. 10, SD	Nov. 13	10	Incendiary	90.00
T. 22, MD	Nov. 15	7	Incendiary	14.00
Oxford County				
C Twp.	June 22	.....	Lightning	.....
Penobscot County				
T. 6, R. 7, WELS.	April 24	.5	Smokers	1.00
T. 6, R. 7, WELS.	April 24	.....	Smokers	.....
Webster Pl.	April 29	2	Incendiary	6.00
Medway	April 30	4	Incendiary	42.00
Indian Purchase No. 3.	May 1	2	Campers	6.00
T. 2, R. 6, WELS.	June 15	.2	Incendiary	.....
T. 2, R. 6, WELS.	June 15	.2	Incendiary	.....
T. 2, R. 6, WELS.	June 15	.2	Incendiary	.....
T. 2, R. 6, WELS.	June 15	.2	Incendiary	.....
T. 2, R. 6, WELS.	June 15	.2	Incendiary	.....
Kingman Twp.	June 18	.2	Railroad	3.00
T. 6, R. 8, WELS.	June 19	.....	Smokers	.....
T. 7, R. 8, WELS.	June 21	1.5	Campers	12.00
T. 3, R. 1, NBPP	July 5	.5	Smokers	2.00
Grand Falls Pl.	July 11	.....	Lightning	.....
Long A.	July 18	.....	Smokers	.....
Indian Purchase No. 4.	July 19	.....	Lightning	.....
T. 2, R. 6, WELS.	Aug. 23	.1	Incendiary	.....
T. 2, R. 6, WELS.	Aug. 23	.1	Incendiary	.....
Piscataquis County				
Kingbury Pl.	May 15	13	Brush or Debris	54.00
T. 6, R. 14, WELS.	May 17	.....	Burning	.....
Medford	May 20	.2	Lightning	.....
T. 5, R. 10, WELS.	June 12	.2	Miscellaneous	.....
T. A, R. 12, WELS.	June 18	4	Campers	262.00
T. 1, R. 9, WELS.	June 22	.....	Lumbering	.....
T. 9, R. 11, WELS.	June 22	.....	Lightning	.....
T. 6, R. 9, WELS.	June 27	.....	Lightning	.....
T. 10, R. 13, WELS.	July 9	.....	Lightning	.....
T. 5, R. 15, WELS.	July 19	.....	Lightning	.....
T. 5, R. 10, WELS.	July 27	.....	Lightning	.....
T. 10, R. 12, WELS.	July 30	.....	Lightning	.....

FOREST COMMISSIONER'S REPORT

Location	Date	Acreage	Cause	Damage
Somerset County				
Pleasant Ridge Pl.	May 1	.2	Brush or Debris Burning .....	.....
The Forks	May 13	.1	Miscellaneous .....	.....
T. 1, R. 4, BKP, WKR	June 13	.....	Campers .....	.....
T. 8, R. 19, WELS	June 19	.....	Lightning .....	.....
T. 1, R. 4, BKP, WKR	July 5	.....	Lightning .....	.....
Caratunk Pl.	July 6	.....	Miscellaneous .....	.....
Dennistown Pl.	July 25	.5	Campers	1.00
T. 1, R. 2, NBKP	Aug. 9	.....	Miscellaneous .....	.....
T. 4, R. 16, WELS	Aug. 23	.....	Brush or Debris Burning .....	.....
Washington County				
Centerville	April 26	8	Smokers	32.00
Edmunds Twp.	April 27	.3	Brush or Debris Burning	2.00
T. 24, MD	April 28	15	Brush or Debris Burning	225.00
Northfield	April 29	10	Incendiary	50.00
Trescott	May 3	30	Smokers	90.00
Centerville	May 13	15	Brush or Debris Burning	135.00
Lambert Lake	May 18	2.5	Railroad	5.00
T. 10, R. 3, NBPP	June 16	.....	Smokers .....	.....
Edmunds Twp.	June 19	.1	Smokers .....	.....
T. 24, MD	July 8	.....	Smokers .....	.....
T. 18, ED	Aug. 7	.....	Brush or Debris Burning .....	.....
T. 19, ED	Aug. 7	.....	Lightning .....	.....
T. 8, R. 4, NBPP	Aug. 27	.....	Campers .....	.....
Topsfield Twp.	Nov. 12	.8	Campers	3.00

SUMMARY OF FOREST FIRES FOR 1953-1954 BY MONTHS, COUNTIES,
AND CAUSES — MAINE FORESTRY DISTRICT

	No. of Fires		Acreage		Damage	
	1953	1954	1953	1954	1953	1954
By Months:						
March.....	..	1	..	..	..	..
April.....	5	11	13	55	\$ 18.00	\$ 392.00
May.....	46	11	1,237	213	3,918.00	2,540.00
June.....	39	24	3,207	11	19,139.00	326.00
July.....	39	15	210	1	5,231.00	3.00
August.....	30	7	27	1	866.00	..
September.....	22	1	12	..	135.00	..
October.....	15	..	14	..	33.00	..
November.....	4	5	166	172	166.00	415.00
	200	75	4,886	453	\$29,506.00	\$ 3,676.00
By Counties:						
Aroostook.....	49	14	2,754	20	10,754.00	84.00
Franklin.....	4	1	24	..	73.00	..
Hancock.....	9	7	282	321	674.00	2,662.00
Oxford.....	5	1	1	..	8.00	..
Penobscot.....	37	17	246	12	814.00	71.00
Piscataquis.....	40	12	231	17	5,216.00	316.00
Somerset.....	29	9	834	1	8,504.00	1.00
Washington.....	27	14	514	82	3,463.00	542.00
	200	75	4,886	453	\$29,506.00	\$ 3,676.00
By Causes:						
Lightning.....	42	20	15	..	179.00	..
Railroad.....	3	3	168	4	552.00	10.00
Campers.....	41	8	666	5	3,913.00	22.00
Smokers.....	73	11	3,901	41	23,722.00	145.00
Debris Burning.....	11	11	44	197	258.00	2,701.00
Incendiary.....	12	16	76	201	224.00	536.00
Lumbering.....	10	2	12	4	651.00	262.00
Miscellaneous.....	8	4	4	1	7.00	..
	200	75	4,886	453	\$29,506.00	\$ 3,676.00



Warden Living Quarters



Warden Unit Headquarters

*Living Quarters, Storehouse, Truck Transportation
and Fire Danger Measurement Station*

ORGANIZED TOWNS

6,429,783 Acres

The past two fire seasons varied widely. 1953 started out with fairly early fires and continued with about the same incidence of fire as 1952. The distribution of fires by month and by class day given below shows 677 fires for the Organized Town area. 1954 was an entirely different year. Although a large number of fires occurred in April, only a few fires started in the months to follow. Only 266 fires, burning over 2,727 acres, gave the lowest fire incidence since 1945 and the smallest burned area since 1936. Rainfall for the Organized Town area of the state averaged 36 inches for the months listed but many parts of central and coastal Maine received well over 40 inches in 1954.

The following tables summarize the precipitation, class danger day, and number of fires by months:

1953	Precipitation	Class Danger Day					No. of Fires	
		1	2	3	4	5		
April (16 days).....	2.91	2	4	7	3	—	40	
May.....	3.28	3	10	12	6	—	159	
June.....	2.16	1	9	20	—	—	119	
July.....	3.46	1	12	18	—	—	102	
August.....	3.37	4	17	10	—	—	64	
September.....	3.01	5	19	6	—	—	33	
October.....	3.69	8	6	17	—	—	42	
Other Months.....	—	—	—	—	—	—	118	
Total Rainfall.....	21.88	Total Days	24	77	90	9	—	677

1954	Precipitation	Class Danger Day					No. of Fires	
		1	2	3	4	5		
April (16 days).....	3.93	3	—	5	8	—	144	
May.....	6.49	8	11	10	2	—	41	
June.....	5.42	13	14	3	—	—	14	
July.....	3.48	9	16	5	—	—	18	
August.....	5.56	12	16	3	—	—	9	
September.....	9.87	16	15	—	—	—	—	
October (15 days).....	1.46	5	7	3	—	—	1	
Other Months.....	—	—	—	—	—	—	39	
Total Rainfall.....	36.21	Total Days	66	79	31	10	—	266

The number of fires occurring by districts for the past four seasons is given below:

Year	District							Total
	1	2	3	4	5	6	7	
1951.....	63	40	22	71	33	43	31	303
1952.....	97	80	73	160	109	77	51	647
1953.....	159	101	51	120	55	84	107	677
1954.....	60	32	23	68	24	34	25	266

It pays in the long run to hit fires quickly and with as much equipment as possible. Equally important is being sure they are dead out before patrol ceases.

The following analysis of costs of forest fires well illustrates that a few large fires use a large percentage of the money:

**Analysis of Reimbursement to Organized Towns for Forest Fires
Five Years — 1949 to 1954**

<i>Range of Cost</i>	<i>Reimbursement</i>	<i>Number of Fires</i>
00 — 99.99	\$ 45,425.48	1,664
% of Total	16.6	80
Average per fire	27.30	
100 — 199.99	\$ 22,552.27	168
% of Total	8.2	8.1
Average per fire	134.24	
200 — 299.99	\$ 19,203.56	80
% of Total	7.0	3.9
Average per fire	240.05	
300 — 499.99	\$ 20,462.34	55
% of Total	7.5	2.6
Average per fire	372.04	
500 — 999.99	\$ 47,763.16	66
% of Total	17.4	3.2
Average per fire	723.68	
Over 1,000	\$119,033.83	46
% of Total	43.3	2.2
Average per fire	2,587.69	
Total	\$274,440.64	2,079
% of Total	100	100
Average per fire	132.01	

This is the state's share. Towns paid as much or more.

Organization. The Organized Town area of the state is made up of all towns with local governments which have not been voted into the Maine Forestry District, plus six deorganized townships. This comprises an area of 6,429,783 acres. Funds for this work are obtained from the general fund, federal allotment, portable sawmill licenses, and land tax in six deorganized towns.

One supervisor, directly responsible to the Forest Commissioner administers this area through five full-time district wardens and two Maine Forestry District supervisors who act as district wardens. Authority and responsibility has been de-centralized insofar as possible so that these men can act on the local level from their field headquarters. They are responsible for the activities of 24 seasonal wardens and 28 watchmen employed during the fire season. The seasonal wardens have supervision of the town forest fire wardens.

Town forest fire wardens are appointed for a three-year term by the Forest Commissioner with the approval of town officials. They are responsible for initial action on all fires and under usual conditions continue to manage the fire fighting operation until it is completed. State wardens have authority and responsibility to take charge of fires at any time, and usually do if more than one town is involved. This system has worked well and few fires have been taken over by state wardens.

Personnel. Personnel changes have been few with 15 positions out of 67 changing hands in the two-year period.

The radio dispatcher's position was vacated by the resignation of Katherine Emery. Franklin Sargent, watchman on Bigelow Mt., filled this vacancy and is also responsible for inventory control records. Carlton Merrill, District Warden at East Corinth for District 5, resigned in 1953 and was replaced by Earle Williams, formerly Chief Warden in the Dead River District.

The number of positions has not changed since the last biennium. Willard Wight, formerly District Warden in District 6, became Supervisor of the Eastern Division, Maine Forestry District, in 1953. He continued to act as district warden, however, and this has assisted in better coordinating Organized Town and Maine Forestry District programs in eastern Maine. The funds from this district warden position were used for an additional seasonal warden at Patten in District 7. It should be noted that two women are now employed as watchmen.

A one-step pay increase was received by all employees in 1953. In late 1954, all positions classified as 48-hour per week received a two-step pay increase. This applied to all wardens and watchmen. This should make it possible to attract and hold a qualified force for the immediate future at least. Employees working 40 hours per week received a one-step increase.

As of December 1954, personnel was distributed as follows:

District No. 1 — Saco Valley District Warden L. Clayton Weymouth Half of salary of Green Mt. watchman at Effingham, N. H. is paid by the Forestry Department in addition to the above 5 watchmen.	4 seasonal wardens	5 watchmen	61 town wardens
District No. 2 — Mt. Zircon Spring District Warden Wilbur Libby	3 seasonal wardens	5 watchmen	55 town wardens
District No. 3 — Arnold Trail District Warden Howard Rowell	2 seasonal wardens	4 watchmen	50 town wardens
District No. 4 — Damariscotta Lake District Warden Waldo Clark	4 seasonal wardens	4 watchmen	84 town wardens
District No. 5 — Heart of Maine District Warden Earle Williams	4 seasonal wardens	6 watchmen	83 town wardens
District No. 6 — Down East Willard Wight	4 seasonal wardens	2 watchmen	61 town wardens
One of the seasonal wardens in District 6 acts as warden-mechanic during the winter months. Half of the salary of the Littles Mt. watchman at the Moosehorn Wildlife Refuge in Edmunds is paid by the Forestry Department in addition to the above two watchmen.			
District No. 7 — Northeastern Robert E. Pendleton	4 seasonal wardens	2 watchmen	62 town wardens

Personnel working out of the Augusta office include Deputy Forest Commissioner, Supervisor, Office Business Manager, 2 Foresters 1, a Radio Dispatcher, Clerk-Typist I, Clerk-Steno II, Supervisor of Keep Maine Green Program, half of whose salary is paid by the Organized Town appropriation. A Radio Engineer Supervisor and one Radio Technician are stationed at Windsor Neck.

Shifting of personnel between divisions of the department to meet peak work loads continued. In 1954 assistance was given to the Entomology Division on spray projects for gypsy moth and spruce budworm control. Wardens assisted by providing communications and in checking on distribution of the insecticide. Approximately 90 man days were spent on these two projects by the fire wardens.

Farm foresters, Maine Forestry District wardens, and entomologists contributed about 20 man days on the Sanford fire of 1953.

This shifting about of personnel has many advantages which cannot be overemphasized. The men not only give direct assistance but they become much more tolerant of each other's problems, are kept up to date on what each is doing, and are better able to discuss departmental activities with the public.

Training.

Town Wardens. The practice of holding four town forest fire warden schools annually has continued. Attendance at two of these schools is mandatory if wardens are to receive their annual retainer fee of \$50.00. Many of the town wardens are also fire chiefs and already possess skills on which training is given. The schools serve to stress the need for portability of equipment cross-country, the forest landowner's sense of values, and the constant threat to improved property. Town fire plans have gradually become recognized as a basis for local as well as state-wide planning. The first spring school each year is devoted to the revision of these plans which consist of an up-to-date listing of equipment and manpower.

A continuing problem is that of how to interest other town officials in planning activities before an emergency arises. Future meetings should stress the need for direct participation by town managers or selectmen on larger fires so they will have first-hand knowledge of the operation.

State Wardens. State wardens attended three-day schools in the spring of 1953 and 1954. Material on large fire organization, such as presented by the Northeastern Forest Fire Protection Commission training team, was given from the standpoint of local conditions. The position of the seasonal warden and patrolman was presented in skit form in 1953 and the position of district warden in 1954. These schools were attended by 35 to 60 state wardens and watchmen. The men are pleased with the association with wardens from other areas and much good has come from exchanging ideas and problems.

Meetings of district wardens five to six times each year have been held for discussion of mutual problems and outlining work projects. Such meetings encouraged warden initiative in applying subject matter for town warden schools to local conditions. Difficulty has been experienced by some, as districts vary greatly in their stage of development.

District wardens also held meetings for their own wardens and watchmen. Some districts got together once a month during the fire season for half day sessions. Uniformity of thinking in enforcement and public contacts has been accomplished in this manner.

Line Building Crews. Work with schoolboys and industry groups has emphasized the need for well-knit crews for constructing fire lines. With schoolboys the prevention angle has been considered as important as the control work they may be called upon to do.

During the 1954 season the national "Conservation Good Turn" program, sponsored by the Boy Scouts of America, resulted in a number of training meetings with these groups. These boys also learned how to prevent fire and build a fire line with hand tools.

Public Relations. Progress has been made in selling personnel on the need for care in all dealings with the public. A lasting impression of the department may be based entirely on a few isolated contacts with a warden or watchman. This has served to point out to department personnel the need for presenting the established views and policy of the department rather than personal opinion.

Many organizations called on departmental personnel to present a program for a meeting. This has provided the department a chance to sell forest fire prevention and control to a large number. Approximately 40,000 people were contacted by wardens at meetings or personally during the past biennium.

Groups with a desire for entertainment, and wardens looking for an easily presented program, too often show movies alone which does not sell the local forest fire problem and what can be done about it. With the proper type of subject matter a good deal of protection work could be accomplished through a film service to these social and service organizations. Wherever possible, wardens should continue accompanying films. If this courtesy of providing movies with an operator for entertainment is given, however, wardens should also assure themselves of ample time and proper conditions for getting across their forest protection message.

The Keep Maine Green program is discussed elsewhere in this report. It should be mentioned here that emphasis on this program during the biennium has accomplished a great deal, particularly through the schools. The animated bear "Smokey" has been extremely successful in reaching large numbers of children with his message. It is recommended that "Smokey" programs be continued during the next two years. Every effort should be exerted to be sure this symbol of forest fire prevention does not become confused with other programs.

The press and radio continued to be effective assistants in forest protection work. They offer a steady outlet for current information and summaries at periodic intervals.

During the past year the medium of television was added to the above outlets. The management of the stations has been most cooperative. Programs have been well received. It is believed that this medium of reaching the public will be the most effective yet devised, particularly when used on high fire danger days.

Facilities. The department policy of providing living quarters at storehouse locations for seasonal wardens has continued. Houses have been completed at Benton and Dover-Foxcroft. As in the past, land has been purchased on main highways where storehouses are conspicuous. When the public drives by they are reminded of the need for care with fire. The Benton storehouse was moved to meet these requirements. Living quarters were also started at Poland and Bowdoin but were not entirely completed in 1954 and the storehouses were moved to meet the standards stated above. The district warden living quarters at West Paris were occupied in 1954.

Funds are available for living quarters at Morrill, Union, and Cornish and these will be started in 1955.

Due to the need for overnight facilities and increased demand for radio space at Ossipee tower, a 14' x 14' wooden cab was built on a 30' creosoted wood frame in late 1954. The steel from the old tower was condemned and the cab destroyed. The decision to use a wood frame was based on a cost of \$750 compared to \$2,900 for steel.

The storehouse at East Corinth was moved from leased land to state-owned land at the district warden's living quarters in 1954. This move has been pending several years and will give more room for truck storage and our first trial of permanent concrete foundations and floors for storehouses. Road changes resulted in purchase of land and moving storehouses at Norridgewock and Gorham.

The storehouse at Whiting was dismantled after failure to obtain a reasonable lease and the Searsport storehouse was sold to the State Highway Department for \$1,000 in 1954. These buildings have been used for dead storage since the 1949 program went into effect.

A 12' x 16' addition was built on the rear of the Cherryfield storehouse as it was one of the smallest storehouses. At Bluehill a 12' x 20' addition was made to the storehouse. The living quarters at this location do not have a basement so that additional storage area was badly needed.

The State Police had a power line constructed to the top of Dedham Bald Mountain in 1954 for a radio relay station and provided materials for a radio building. District 5 personnel provided the labor for constructing the building and have shifted a new high-tensile strength telephone line to the power poles. The Forestry Department has agreed to maintain the power line and in turn will receive use of power for a new AC radio unit planned at this location.

A 20' x 120' mess hall of the CCC camp at Camden was salvaged for lumber in 1954.

Summary of facilities

- 6 District storehouses — 3 living quarters
- 23 Seasonal storehouses — 11 living quarters
- 1 Seasonal storehouse and Repair shop
- 28 Towers with 37 watchman camps and storage sheds
- 1 Auxiliary storehouse, 24' x 24'
- 1 Hangar storehouse, 20' x 40'
- 1 Warehouse (2,700 square feet)
- 1 Garage, 36' x 46'

Equipment. The equipment inventory has been gradually built up by heavier purchases and few losses during the past two years. Heaviest loss was that of hose on the Sanford fire of 1953. Through the Northeastern Forest Fire Protection Commission, a loan of approximately 32,000 feet of hose was made to New Hampshire during a heavy fire season in 1953. Four thousand feet of this hose was lost, and was replaced with new hose by New Hampshire. Thirteen power pumps were lent at the same time. Most of these were run and were later thoroughly overhauled. This, coupled with a season of little use in 1954, leaves the equipment in good condition.

In 1953 a second-hand Dodge, 6-wheel drive, was purchased. This has been placed in District 2 and will be available for use in that district and District 1. The Dodge power wagon, purchased in 1951, remains in District 6 for use of District 5 and District 6. It is hoped that a similar unit can soon be obtained for Districts 3 and 4. District 7 relies on use of similar Maine Forestry District equipment when needed. This type of equipment is not readily available and is needed in inaccessible areas.

Wardens have often been asked when and if tank trucks will be purchased by the department. Such equipment has not been purchased in the past for two reasons: 1. Original and maintenance cost of the vehicle and maintenance of additional personnel; 2. Duplication of town-owned equipment. Heavy trucks require constant attention and it is questionable if pick up labor is qualified to operate equipment of this nature. Good distribution of equipment maintained by local people interested in the local fire problem is believed to be the most realistic long range approach to good forest fire protection. The summary of the 1954 town fire plans shows the amount of town and privately-owned equipment to be sizable — 529 portable pumps, 440 pumpers, 455 tank trucks, 420 bulldozers, 146 miles 2½" hose, and 132 miles 1½" hose.

It is believed that the department needs specialized equipment and tools which town or private organizations do not have, such as fire line plows or trenchers. To meet this need, funds are being asked for engineering services in 1956-57 to adapt equipment used in other states to Maine conditions.

Another tool provided to a limited extent in 1954 was lightweight pumps and one inch hose for use on fast-traveling spring fires when roads and fields are not passable by heavy trucks. The need was emphasized in spring fires of both 1953 and 1954. Additional units should be purchased.

During the operation of transporting hose and pumps to New Hampshire in 1953 the obvious lack of adequate packaging was brought out. Design of hose bags and pump boxes was being investigated in late 1954.

Communications

Telephone. Telephone service is still necessary to tie in towers with local people and fire departments. During the past few years maintenance service has been extended to some of the towers, reducing that which department personnel formerly maintained. Organized Towns maintain about 40 miles of line and most of it is in good condition. An old copper line has been replaced at Pleasant Mt. and poles set most of the way to the tower. Cutting of timber in this area plus the hurricanes in 1954, pushed this job ahead of schedule. For the most part the two hurricanes did minor damage to telephone lines.

York Hill tower has for several years had the poorest telephone service. In 1953 this privately-owned line was replaced by New England Tel. and Tel. Co. service. We now have reasonably reliable service at all facilities in the Organized Town area.

Extended area service available to many of the towers should continue to assist in holding down rising utility costs.

Radio. Radio communication gave good service during this biennium. Traffic control still leaves much to be desired, however. During gypsy moth spraying operations, traffic naturally built up and if this activity had been combined with bad fire weather, the situation would have been very difficult to resolve.

A new 1,000-hour dry cell battery for pack sets was designed by the radio technicians. This length of life allows use of the pack set without failure throughout the period the tower is manned.

Three spare trucks have yet to be provided with mobile or pack sets and remote control sets for Ossipee and Medford towers should be considered in the near future.

Fire Danger Stations. Danger station use and tie-in with daily forest fire weather forecasts from the U. S. Weather Bureau at East Boston continued as in 1951-52. Some difficulty continues in northern districts where forecasts are not proving accurate, particularly during wet weather seasons.

The woods station at Ossipee tower was discontinued in 1953 as the open station at Alfred headquarters had proved more stable. High Cut Hill woods station was replaced by an open station at East Corinth headquarters. An open station was established at West Paris headquarters after the district warden moved into the living quarters there. The Camden State Park open station was discontinued in 1953. These shifts have made it possible to locate stations at or near district headquarters in Districts 1 through 5. This has served to keep district wardens informed of weather conditions and results in better planning.

The following stations were in operation at the end of the 1954 fire season:

Woods Stations

Agamenticus Mt. — York
 Opportunity Farm — New Gloucester
 Lovell — Lovell — U.S. Forest Service
 York Hill — New Sharon
 *Chase Hill — Canaan
 Cook Hill — Vassalboro
 Mt. Ararat — Topsham
 *Haskell Hill — Jefferson
 Frye Mt. — Montville

Open Stations

*Massabesic — Alfred
 *Mt. Blue — Weld — State Park
 *Medford Tower — Medford
 Bradley — Bradley — USFS
 *Bluehill — Bluehill
 Acadia — Bar Harbor — Nat'l Park Service
 Blueberry Hill — Jonesboro — Maine
 Agr. Experiment Station
 *St. Agatha — St. Agatha
 Paris — West Paris
 Corinth — East Corinth

Starred stations sent coded weather information to the U. S. Weather Bureau for assistance in weather forecasting for the state as mentioned above.

Prevention

Lunch Grounds. Lunch grounds are maintained to encourage concentration of tourists and others in safe places. Indiscriminate picnicking may occur anywhere along the roads but with the State Highway Department providing more lunch grounds each year this practice has been on the decrease. The Forestry Department has

continued to provide some facilities at storehouse sites where suitable conditions exist. This is done to accommodate those who may stop to inquire for picnic facilities when those they have passed are in use. Wardens find time to police these areas frequently, thus avoiding the litter problem. Although fireplaces are provided at some of these lunch grounds, fires are not authorized during a Governor's ban on out-of-door fires. Camp sites maintained by the Forestry Department on the other hand are authorized places for fires at any time. Lunch grounds are maintained by the department at the Lovell, New Sharon, Cornish, Gray, and Weld storehouses.

Hazard Clearance. Removal of slash from roadsides, and clearing of safety strips around dumps and portable sawmills are prevention methods requiring much time and effort of the warden. A cooperative approach is tried at first but resort to court action has been necessary in some instances.

Blow-down timber on roadsides from 1954 hurricanes, which is not being used, presents slash disposal problems, particularly when cutting may take place nearby. Identity of the slash violator is difficult at any time and with this blow-down timber even more confusion as to responsibility for removal will result.

These same hurricanes blew down a large amount of live as well as dead and dying trees in woods roads in coastal districts. This has blocked use of these roads unless cleared by landowners or fire fighting crews.

In hazard clearance contacts, cooperation is stressed because wardens need to keep good working relations with these same people who may later be called on to assist in fire fighting.

Brush chippers have come into more general use for disposing of utility right-of-way slash. These have been encouraged where possible as it lowers the risk from open fires.

Blueberry burning is controlled by no law outside of requiring a burning permit. Because it is a yearly operation, however, it should be mentioned here as a hazard. The severity of the hazard fluctuates with the number of suitable burning days which have occurred and whether growth has started in the blueberry plants. Late season burning is usually more severe and less care is often taken because of the rush to complete the job.

Although no serious problems have developed in this biennium, there has been a noticeable slackening of care in patrol of fire areas after burning. This has resulted in uncontrolled fires in a number of instances. More concentration on prevention of this type fire is needed.

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Androscoggin County				
Durham	Mar. 12	5	Brush or Debris Burning	\$13.00
Poland	April 4	2	Brush or Debris Burning	2.00
Poland	April 4	2	Brush or Debris Burning	4.00
Livermore Falls	April 9	20	Brush or Debris Burning	20.00
Mechanic Falls	April 12	3	Brush or Debris Burning	7.00
Durham	April 24	1.5	Miscellaneous	4.00
Turner	May 10	1.5	Smokers	16.00
Livermore	May 10	1	Brush or Debris Burning	2,609.00
Webster	May 24	.2	Campers	1.00
Poland	June 1	6	Lumbering	12.00
Poland	June 2	.2	Brush or Debris Burning	1.00
Turner	June 2	1.5	Lumbering	8.00
Lisbon	June 2	1	Smokers	4.00
Greene	June 9	10	Campers	2,100.00
Mechanic Falls	June 17	.2	Railroad	1.00
Lisbon	June 18	5	Campers	15.00
Greene	June 23	.6	Smokers	2.00
Lisbon Falls	June 24	1	Brush or Debris Burning	3.00
Poland	June 24	.2	Brush or Debris Burning	3.00
Livermore Falls	June 25	50	Lumbering	570.00
Mechanic Falls	June 30	50	Lumbering	150.00
Greene	June 30	.1	Smokers	1.00
Lisbon	July 2	5	Miscellaneous	10.00
Poland	July 3	1	Brush or Debris Burning	4.00
Leeds	July 8	.5	Smokers	1.00
Leeds	July 31	4	Lumbering	8.00
Poland	July 31	20	Smokers	100.00
Poland	Aug. 2	.5	Smokers	1.00
Lewiston	Aug. 4	.2	Smokers	1.00
Poland	Aug. 16	1	Smokers	6.00
Lisbon	Aug. 17	1.5	Smokers	3.00
Minot	Sept. 1	2	Lumbering	31.00
Poland	Sept. 28	1	Miscellaneous	7.00
Livermore Falls	Oct. 24	3	Brush or Debris Burning	3.00
Durham	Nov. 11	.2	Lumbering	2.00
Aroostook County				
Linnets	May 2	2	Miscellaneous	14.00
Westfield	May 3	205	Brush or Debris Burning	610.00
Ashland	May 3	30	Brush or Debris Burning	90.00
Masardis	May 3	5.1	Brush or Debris Burning	56.00
Haynesville	May 3	50	Smokers	50.00
Connor	May 3	60	Brush or Debris Burning	118.00
Caswell Pl.	May 3	50	Campers	60.00
Ashland	May 4	.5	Brush or Debris Burning	2.00
Amity	May 4	2	Smokers	2.00
Woodland	May 4	11	Smokers	41.00
Ashland	May 5	30.5	Brush or Debris Burning	95.00
Westfield	May 5	.1	Brush or Debris Burning	.....
Sherman	May 5	25	Brush or Debris Burning	75.00
Frenchville	May 5	3	Brush or Debris Burning	15.00
Oakfield	May 5	12	Brush or Debris Burning	36.00
Island Falls	May 5	10	Brush or Debris Burning	28.00

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Arrostook County — Cont.				
Chapman	May 6	1	Brush or Debris Burning	2.00
Oakfield	May 6	8	Brush or Debris Burning	24.00
Smyrna Mills	May 7	156	Snokers	1,404.00
Woodland	May 7	5.1	Brush or Debris Burning	35.00
New Sweden	May 7	10	Brush or Debris Burning	50.00
Linneus	May 8	1.5	Brush or Debris Burning	4.00
Fort Kent	May 8	3	Brush or Debris Burning	24.00
Washburn	May 8	12	Snokers	52.00
Ashland	May 9	5	Brush or Debris Burning	50.00
Caswell Pl.	May 9	1	Snokers	15.00
Weston	May 9	.5	Campers	2.00
Van Buren	May 9	2	Brush or Debris Burning	380.00
Masardis	May 9	.2	Snokers	1.00
St. John Pl.	May 10	19	Brush or Debris Burning	1,312.00
Westfield	May 10	100	Snokers	475.00
Mars Hill	May 10	50	Snokers	200.00
Moro Pl.	May 10	120	Campers	750.00
Westfield	May 10	3	Snokers	33.00
Hersey	May 10	.1	Brush or Debris Burning	1.00
Wade	May 11	65	Snokers	295.00
Oakfield	May 11	.5	Snokers	1.00
Connor Twp.	May 11	.5	Miscellaneous	2.00
Presque Isle	May 24	2	Snokers	31.00
Amity	May 24	3	Snokers	9.00
Hersey	May 25	.2	Brush or Debris Burning	1.00
Ashland	May 27	5	Brush or Debris Burning	515.00
Orient	May 27	1.5	Brush or Debris Burning	3.00
Orient	May 27	1.5	Brush or Debris Burning	3.00
Ashland	May 27	1	Brush or Debris Burning	3.00
Caswell	May 28	2	Snokers	6.00
Westfield	May 29	.1	Brush or Debris Burning	.....
Sherman	May 29	1	Brush or Debris Burning	5.00
Woodland	May 29	3	Brush or Debris Burning	11.00
Woodland	May 30	.2	Snokers	1.00
Westfield	May 30	.2	Brush or Debris Burning	1.00
Washburn	May 31	3.1	Miscellaneous	3.00
Bancroft	May 31	2	Railroad	24.00
Merrill	May 31	1	Snokers	3.00
Madawaska	May 31	5	Brush or Debris Burning	70.00
Crystal	June 1	.2	Brush or Debris Burning	.....
Woodland	June 3	.5	Snokers	1.00
Woodland	June 3	.2	Snokers	.....
Dyer Brook	June 14	.1	Snokers	.....
Dyer Brook	June 18	2	Brush or Debris Burning	4.00
Van Buren	June 19	3	Snokers	24.00
Connor Twp.	June 19	10	Campers	480.00
Madawaska	June 21	3	Snokers	24.00
Portage Lake	June 23	.1	Snokers	.....
Caswell Pl.	June 28	2	Campers	146.00
Oakfield	June 30	.2	Railroad	1.00
Oakfield	June 30	.2	Snokers	1.00
Crystal	July 3	.....	Miscellaneous	.....
Westfield	July 28	.1	Brush or Debris Burning	.....

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Arostook County—Cont.				
Mapleton	July 31	.1	Brush or Debris Burning	
Connor Twp.	Aug. 1	1.5	Smokers	164.00
Ashland	Aug. 1	.1	Smokers	1.00
St. John Pl.	Aug. 6	10	Smokers	110.00
Caswell Pl.	Aug. 6	.1	Miscellaneous	
Fort Kent	Aug. 6	1	Smokers	11.00
Eagle Lake	Aug. 7	.5	Smokers	4.00
Mapleton	Aug. 8	6	Brush or Debris Burning	30.00
St. Agatha	Aug. 9	3	Smokers	21.00
Perham	Aug. 23	1	Brush or Debris Burning	2.00
Fort Kent	Aug. 31	.2	Incendiary	3.00
Castle Hill	Aug. 31	.1	Smokers	
Cyr Pl.	Sept. 1	1	Brush or Debris Burning	12.00
Eagle Lake	Sept. 2		Smokers	
Hersey	Sept. 3	.5	Miscellaneous	2.00
Oakfield	Sept. 4	.2	Brush or Debris Burning	1.00
Castle Hill	Sept. 4	.1	Lightning	
Caribou	Sept. 9	4	Brush or Debris Burning	9.00
Moro Pl.	Sept. 26	.1	Campers	1.00
Presque Isle	Oct. 2	.1	Miscellaneous	
Hodgdon	Oct. 2	.1	Campers	1.00
Mapleton	Oct. 4	.1	Campers	
St. Agatha	Oct. 6	.1	Campers	1.00
Wade	Oct. 14	.1	Miscellaneous	
Van Buren	Oct. 22	.2	Brush or Debris Burning	2.00
Caswell Pl.	Oct. 24	5	Brush or Debris Burning	10.00
Ashland	Oct. 25	3	Brush or Debris Burning	6.00
Cumberland County				
Cumberland	Feb. 10	1.8	Smokers	2.00
Falmouth	Feb. 10	.5	Railroad	1.00
Falmouth	Feb. 11	10	Brush or Debris Burning	10.00
Cumberland	Feb. 11	8	Brush or Debris Burning	8.00
Falmouth	Feb. 11	.5	Miscellaneous	1.00
Yarmouth	Feb. 15	3.5	Miscellaneous	4.00
Falmouth	Feb. 17	50	Railroad	50.00
Cumberland	Feb. 18	2	Brush or Debris Burning	2.00
Cumberland	Feb. 19	.2	Brush or Debris Burning	
Falmouth	Feb. 23	.5	Brush or Debris Burning	1.00
Falmouth	Mar. 2	.2	Brush or Debris Burning	
Pownal	Mar. 3	10	Brush or Debris Burning	9.00
Cumberland	Mar. 3	1.5	Brush or Debris Burning	2.00
Standish	Mar. 7	1	Miscellaneous	2.00
Falmouth	Mar. 8	.5	Brush or Debris Burning	2.00
Yarmouth-Cumberland	Mar. 8	18	Brush or Debris Burning	54.00
New Gloucester	Mar. 8	50	Railroad	50.00
Falmouth	Mar. 9	.1	Railroad	
Windham	Mar. 9	3.5	Brush or Debris Burning	4.00
Falmouth	Mar. 9	5	Brush or Debris Burning	10.00
Falmouth	Mar. 9	2	Miscellaneous	2.00
Falmouth	Mar. 11	1	Brush or Debris Burning	4.00
Falmouth	Mar. 12	.2	Smokers	
Falmouth	Mar. 12	.2	Smokers	
New Gloucester	April 1	16.5	Railroad	16.00
New Gloucester	April 3	.2	Brush or Debris Burning	

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Cumberland County — Cont.				
Yarmouth.....	April 4	4	Miscellaneous.....	12.00
Brunswick.....	April 10	5	Brush or Debris Burning.....	10.00
Bridgton.....	April 11	1	Brush or Debris Burning.....	3.00
New Gloucester.....	April 12	.2	Brush or Debris Burning.....	.....
Standish.....	April 12	1	Brush or Debris Burning.....	3.00
Yarmouth.....	April 18	5.5	Brush or Debris Burning.....	6.00
Brunswick.....	April 22	10	Brush or Debris Burning.....	10.00
Bridgton.....	April 23	1	Brush or Debris Burning.....	10.00
Cumberland.....	April 23	.2	Brush or Debris Burning.....	.....
Raymond.....	April 24	75	Brush or Debris Burning.....	450.00
Windham.....	April 24	.5	Miscellaneous.....	1.00
Raymond.....	April 24	40	Miscellaneous.....	415.00
Windham.....	April 25	1.8	Brush or Debris Burning.....	5.00
Cumberland.....	April 25	20	Brush or Debris Burning.....	20.00
New Gloucester.....	May 4	10.5	Miscellaneous.....	11.00
Cumberland.....	May 4	.2	Smokers.....	1.00
Gray.....	May 7	1	Brush or Debris Burning.....	6.00
Gray.....	May 7	.5	Brush or Debris Burning.....	2.00
Cumberland.....	May 7	.2	Smokers.....	1.00
New Gloucester.....	May 9	.2	Smokers.....	.....
Freeport.....	May 10	2	Brush or Debris Burning.....	6.00
Gray.....	May 10	.2	Smokers.....	1.00
Gray.....	May 10	1	Brush or Debris Burning.....	5.00
Gray.....	May 11	.5	Brush or Debris Burning.....	2.00
Gray.....	May 25	.2	Smokers.....	1.00
Gray.....	May 26	.2	Smokers.....	1.00
Falmouth.....	June 1	10	Smokers.....	30.00
North Yarmouth.....	June 3	.2	Smokers.....	1.00
Cumberland.....	June 8	1	Miscellaneous.....	.....
Falmouth.....	June 12	6	Miscellaneous.....	30.00
Cumberland.....	June 14	.5	Brush or Debris Burning.....	2.00
Falmouth.....	June 14	.5	Miscellaneous.....	2.00
Gray.....	June 16	.5	Incendiary.....	2.00
Standish.....	June 18	.5	Miscellaneous.....	2.00
Harrison.....	June 26	.1	Lightning.....	1.00
Harrison.....	June 27	.3	Miscellaneous.....	1.00
Gray.....	June 28	5	Lightning.....	15.00
Falmouth.....	July 1	.5	Miscellaneous.....	2.00
Brunswick.....	July 3	12	Lumbering.....	55.00
New Gloucester.....	July 3	4	Incendiary.....	20.00
Naples.....	July 4	.....	Miscellaneous.....	.....
Falmouth.....	July 6	.1	Brush or Debris Burning.....	.....
Scarborough.....	July 7	.5	Railroad.....	1.00
Standish.....	July 8	.2	Lightning.....	1.00
Cumberland.....	July 11	.5	Smokers.....	2.00
Harpswell.....	July 12	.2	Smokers.....	.....
Naples.....	July 26	1.2	Smokers.....	4.00
Baldwin.....	July 30	1	Smokers.....	2.00
Cumberland.....	July 31	.5	Miscellaneous.....	1.00
New Gloucester.....	Aug. 12	.1	Smokers.....	.....
Windham.....	Aug. 16	.2	Campers.....	1.00
Windham.....	Aug. 21	.2	Campers.....	1.00
Scarborough.....	Aug. 23	2	Smokers.....	6.00
Bridgton.....	Aug. 24	.1	Brush or Debris Burning.....	1.00
New Gloucester.....	Aug. 24	.2	Smokers.....	1.00
Bridgton.....	Aug. 28	.1	Brush or Debris Burning.....	1.00

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acerage	Cause	Damage
Cumberland County—Cont.				
		1		
Falmouth	Aug. 28	.8	Miscellaneous	3.00
Harpwell	Aug. 29	.1	Smokers	1.00
Harpwell	Aug. 31	3.5	Smokers	.....
Bridgton	Sept. 2	3	Miscellaneous	10.00
Brunswick	Sept. 3	3	Smokers	9.00
Freeport	Sept. 3	8	Incendiary	24.00
Falmouth	Sept. 3	.2	Smokers	1.00
Falmouth	Sept. 3	.5	Smokers	2.00
Falmouth	Sept. 4	.5	Brush or Debris	
			Burning	2.00
Harpwell	Sept. 5	.2	Smokers	1.00
Scarborough	Sept. 12	8	Railroad	24.00
Freeport	Sept. 26	3	Lumbering	57.00
Harpwell	Oct. 10	3	Brush or Debris	
			Burning	3.00
New Gloucester	Oct. 13	.3	Campers	3.00
Cumberland	Oct. 13	.1	Campers	.....
Windham	Oct. 15	.2	Smokers	1.00
Otisfield	Oct. 19	5	Smokers	67.00
Harpwell	Oct. 21	6	Brush or Debris	
			Burning	6.00
Scarborough	Oct. 22	2	Smokers	4.00
Harpwell	Oct. 28	2	Brush or Debris	
			Burning	2.00
Harpwell	Dec. 31	1	Miscellaneous	30.00
Franklin County				
Jay	May 6	1	Brush or Debris	
			Burning	1.00
Carthage	May 10	.1	Smokers	11.00
Avon	May 24	.1	Miscellaneous	.....
Weld	June 1	.....	Smokers	.....
New Sharon	June 2	125	Lumbering	375.00
Jay	June 9	2	Lightning	28.00
Carthage	July 1	.....	Miscellaneous	3.00
Chesterville	Aug. 31	.8	Lumbering	4.00
Industry	Sept. 7	.1	Lumbering	.....
Jay	Oct. 23	.....	Lumbering	.....
Jay	Nov. 20	1.5	Brush or Debris	
			Burning	12.00
Hancock County				
Bar Harbor	Mar. 2	1	Brush or Debris	
			Burning	2.00
Bluehill	Mar. 3	1	Brush or Debris	
			Burning	3.00
Bar Harbor	Mar. 3	5	Brush or Debris	
			Burning	10.00
Tremont	Mar. 9	3	Brush or Debris	
			Burning	9.00
Bar Harbor	Mar. 10	1	Miscellaneous	3.00
Bar Harbor	Mar. 11	3	Campers	15.00
Bluehill	Mar. 11	3	Brush or Debris	
			Burning	9.00
Bluehill	Mar. 11	1	Brush or Debris	
			Burning	3.00
Bluehill	Mar. 11	1.5	Incendiary	4.00
Bluehill	Mar. 11	31	Brush or Debris	
			Burning	4,093.00
Gouldsboro	Mar. 11	5	Smokers	10.00
Tremont	Mar. 12	.8	Brush or Debris	
			Burning	1.00
Bar Harbor	Mar. 18	2.2	Miscellaneous	8.00
Bucksport	April 4	.1	Brush or Debris	
			Burning	.....
Bucksport	April 4	.1	Miscellaneous	.....
Bucksport	April 9	.2	Smokers	.....
Bar Harbor	April 16	3	Brush or Debris	
			Burning	10.00
Hancock	April 16	1	Brush or Debris	
			Burning	1.00
Sullivan	April 16	.1	Brush or Debris	
			Burning	.....
Bucksport	April 22	15	Railroad	15.00
Brooksville	April 22	1	Smokers	3.00
Bucksport	April 22	.1	Brush or Debris	
			Burning	.....

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Hancock County—Cont.				
Ellsworth	April 22	20	Smokers	60.00
Bucksport	April 23	.1	Brush or Debris Burning	.....
Sullivan	April 25	20	Brush or Debris Burning	20.00
Bluehill	April 25	2.5	Brush or Debris Burning	8.00
Hancock	May 4	.5	Miscellaneous	2.00
Penobscot	May 6	20	Brush or Debris Burning	20.00
Aurora	May 10	275	Brush or Debris Burning	1,160.00
Hancock	May 24	.2	Smokers	1.00
Bluehill	May 24	1	Smokers	2.00
Brooksville	May 24	.5	Brush or Debris Burning	2.00
Bar Harbor	May 26	1	Miscellaneous	4.00
Bluehill	May 26	1	Smokers	2.00
Gouldsboro	May 29	.5	Smokers	2.00
Ellsworth	June 3	.1	Brush or Debris Burning	.....
Surry	June 19	.1	Lumbering	.....
Ellsworth	July 1	.1	Smokers	1.00
Swans Island	July 8	.1	Miscellaneous	.....
Tremont	July 11	.2	Smokers	10.00
Swans Island	July 11	.1	Brush or Debris Burning	.....
Ellsworth	July 18	.1	Smokers	.....
Gouldsboro	July 22	.1	Smokers	1.00
Bluehill	July 26	.....	Miscellaneous	.....
Bucksport	July 30	1	Smokers	3.00
Tremont	Aug. 1	.2	Smokers	1.00
Brooksville	Aug. 1	.5	Smokers	2.00
Bluehill	Aug. 1	.....	Smokers	.....
Surry	Aug. 1	25	Smokers	50.00
Sedgwick	Aug. 1	.2	Smokers	.....
Tremont	Aug. 3	.5	Smokers	4.00
Gouldsboro	Aug. 3	.1	Smokers	.....
Gouldsboro	Aug. 13	.1	Brush or Debris Burning	.....
Bluehill	Aug. 20	.....	Miscellaneous	.....
Bluehill	Oct. 18	.2	Miscellaneous	1.00
Winter Harbor	Oct. 19	.5	Smokers	3.00
Kennebec County				
Winslow	Feb. 23	45	Brush or Debris Burning	90.00
Litchfield	Mar. 11	.2	Smokers	301.00
Winslow	Mar. 12	35	Brush or Debris Burning	100.00
Clinton	April 10	4	Brush or Debris Burning	8.00
Vassalboro	April 25	1.2	Brush or Debris Burning	6.00
Gardiner	May 4	15	Brush or Debris Burning	30.00
Vienna	May 7	.2	Miscellaneous	1.00
Fayette	May 7	30	Smokers	600.00
Vienna and New Sharon, Franklin County	May 10	600	Smokers	2,490.00
Windsor	May 11	.5	Lumbering	1.00
Chelsea	May 12	.7	Miscellaneous	.....
Monmouth	May 25	.3	Smokers	1.00
Sidney	May 30	.7	Smokers	2.00
Litchfield	June 2	3	Lumbering	9.00
Winslow	June 26	1	Lightning	3.00
Sidney	June 30	.1	Lightning	.....
Litchfield	July 4	1.5	Lumbering	.....
West Gardiner	July 6	2	Smokers	2.00
Litchfield	July 6	5.5	Smokers	22.00
Manchester	July 26	2.5	Incendiary	8.00
China	July 13	.5	Brush or Debris Burning	2.00
Winthrop	Aug. 3	.1	Smokers	.....
Litchfield	Aug. 15	.....	Lightning	.....
Mt. Vernon	Aug. 24	.1	Lightning	.....

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damgae
Kennebec County -- Cont.				
Mt. Vernon	Aug. 31	15	Lumbering	295.00
Vassalboro	Sept. 1	1	Smokers	5.00
Winslow	Sept. 1	1.5	Campers	6.00
Winslow	Sept. 4	1	Brush or Debris	
			Burning	2.00
Wayne	Oct. 16	1	Smokers	5,103.00
Randolph	Oct. 16	.2	Miscellaneous	
Randolph	Oct. 17	7	Smokers	14.00
Gardiner	Oct. 19	2	Miscellaneous	10.00
Winslow	Nov. 7	1.5	Miscellaneous	4.00
Winslow	Nov. 10	2	Brush or Debris	
			Burning	2.00
Knox County				
Warren	Mar. 4	2	Brush or Debris	
			Burning	4.00
Union	Mar. 9	5	Brush or Debris	
			Burning	10.00
South Thomaston	Mar. 9	....	Brush or Debris	
			Burning	....
Warren	Mar. 12	2	Brush or Debris	
			Burning	4.00
South Thomaston	Mar. 12	2	Brush or Debris	
			Burning	4.00
St. George	July 1	2	Smokers	6.00
St. George	July 4	6	Miscellaneous	64.00
Friendship	July 30	.5	Smokers	2.00
Appleton	Aug. 28	10	Smokers	40.00
Lincoln County				
Waldoboro	Mar. 11	20	Brush or Debris	
			Burning	40.00
Whitefield	Mar. 12	50	Smokers	100.00
Waldoboro	Mar. 12	25	Brush or Debris	
			Burning	50.00
Waldoboro	Mar. 12	.1	Smokers	....
Dresden	Mar. 13	4	Brush or Debris	
			Burning	8.00
Boothbay Harbor	Mar. 14	4	Brush or Debris	
			Burning	4.00
Waldoboro	April 19	1	Brush or Debris	
			Burning	3.00
Dresden	April 29	.5	Brush or Debris	
			Burning	6.00
Dresden	May 7	.2	Lumbering	2.00
Southport	May 24	.2	Brush or Debris	
			Burning	....
South Bristol	May 26	....	Smokers	....
South Bristol	May 27	.5	Miscellaneous	2.00
Boothbay Harbor	June 3	.5	Brush or Debris	
			Burning	6.00
Boothbay	June 10	.5	Brush or Debris	
			Burning	4.00
Edgecomb	June 15	40	Miscellaneous	480.00
Boothbay	June 17	.5	Campers	5.00
Bristol	June 26	2	Incendiary	6.00
Boothbay Harbor	July 3	2	Campers	28.00
Boothbay	July 4	4	Incendiary	32.00
Alna	July 6	30	Miscellaneous	90.00
Damariscotta	July 29	4	Incendiary	44.00
Newcastle	July 29	5	Smokers	15.00
Bristol	Aug. 2	....	Smokers	....
Boothbay	Sept. 1	90	Incendiary	2,020.00
Alna	Oct. 23	1	Smokers	1.00
Oxford County				
Hiram	April 4	.2	Brush or Debris	
			Burning	....
Fryeburg	April 18	12	Campers	12.00
Paris	April 22	.5	Brush or Debris	
			Burning	2.00
Fryeburg	April 24	2	Smokers	8.00
Oxford	May 6	5	Miscellaneous	43.00
Paris	May 6	5	Brush or Debris	
			Burning	31.00

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Oxford County—Cont.				
Paris	May 9	.5	Campers	28.00
Paris	May 11	.5	Brush or Debris	
			Burning	2.00
Fryeburg	May 11	1	Brush or Debris	79.00
			Burning	428.00
Brownfield	May 11	10	Brush or Debris	3.00
Woodstock	May 11	.8	Miscellaneous	
Hartford	May 24	2	Brush or Debris	30.00
			Burning	
Lovell	May 25	.1	Miscellaneous	
Stoneham	May 29	1	Campers	1.00
Greenwood	May 31	4	Campers	20.00
Porter	June 2	74	Smokers	346.00
Paris	June 2	1	Smokers	9.00
Denmark	June 3	3	Lumbering	1.00
Greenwood	June 5	.1	Lightning	10.00
Greenwood	June 7	.1	Lightning	1.00
Paris	June 8	.2	Brush or Debris	
			Burning	1.00
Hiram	June 12	...	Miscellaneous	
Lovell	June 12	.5	Smokers	2.00
Sweden	June 12	2	Miscellaneous	16.00
Sumner	June 15	10	Lightning	290.00
Roxbury	June 17	.1	Lumbering	1.00
Paris	June 18	.5	Miscellaneous	22.00
Paris	June 19	.3	Brush or Debris	
			Burning	1.00
Denmark	June 22	2	Lightning	4.00
Paris	June 23	.2	Brush or Debris	
			Burning	1.00
Lovell	June 23	15	Campers	86.00
Norway	June 24	2	Miscellaneous	20.00
Paris	June 25	.5	Smokers	2.00
Denmark	June 26	...	Lightning	
Denmark	June 28	.1	Lightning	2.00
Fryeburg	June 28	...	Brush or Debris	
			Burning	
Sumner	June 28	.5	Lightning	4.00
Stow	June 29	.1	Miscellaneous	
Hebron	July 1	.1	Miscellaneous	
Hebron	July 2	.1	Smokers	1.00
Bethel	July 4	.1	Smokers	1.00
Hartford	July 4	.5	Miscellaneous	1.00
Paris	July 6	.2	Lightning	2.00
Denmark	July 7	.1	Smokers	
Bethel	July 8	...	Smokers	
Fryeburg	July 21	8	Brush or Debris	
			Burning	16.00
Lovell	July 23	2	Lightning	10.00
Fryeburg	July 30	1	Smokers	4.00
Oxford	July 30	.5	Smokers	1.00
Oxford	July 31	.3	Lumbering	1.00
Hartford	July 31	2	Lightning	42.00
Sweden	Aug. 1	.2	Smokers	3.00
Greenwood	Aug. 3	1	Smokers	4.00
Buckfield	Aug. 4	.2	Smokers	2.00
Fryeburg	Aug. 4	.5	Smokers	3.00
Bethel	Aug. 29	1.5	Smokers	12.00
Bethel	Sept. 2	.5	Miscellaneous	2.00
Fryeburg	Sept. 11	.2	Smokers	1.00
Oxford	Oct. 1	2.5	Smokers	2.00
Denmark	Nov. 13	10	Smokers	30.00
Waterford	Nov. 21	.1	Miscellaneous	
Penobscot County				
Indian Island	Mar. 11	20	Smokers	80.00
Glenburn	April 24	50	Smokers	1,150.00
Stacyville	May 3	2	Brush or Debris	
			Burning	6.00
Mt. Chase Pl.	May 4	20	Brush or Debris	
			Burning	120.00
Eddington	May 4	2	Lumbering	6.00
Stacyville	May 5	20	Brush or Debris	
			Burning	20.00

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Penobscot County—Cont.				
Holden	May 7	4	Lumbering	167.00
Patten	May 7	.5	Brush or Debris Burning	1.00
LaGrange-Medford, MFD	May 9	175	Lumbering	1,405.00
Lee	May 9	.1	Smokers	1.00
Howland	May 9	.5	Brush or Debris Burning	4.00
Hudson	May 10	10	Brush or Debris Burning	30.00
Mattawamkeag	May 24	.2	Brush or Debris Burning	1.00
East Millinocket	May 24	1	Smokers	2.00
Stacyville	May 26	2.5	Incendiary	22.00
Milford	May 26	3	Smokers	9.00
Hudson	June 3	5	Smokers	30.00
Orono	June 16	4	Miscellaneous	12.00
Milford	June 17	1	Campers	61.00
Corinna	June 17	.5	Smokers	2.00
Stacyville	June 19	.1	Smokers	
Bradford	June 24	15	Smokers	305.00
Mattawamkeag	June 27	5	Brush or Debris Burning	15.00
East Millinocket	June 29	1	Smokers	2.00
Stetson	July 4	.3	Lumbering	11.00
Stetson	July 5	.3	Smokers	1.00
Hermon	July 6	22	Railroad	44.00
Old Town	July 26	.8	Campers	4.00
Mattawamkeag	July 26	4	Smokers	8.00
Eddington	July 29	.1	Miscellaneous	1.00
Lincoln	July 29	2	Lightning	6.00
Lincoln	July 31	.5	Campers	5.00
Alton	Aug. 1	80	Smokers	4,225.00
Greenbush	Aug. 7	1	Smokers	102.00
Mt. Chase Pl.	Aug. 12	.1	Smokers	
Winn	Aug. 20	.1	Smokers	
Old Town	Sept. 1	.2	Smokers	2.00
Argyle Pl.	Oct. 4	8	Campers	16.00
Alton	Oct. 18	25	Smokers	200.00
Mt. Chase Pl.	Oct. 22	.2	Miscellaneous	2.00
Piscataquis County				
Dover-Foxcroft	April 21	3	Brush or Debris Burning	6.00
Milo	April 24	5	Brush or Debris Burning	10.00
Sangerville	May 3	3	Brush or Debris Burning	9.00
Milo	May 4	10	Smokers	20.00
Dover-Foxcroft	May 4	2	Miscellaneous	4.00
Sangerville	May 8	1	Brush or Debris Burning	4.00
Sangerville	July 7	.1	Smokers	
Dover-Foxcroft	Sept. 1	.1	Miscellaneous	1.00
Sangerville	Sept. 4	.1	Smokers	
Sangerville	Sept. 5	.5	Miscellaneous	2.00
Dover-Foxcroft	Oct. 18	1	Brush or Debris Burning	5.00
Brownville	Oct. 24	10	Brush or Debris Burning	30.00
Sagadahoc County				
Phippsburg	Feb. 18	1	Brush or Debris Burning	1.00
Woolwich	Feb. 19	.8	Brush or Debris Burning	1.00
Woolwich	Feb. 19	.8	Brush or Debris Burning	1.00
Phippsburg	Feb. 23	.5	Brush or Debris Burning	1.00
Bowdoin	Mar. 11	17	Lumbering	28.00
Phippsburg	April 1	3	Brush or Debris Burning	6.00
Woolwich	April 4	1	Brush or Debris Burning	2.00
Woolwich	April 4	7	Brush or Debris Burning	27.00

ORGANIZED TOWNS

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Sagadahoc County—Cont.				
Georgetown	April 25	1.5	Smokers	6.00
Woolwich	April 25	12	Smokers	36.00
West Bath	May 24	55	Miscellaneous	330.00
Bath	May 24	4	Smokers	16.00
Woolwich	June 10	30	Lumbering	90.00
Topsham	June 16	.2	Miscellaneous	1.00
Woolwich	June 17	.2	Smokers	1.00
Bowdon	June 23	.5	Lightning	1.00
West Bath	June 23	.2	Campers	.....
Woolwich	June 24	.2	Smokers	.....
Bath	June 26	1	Smokers	3.00
Bath	June 30	1	Smokers	3.00
Bath	July 1	2	Smokers	6.00
West Bath	July 3	.....	Campers	.....
West Bath	July 4	1	Miscellaneous	2.00
West Bath	July 5	150	Incendiary	7,400.00
Bath	July 8	.5	Miscellaneous	1.00
Bowdon	July 19	.....	Lightning	.....
Topsham	July 21	.....	Smokers	.....
Bath	Aug. 31	2	Brush or Debris	.....
			Burning	6.00
Woolwich	Oct. 3	.2	Smokers	1.00
Georgetown	Oct. 22	.....	Smokers	.....
Somerset County				
Embden	May 3	15	Smokers	45.00
Hartland	May 4	7	Brush or Debris	.....
			Burning	31.00
Madison	May 8	.1	Miscellaneous	.....
Detroit	May 10	3.5	Brush or Debris	.....
			Burning	17.00
Hartland	May 10	.2	Smokers	.....
Embden	May 24	50	Miscellaneous	225.00
St. Albans	June 2	2	Brush or Debris	.....
			Burning	8.00
Smithfield	June 3	.2	Miscellaneous	1.00
Pittsfield	June 16	.2	Brush or Debris	.....
			Burning	1.00
Smithfield	June 24	.1	Campers	.....
Norridgewock	July 4	.5	Smokers	2.00
Fairfield	July 4	50	Smokers	500.00
Cornville	July 15	.....	Lightning	.....
Pittsfield	July 30	1	Railroad	1.00
Smithfield	July 31	.1	Miscellaneous	.....
Palmyra	Aug. 31	.5	Smokers	2.00
Norridgewock	Sept. 2	4	Miscellaneous	36.00
Madison	Oct. 2	.1	Smokers	.....
Skowhegan	Oct. 4	14	Miscellaneous	44.00
Starks	Oct. 15	1.1	Smokers	2.00
Solon	Oct. 17	.5	Miscellaneous	2.00
Cornville	Oct. 24	.2	Smokers	1.00
Skowhegan	Nov. 18	5	Brush or Debris	.....
			Burning	15.00
Waldo County				
Belfast	Feb. 18	1	Incendiary	1.00
Belfast	Feb. 18	2	Incendiary	2.00
Belfast	Feb. 22	3	Brush or Debris	.....
			Burning	3.00
Belfast	Feb. 22	.8	Smokers	2.00
Belfast	Feb. 22	10	Smokers	20.00
Belfast	Mar. 9	5	Brush or Debris	.....
			Burning	10.00
Waldo	Mar. 10	3	Miscellaneous	6.00
Burnham	Mar. 11	.2	Brush or Debris	.....
			Burning	1.00
Belfast	Mar. 11	3	Brush or Debris	.....
			Burning	6.00
Belfast	Mar. 11	1	Miscellaneous	2.00
Frankfort	Mar. 12	4	Miscellaneous	8.00
Palermo	Mar. 12	1	Lumbering	2.00
Frankfort	April 9	30	Brush or Debris	.....
			Burning	60.00
Montville	April 25	10	Smokers	84.00
Swanville	May 4	10	Brush or Debris	.....
			Burning	38.00

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
Waldo County — Cont.				
Thorndike.....	May 7	15	Brush or Debris	
			Burning.....	45.00
Lincolnton.....	May 10	2	Smokers.....	12.00
Searsmont.....	May 10	27	Brush or Debris	
			Burning.....	651.00
Searsport.....	May 23	4	Brush or Debris	
			Burning.....	10.00
Stockton Springs.....	May 31	.1	Brush or Debris	
			Burning.....	
Stockton Springs.....	June 3	50	Miscellaneous.....	260.00
Knox.....	June 20	.5	Miscellaneous.....	1.00
Burnham.....	June 28	1	Miscellaneous.....	2.00
Troy.....	July 4	1	Smokers.....	12.00
Frankfort.....	July 5	.1	Miscellaneous.....	1.00
Palermo.....	July 31	200	Lumbering.....	3,156.00
Burnham.....	Aug. 2	.2	Smokers.....	57.00
Lincolnton.....	Aug. 29	3	Lumbering.....	6.00
Palermo.....	Oct. 4	1	Campers.....	1.00
Stockton Springs.....	Oct. 16		Railroad.....	
Northport.....	Nov. 18	1	Smokers.....	1.00
Burnham.....	Nov. 19	3	Smokers.....	
Washington County				
Machias.....	Mar. 9	12	Smokers.....	1,469.00
Robbinston.....	Mar. 11	1	Incendiary.....	1.00
Robbinston.....	Mar. 11	4	Incendiary.....	4.00
Robbinston.....	Mar. 11	5	Incendiary.....	5.00
Robbinston.....	Mar. 11	4	Incendiary.....	4.00
Robbinston.....	Mar. 11	4	Incendiary.....	12.00
Robbinston.....	Mar. 11	3	Incendiary.....	3.00
Robbinston.....	Mar. 11	4	Incendiary.....	4.00
Robbinston.....	Mar. 11	6	Incendiary.....	18.00
Robbinston.....	Mar. 11	7	Incendiary.....	7.00
Baring.....	Mar. 12	1.5	Brush or Debris	
			Burning.....	1,502.00
Baring.....	April 5	1.5	Smokers.....	4.00
Danforth.....	April 7	7.5	Brush or Debris	
			Burning.....	8.00
Whiting.....	April 16	4	Smokers.....	8.00
Columbia.....	April 25	.5	Brush or Debris	
			Burning.....	494.00
Talmadge.....	May 4	10	Smokers.....	150.00
Machias.....	May 4	3.5	Brush or Debris	
			Burning.....	10.00
Baring.....	May 4	.5	Smokers.....	2.00
Danforth.....	May 5	2	Brush or Debris	
			Burning.....	6.00
East Machias.....	May 6	5	Brush or Debris	
			Burning.....	15.00
Steuben.....	May 7	6	Brush or Debris	
			Burning.....	18.00
Cherryfield.....	May 7	10	Miscellaneous.....	30.00
Danforth.....	May 7	2	Railroad.....	6.00
Jonesport.....	May 7	40	Smokers.....	120.00
Baileyville.....	May 7	1.5	Brush or Debris	
			Burning.....	7.00
Charlotte.....	May 10	5	Brush or Debris	
			Burning.....	25.00
Jonesport.....	May 10	25	Brush or Debris	
			Burning.....	75.00
Pembroke.....	May 11	3	Brush or Debris	
			Burning.....	11.00
Whiting.....	May 11	.2	Smokers.....	1.00
Jonesport.....	June 2	.5	Brush or Debris	
			Burning.....	1.00
Lubec.....	June 25	.5	Smokers.....	2.00
Columbia Falls.....	June 27	.2	Lumbering.....	30.00
Milbridge, Harrington.....	July 3	1200	Campers.....	4,325.00
Lubec.....	July 4	40	Incendiary.....	120.00
Addison.....	July 4	12	Smokers.....	24.00
Marshfield.....	July 29	.5	Smokers.....	1.00
Steuben.....	Aug. 4	8	Lumbering.....	16.00
Princeton.....	Aug. 8	.2	Miscellaneous.....	1.00
East Machias.....	Aug. 30	.2	Smokers.....	1.00

ORGANIZED TOWNS

59

ORGANIZED TOWNS FIRE RECORD 1953

Location	Date	Acreage	Cause	Damage
York County				
Old Orchard Beach.....	Feb. 18	5	Brush or Debris	
			Burning.....	5.00
Kittery.....	Feb. 25	3.5	Miscellaneous.....	6.00
Lebanon.....	Mar. 7	4	Miscellaneous.....	12.00
Kittery-York.....	Mar. 9	15	Smokers.....	34.00
Lebanon.....	Mar. 11	2	Brush or Debris	
			Burning.....	6.00
South Berwick.....	April 22	1.2	Smokers.....	4.00
Limington.....	April 23	4.5	Lumbering.....	24.00
Lebanon.....	April 23	6	Brush or Debris	
			Burning.....	21.00
Limerick.....	April 23	5	Brush or Debris	
			Burning.....	12.00
Wells.....	April 29	2	Smokers.....	4.00
Springvale.....	April 30	.5	Brush or Debris	
			Burning.....	2.00
Wells.....	May 4	.2	Smokers.....	1.00
Wells.....	May 7	4	Incendiary.....	12.00
Wells.....	May 9	.5	Incendiary.....	1.00
Wells.....	May 10	.2	Incendiary.....	1.00
Buxton.....	May 10	.5	Brush or Debris	
			Burning.....	1.00
Wells.....	May 11	.2	Incendiary.....	1.00
Wells.....	May 12	1	Smokers.....	2.00
Sanford-Lebanon.....	May 24	180	Smokers.....	750.00
Acton.....	June 3	75	Smokers.....	293.00
Acton.....	June 7	6	Incendiary.....	18.00
York.....	June 10	10	Smokers.....	41.00
Shapleigh.....	June 10	.1	Smokers.....	1.00
Eliot.....	June 15	.2	Smokers.....	1.00
Lebanon.....	June 15	3.5	Smokers.....	12.00
Sanford.....	June 17	2	Lumbering.....	7.00
South Berwick.....	June 20	.5	Miscellaneous.....	2.00
Lebanon.....	June 22	1	Brush or Debris	
			Burning.....	3.00
Parsonsfield.....	June 22	1	Lightning.....	3.00
Acton.....	June 23	.2	Lightning.....	1.00
Kennebunk.....	June 24	1	Miscellaneous.....	4.00
South Berwick.....	June 24	.2	Miscellaneous.....	1.00
North Berwick.....	June 25	.5	Smokers.....	2.00
Kennebunk.....	June 25	2	Miscellaneous.....	4.00
Acton.....	June 25	1	Lightning.....	4.00
Kittery.....	June 26	.2	Lightning.....	1.00
Kennebunk.....	June 27	1	Smokers.....	3.00
York.....	June 29	.5	Smokers.....	1.00
Wells.....	June 30	2	Smokers.....	8.00
Wells.....	June 30	6	Miscellaneous.....	8,016.00
Lebanon.....	July 1	1.2	Lumbering.....	2.00
Acton.....	July 3	2	Smokers.....	8.00
Eliot.....	July 3	230	Miscellaneous.....	4,475.00
Wells.....	July 5	2	Smokers.....	8.00
South Berwick.....	July 5	2	Smokers.....	6.00
Wells.....	July 7	1	Smokers.....	4.00
North Kennebunkport.....	July 7	7	Smokers.....	25.00
Waterboro.....	July 9	1	Brush or Debris	
			Burning.....	2.00
Wells.....	July 12	1.2	Miscellaneous.....	5.00
Acton.....	July 17	3	Smokers.....	3.00
Sanford.....	July 17	.5	Smokers.....	2.00
North Berwick.....	July 20	.5	Lightning.....	1.00
North Kennebunkport.....	July 29	1	Smokers.....	4.00
North Kennebunkport.....	July 30	26	Brush or Debris	
			Burning.....	103.00
Lyman.....	July 31	1	Smokers.....	3.00
York.....	July 31	8	Smokers.....	30.00
Shapleigh.....	July 31	.2	Campers.....	1.00
Shapleigh.....	July 31	.2	Lumbering.....	1.00
Sanford.....	July 31	2361	Miscellaneous.....	10,393.00
Shapleigh.....	Aug. 1	....	Brush or Dberis	
			Burning.....	....
Sanford.....	Aug. 1	158	Smokers.....	604.00
Eliot.....	Aug. 1	2	Smokers.....	8.00
Shapleigh.....	Aug. 1	.5	Campers.....	4.00
York.....	Aug. 7	1	Smokers.....	2.00
Wells.....	Aug. 13	3	Incendiary.....	6.00
York.....	Aug. 13	.2	Miscellaneous.....	1.00
York.....	Sept. 5	1	Campers.....	3.00
Parsonsfield.....	Sept. 6	....	Miscellaneous.....	....
Limington.....	Sept. 16	....	Lightning.....	....
Sanford.....	Oct. 3	1	Smokers.....	2.00
South Berwick.....	Oct. 3	20	Smokers.....	60.00

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1954

Location	Date	Acreage	Cause	Damage
Androscoggin County				
Durham	Mar. 28	5	Miscellaneous	\$ 15.00
Livermore Falls	April 9	.2	Miscellaneous	.....
Livermore Falls	April 9	1.4	Smokers	3.00
Mechanic Falls	April 21	.5	Brush or Debris Burning	1.00
Mechanic Falls	April 22	.3	Brush or Debris Burning	1.00
Mechanic Falls	April 24	.2	Brush or Debris Burning	.....
Minot	April 24	.4	Smokers	.....
Minot	April 24	5	Brush or Debris Burning	18.00
Poland	April 24	.2	Brush or Debris Burning	2.00
Poland	April 25	2	Brush or Debris Burning	6.00
Lisbon	April 29	3	Brush or Debris Burning	27.00
Poland	April 29	2	Railroad	12.00
Minot	April 30	3	Brush or Debris Burning	9.00
Lisbon	May 1	3	Smokers	9.00
Poland	May 1	.3	Brush or Debris Burning	.....
Poland	July 17	.3	Railroad	.....
Poland	Aug. 15	.5	Brush or Debris Burning	1.00
Poland	Aug. 28	.1	Miscellaneous	1.00
Poland	Nov. 14	.5	Smokers	2.00
Aroostook County				
Weston	April 22	1.5	Brush or Debris Burning	2.00
Fort Kent	April 28	2	Brush or Debris Burning	30.00
Masardis	April 29	12	Brush or Debris Burning	24.00
Chapman	April 29	45	Brush or Debris Burning	165.00
Chapman	April 30	5	Brush or Debris Burning	10.00
Dyer Brook	April 30	1	Brush or Debris Burning	2.00
Fort Kent	April 30	6	Brush or Debris Burning	66.00
Fort Kent	April 30	.5	Brush or Debris Burning	1.00
Bancroft	May 1	5	Brush or Debris Burning	10.00
Crystal	May 1	2	Brush or Debris Burning	4.00
Easton	May 1	8.2	Brush or Debris Burning	17.00
Perham	May 1	13	Smokers	274.00
Stockholm	May 1	.1	Smokers	1.00
Wade	May 3	5	Brush or Debris Burning	10.00
Mapleton	May 21	1.1	Smokers	6.00
Chapman	May 27	1	Brush or Debris Burning	2.00
Portage Lake	June 14	.5	Brush or Debris Burning	2.00
Woodland	June 15	.1	Brush or Debris Burning	.....
Caswell Pl.	June 16	.1	Smokers	6.00
Orient	June 16	.5	Brush or Debris Burning	1.00
Masardis	June 18	.1	Lumbering	1.00
Westfield	June 19	.1	Brush or Debris Burning	.....
Stockholm	June 25	.2	Lumbering	1.00
Island Falls	Aug. 28	.....	Campers	.....

ORGANIZED TOWNS

ORGANIZED TOWNS FIRE RECORD 1954

Location	Date	Acreage	Cause	Damage
Cumberland County				
Harpwell	April 4	3	Brush or Debris Burning	9.00
Windham	April 4	2	Brush or Debris Burning	6.00
Cumberland	April 5	.2	Brush or Debris Burning	21.00
Cumberland	April 7	.2	Brush or Debris Burning	1.00
Windham	April 8	2.5	Lumbering	8.00
Windham	April 9	3	Brush or Debris Burning	12.00
Falmouth	April 10	3	Brush or Debris Burning	9.00
Cumberland	April 19	.2	Brush or Debris Burning	1.00
Falmouth	April 20	2	Brush or Debris Burning	6.00
Standish	April 22	3	Miscellaneous	377.00
New Gloucester	April 22	.2	Brush or Debris Burning	1.00
Windham	April 22	.5	Brush or Debris Burning	1.00
New Gloucester	April 24	.2	Brush or Debris Burning	1.00
Windham	April 24	.2	Miscellaneous	1.00
Harrison	April 24	1.1	Smokers	1.00
Harrison	April 25	.2	Brush or Debris Burning	....
Cumberland	April 25	11	Brush or Debris Burning	33.00
Falmouth	April 25	1	Miscellaneous	3.00
North Yarmouth	April 25	.1	Smokers	....
Windham	April 25	3	Brush or Debris Burning	9.00
New Gloucester	April 26	.1	Smokers	....
North Yarmouth	April 26	1	Railroad	3.00
Falmouth	April 26	1	Brush or Debris	3.00
Falmouth	April 28	1	Smokers	53.00
Windham	April 29	4	Brush or Debris Burning	12.00
New Gloucester	April 29	10	Brush or Debris Burning	10.00
New Gloucester	April 30	1.5	Brush or Debris Burning	4.00
Harrison	April 30	.2	Brush or Debris Burning	....
New Gloucester	May 1	.5	Smokers	2.00
Scarborough	May 15	.5	Campers	2.00
Windham	May 15	3	Lumbering	9.00
Naples	May 15	....	Smokers	....
Standish	May 17	.2	Brush or Debris Burning	6.00
Harrison	May 17	.1	Brush or Debris Burning	1.00
Harrison	May 17	.1	Brush or Debris Burning	1.00
New Gloucester	May 31	.2	Railroad	1.00
Windham	June 10	.1	Brush or Debris Burning	....
Cumberland	June 19	.2	Brush or Debris Burning	1.00
Windham	June 21	2	Railroad	4.00
Scarborough	July 11	1	Miscellaneous	3.00
Windham	July 14	.5	Lightning	1.00
Raymond	July 15	.5	Brush or Debris Burning	2.00
North Yarmouth	July 31	....	Lightning	....
Cumberland	Aug. 18	.1	Smokers	....
Falmouth	Aug. 29	5	Brush or Debris Burning	15.00
New Gloucester	Oct. 2	....	Smokers	....
Falmouth	Oct. 24	25	Brush or Debris Burning	65.00
Cumberland	Nov. 11	.5	Smokers	1.00

FOREST COMMISSIONER'S REPORT

ORGANIZED TOWNS FIRE RECORD 1954

Location	Date	Acreage	Cause	Damage
Franklin County				
Phillips	May 1	8	Miscellaneous	38.00
Chesterville	May 27	4	Smokers	32.00
New Sharon	May 29	3	Brush or Debris Burning	9.00
Weld	May 30	2	Miscellaneous	28.00
Hancock County				
Bluehill	Mar. 24	3	Miscellaneous	3.00
Orland	Mar. 28	4	Miscellaneous	8.00
Bar Harbor	April 10	1.5	Brush or Debris Burning	4.00
Lamoine	April 22	2	Brush or Debris Burning	20.00
Bar Harbor	April 27	.5	Brush or Debris Burning	4.00
Penobscot-Bluehill	April 27	25	Brush or Debris Burning	680.00
Bucksport	April 27	1	Smokers	1.00
Gouldsboro	April 27	3	Brush or Debris Burning	18.00
Gouldsboro	April 28	3	Inciendiary	12.00
Sullivan	April 28	5	Brush or Debris Burning	30.00
Bucksport	April 28	1.5	Miscellaneous	2.00
Bucksport	April 28	.8	Brush or Debris Burning	1.00
Orland	April 29	100	Brush or Debris Burning	1,000.00
Sedgwick	April 29	10	Brush or Debris Burning	30.00
Sedgwick	April 29	35	Brush or Debris Burning	105.00
Sedgwick	April 29	10	Brush or Debris Burning	30.00
Dedham	April 29	18	Brush or Debris Burning	108.00
Surry	April 29	7	Brush or Debris Burning	21.00
Sorrento	April 30	.2	Smokers	1.00
Gouldsboro	April 30	199	Brush or Debris Burning	2,885.00
Franklin	April 30	26	Brush or Debris Burning	84.00
Deer Isle	April 30	1	Brush or Debris Burning	3.00
Sullivan	June 3	1.5	Miscellaneous	3.00
Brooklin	July 10	2	Smokers	4.00
Bluehill	Nov. 11	5	Smokers	15.00
Kennebec County				
Pittston	April 4	20	Brush or Debris Burning	60.00
Winslow	April 10	6	Brush or Debris Burning	14.00
Winslow	April 10	5	Miscellaneous	10.00
Litchfield	April 10	2	Miscellaneous	22.00
Gardiner	April 21	100	Smokers	300.00
Vienna	April 22	10	Brush or Debris Burning	30.00
Wayne	April 24	2	Brush or Debris Burning	6.00
Windsor	April 24	30	Brush or Debris Burning	90.00
Windsor	April 26	.1	Brush or Debris Burning .....	....
Windsor	April 29	5	Brush or Debris Burning	15.00
Winslow	April 29	6	Smokers	18.00
Gardiner	April 29	1	Campers	3.00
Litchfield	April 30	.1	Smokers .....	....
Windsor	April 30	6	Lumbering	12.00
Oakland	April 30	5	Smokers	20.00
Albion	April 30	20	Smokers	80.00
Litchfield	May 17	2	Miscellaneous	6.00
Vassalboro	May 18	5	Railroad	15.00
Winthrop	July 11	.2	Lightning	1.00

ORGANIZED TOWNS FIRE RECORD 1954

Location	Date	Acreage	Cause	Damage
Kennebec County — Cont.				
Winthrop	July 11	....	Smokers .....	....
Wayne	July 20	.1	Campers	1.00
Knox County				
Warren	Mar. 24	1	Smokers	1.00
Warren	April 4	1	Smokers	1.00
Warren	April 20	5	Brush or Debris Burning	15.00
Warren	April 21	1	Brush or Debris Burning	3.00
Vinalhaven	April 26	30	Brush or Debris Burning	90.00
Warren	April 27	50	Brush or Debris Burning	350.00
Washington	April 28	30	Brush or Debris Burning	90.00
Appleton	April 29	.8	Miscellaneous	2.00
Cushing	April 30	8	Campers	104.00
Washington	April 30	2.2	Brush or Debris Burning	7.00
Washington	April 30	6	Brush or Debris Burning	18.00
Warren	May 1	4	Brush or Debris Burning	12.00
Warren	May 5	4	Brush or Debris Burning	48.00
Vinalhaven	July 12	4	Smokers	20.00
Lincoln County				
Waldoboro	Mar. 5	8	Brush or Debris Burning	24.00
Muscongus Island	Mar. 25	3	Miscellaneous	3.00
Dresden	Mar. 28	5	Brush or Debris Burning	15.00
Southport	Mar. 28	.5	Brush or Debris Burning	1.00
Nobleboro	April 21	1.5	Miscellaneous	4.00
Dresden	April 22	2.5	Smokers	7.00
Boothbay	April 27	1	Brush or Debris Burning	3.00
Jefferson	April 27	1.5	Smokers	4.00
Jefferson	April 28	4	Smokers	12.00
Dresden	April 29	.5	Smokers	1.00
Newcastle	April 29	25	Lumbering	175.00
Waldoboro	April 30	4	Lumbering	8.00
Dresden	May 14	2	Miscellaneous	6.00
Waldoboro	May 17	1.5	Brush or Debris Burning	4.00
Newcastle	July 4	.1	Campers .....	....
Bremen	July 5	.5	Smokers	2.00
Bristol	July 6	2	Lumbering	2.00
Oxford County				
Hartford	April 20	.5	Brush or Debris Burning	1.00
Hiram	April 21	10	Brush or Debris Burning	38.00
Hiram	April 25	.5	Brush or Debris Burning	1.00
Buckfield	April 26	2.8	Miscellaneous	9.00
Peru	April 30	.3	Brush or Debris Burning .....	....
Buckfield	May 12	.2	Brush or Debris Burning	1.00
Greenwood	May 12	.2	Railroad	1.00
Denmark	July 18	....	Lightning	4.00
Brownfield	Aug. 7	.2	Lightning	1.00
Mexico	Oct. 24	20	Miscellaneous	180.00
Dixfield	Nov. 11	1	Miscellaneous	3.00
Buckfield	Nov. 15	.5	Brush or Debris Burning	1.00
Penobscot County				
Dixmont	April 25	1	Brush or Debris Burning	3.00
Carroll Pl.	April 28	100	Incendiary	300.00
Eddington	April 28	4	Smokers	8.00
Lincoln	April 29	12	Brush or Debris Burning	36.00

ORGANIZED TOWNS FIRE RECORD 1954

Location	Date	Acreage	Cause	Damage
Penobscot County — Cont.				
Lincoln	April 29	6	Brush or Debris Burning	2,238.00
Springfield	April 29	20	Smokers	40.00
Milford	April 30	.2	Brush or Debris Burning	1.00
Milford	April 30	.2	Smokers	1.00
Milford	April 30	.2	Brush or Debris Burning	1.00
Holden	April 30	8	Brush or Debris Burning	48.00
Glenburn	April 30	30	Railroad	60.00
Orono	April 30	50	Smokers	550.00
Prentiss Pl.	May 1	45	Brush or Debris Burning	90.00
Glenburn	May 15	.5	Railroad	1.00
Holden	Oct. 27	1	Brush or Debris Burning	1.00
Piscataquis County				
Greenville	April 28	7	Railroad	14.00
Brownville	April 28	30	Railroad	60.00
Brownville	May 15	1	Brush or Debris Burning	4.00
Sagadahoc County				
Woolwich	Mar. 27	25	Brush or Debris Burning	75.00
Woolwich	Mar. 28	.2	Brush or Debris Burning .....	.....
West Bath	April 4	.2	Smokers .....	.....
Woolwich	April 10	1	Miscellaneous	3.00
Topsham	April 19	3	Brush or Debris Burning	9.00
Topsham	April 21	4	Smokers	12.00
Woolwich	April 22	1.5	Brush or Debris Burning	4.00
Topsham	April 24	10	Smokers	30.00
Topsham	April 29	2	Smokers	30.00
Topsham	May 13	.....	Smokers .....	.....
Woolwich	May 19	4	Smokers	60.00
West Bath	July 11	.5	Campers	2.00
Somerset County				
Bingham	April 29	1.5	Brush or Debris Burning	34.00
Anson	April 29	.8	Miscellaneous	2.00
Anson	April 30	.2	Miscellaneous	1.00
Jackman	April 30	12	Brush or Debris Burning	36.00
Jackman	April 30	4	Brush or Debris Burning	9.00
Hartland	April 30	3	Brush or Debris Burning	9.00
Fairfield	April 30	6	Brush or Debris Burning	68.00
Canaan	May 15	1	Brush or Debris Burning	2.00
Fairfield	May 15	4	Brush or Debris Burning	20.00
Waldo County				
Monroe	April 22	25	Lightning	25.00
Frankfort	April 22	6	Brush or Debris Burning	42.00
Frankfort	April 22	2	Brush or Debris Burning	6.00
Troy	April 22	45	Smokers	160.00
Montville	April 24	4	Brush or Debris Burning	12.00
Liberty	April 29	400	Brush or Debris Burning	2,820.00
Northport	April 29	2.5	Brush or Debris Burning	8.00
Palermo	April 29	2	Brush or Debris Burning	6.00
Winterport	April 30	2	Miscellaneous	10.00
Frankfort	April 30	45	Brush or Debris Burning	155.00

ORGANIZED TOWNS

ORGANIZED TOWNS FIRE RECORD 1954

Location	Date	Acreage	Cause	Damage
Waldo County — Cont.				
Thorndike	May 1	150	Incendiary	600.00
Stockton Springs	May 15	3	Railroad	9.00
Frankfort	July 8	.5	Smokers	2.00
Washington County				
Danforth	April 29	1.5	Brush or Debris Burning	4.00
Alexander	April 29	5	Brush or Debris Burning	45.00
Columbia	April 29	80	Brush or Debris Burning	205.00
Pembroke	April 29	27	Brush or Debris Burning	396.00
Whiting	April 29	5	Smokers	15.00
Steuben	April 29	16	Miscellaneous	96.00
Machiasport	April 29	1	Brush or Debris Burning	2.00
Machiasport	April 30	1	Smokers	2.00
Marshfield	April 30	1	Incendiary	2.00
Harrington	April 30	2	Brush or Debris Burning	6.00
Calais	April 30	5	Brush or Debris Burning	15.00
Alexander	April 30	5	Brush or Debris Burning	25.00
Steuben	May 15	75	Brush or Debris Burning	450.00
Princeton	June 20	.2	Brush or Debris Burning	1.00
Whiting	June 20	.2	Brush or Debris Burning	1.00
York County				
York	April 3	6	Smokers	18.00
York	April 4	1	Railroad	4.00
Alfred	April 7	4	Brush or Debris Burning	24.00
Acton	April 22	9	Miscellaneous	41.00
South Berwick	April 22	100	Miscellaneous	870.00
York	April 22	3	Campers	3.00
Waterboro	April 30	100	Smokers	300.00
Waterboro	May 14	.2	Miscellaneous .....	....
York	June 19	.2	Smokers	1.00
Lebanon	July 5	.5	Brush or Debris Burning	1.00
Lebanon	July 12	.1	Smokers .....	....
Wells	Aug. 25	.2	Smokers	1.00
Wells	Aug. 28	1.5	Smokers	4.00
Lebanon	Oct. 4	.2	Brush or Debris Burning .....	....
Sanford	Nov. 11	1.5	Brush or Debris Burning	2.00

FOREST COMMISSIONER'S REPORT

SUMMARY OF FOREST FIRES FOR 1953-1954 BY MONTHS, COUNTIES,
AND CAUSES — ORGANIZED TOWNS

	No. of Fires		Acreage		Damage	
	1953	1954	1953	1954	1953	1954
By Months:						
January.....	..	..	..	..	..	..
February.....	22	..	150	..	\$ 212.00	..
March.....	64	9	433	51	8,171.00	\$ 142.00
April.....	62	164	450	2,226	3,128.00	16,550.00
May.....	159	41	2,840	365	19,254.00	1,791.00
June.....	119	14	692	6	14,630.00	22.00
July.....	102	18	4,471	13	5,836.00	45.00
August.....	64	9	348	11	5,833.00	26.00
September.....	33	..	136	..	2,273.00	..
October.....	42	5	127	46	5,609.00	246.00
November.....	9	6	24	9	73.00	24.00
December.....	1	..	1	..	30.00	..
	677	266	9,672	2,727	\$90,549.00	\$18,846.00
By Counties:						
Androscoggin.....	35	19	202	28	5,723.00	107.00
Aroostook.....	96	24	1,152	110	8,165.00	635.00
Cumberland.....	104	48	465	97	1,653.00	699.00
Franklin.....	11	4	131	17	434.00	107.00
Hancock.....	55	25	450	465	5,555.00	5,072.00
Kennebec.....	34	20	781	225	9,124.00	703.00
Knox.....	9	14	29	147	134.00	761.00
Lincoln.....	25	18	285	63	2,946.00	271.00
Oxford.....	61	12	188	36	1,644.00	240.00
Penobscot.....	40	15	313	278	6,676.00	3,378.00
Piscataquis.....	13	3	211	38	1,496.00	78.00
Sagadahoc.....	30	12	293	51	7,970.00	225.00
Somerset.....	23	9	155	33	933.00	181.00
Waldo.....	32	13	393	687	4,467.00	3,855.00
Washington.....	39	15	1,440	225	8,540.00	1,265.00
York.....	70	15	3,184	227	25,089.00	1,269.00
	677	266	9,672	2,727	\$90,549.00	\$18,846.00
By Causes:						
Lightning.....	29	6	31	26	430.00	32.00
Railroad.....	15	13	168	82	234.00	184.00
Campers.....	37	8	1,451	13	8,183.00	115.00
Smokers.....	220	56	2,327	435	23,213.00	2,111.00
Debris Burning.....	209	140	1,604	1,674	16,892.00	13,524.00
Incendiary.....	30	4	364	254	9,805.00	914.00
Lumbering.....	37	8	727	43	6,547.00	216.00
Miscellaneous.....	100	31	3,000	200	25,245.00	1,750.00
	677	266	9,672	2,727	\$90,549.00	\$18,846.00

KEEP MAINE GREEN**Joel W. Marsh, Supervisor**

R. Leon Williams, State Chairman, presided at the 1953 annual meeting held in March at the State Grange Hall. County chairmen gave their reports on county activities for the preceding year and gave suggestions for the succeeding one. James McClellan, chief forester of American Forest Products Industries, outlined "Keep America Green" activities in other areas. He made suggestions for the Maine program. Fire prevention materials were on display in the meeting room. "Smokey" made his first appearance and was enthusiastically welcomed. A large number of requests were made for his appearance in local communities and at county programs.

Ralph Whittum, 1952 Androscoggin County Keep Maine Green Chairman, was elected State Chairman and served during 1953 and 1954.

COUNTY CHAIRMEN

County	1953 Chairman	1954 Chairman
Androscoggin	Roger Gowell, Portland	Roger Gowell, Portland
Aroostook	George C. Sawyer, Ashland	George C. Sawyer, Ashland
Cumberland	Ernest Rand, Cumberland Ctr.	Ernest Rand, Cumberland Ctr.
Franklin		R. W. Hoover, Phillips
Hancock		Floyd Crocker, Bucksport
Kennebec	Elmer G. Kelso, Waterville	Elmer G. Kelso, Waterville
Knox		
Lincoln		Clayton Dodge, Boothbay
Oxford	John H. Carter (Acting), Bethel	John H. Carter, Bethel
Penobscot	John Maines, Bangor	John Maines, Bangor
Piscataquis	Charles Bailey, Milo	Charles Bailey, Milo
Sagadahoc	James Gillies, Bath	Linwood Rideout, Bowdoinham
Somerset	William Melcher, Bingham	William Melcher, Bingham
Waldo	Seavey Piper, Troy	Seavey Piper, Troy
Washington	Philip H. Cunningham, Calais	Philip H. Cunningham, Calais
York	Fred Leavitt, Parsonsfield	Fred Leavitt, Parsonsfield

On March 25, 1954, the annual Keep Maine Green meeting was held in the Senate Chamber, State House, Augusta, with over 75 people present. Ralph B. Whittum, State Keep Maine Green Chairman, presided and opening remarks were made by Forest Commissioner A. D. Nutting. A feature of the meeting was the presentation of a "Smokey" bear doll to Governor Burton M. Cross. He complimented the group for promoting Keep Maine Green throughout the state and said that public education was the best way to impress people on the importance of forest fire prevention.

L. C. Rawson, Northeastern District Manager of American Forest Products Industries (AFPI), continued to be available to the Maine program. He contacted major forest industries and all daily and many weekly newspapers and distributed a Forest Resource Handbook to help industries and newspapers to further forest educational programs. The AFPI supplied Keep Maine Green with fire prevention material. Over 155,000 pieces of literature were received in 1953 which included 50,000 Keep Maine Green leaflets, and in 1954 over 100,000 pieces. AFPI estimated that over 700 schools in Maine used forest educational materials to aid in conservation teaching programs in 1954.

Maine obtained fire prevention posters and material from the Federal Cooperative Forest Fire Program (U. S. Forest Service). Over 78,000 pieces of literature were received and distributed in 1953, and over 85,000 pieces in 1954. U. S. Forest Service fire prevention films and radio platters were made available to theatres, radio and television stations and used. Many of these featured "Smokey," the fire prevention bear.

Maine forest industries continued to cooperate with Keep Maine Green activities. Fire prevention and Keep Green ads in newspapers and magazines throughout the state were paid for by private industry, and funds were made available to help support county Keep Maine Green activities. Industry participation is essential to the program.

In 1953 the International Paper Company furnished 10,000 copies of their comic book, "The Crop That Did Not Fail." Ten thousand copies of a similar book, "The Little Tree That Went to School," were received in 1954. Although these colored, illustrated books portrayed a story of the South, the material was well received by Maine children.

Without a doubt, "Smokey," Maine's fire prevention bear, with his message, was the feature Keep Maine Green activity during both 1953 and 1954. A special script with Smokey's Maine message was prepared and used. He made 161 appearances in 1953 and talked to 30,000 children and 11,000 adults. One hundred and twenty-five schools were visited. Two parades and one fair were attended with approximately 8,000 adults and children present. In September 1953, he appeared at the Eastern States Exposition in Springfield, Massachusetts, and was seen by an estimated 70,000 adults and children. "Smokey" continued to be in demand during 1954 when he made 162 appearances and talked to over 30,000 children and 4,000 adults. He attended 5 shows, 6 parades, and 1 conference, with a total attendance of 28,000 people. Maine's fire prevention bear made 3 feature appearances and fire prevention "Smokey" film shorts were shown on

television from time to time by Portland, Bangor, and Lewiston stations during 1954. One of the television stations, serving over 90,000 television sets, estimated that 250,000 people viewed its program. In April 1954, the president of the Maine Restaurant Association presented a framed certificate of honorary life time membership to "Smokey."

During June 1954, two successful trial programs were put on at the Great Northern Blackstone Siding and Red River lumber camps in northern Maine. "Smokey" put across his fire prevention message in French. Plans are being made to have more such programs during 1955.

A successful conservation study project for Juvenile Grangers was conducted during 1954 in cooperation with the Grange Herald. Juvenile Matrons and Patrons were furnished Keep Maine Green and forest educational materials. The Grange Herald awarded prizes in the 5 to 9 year age group for original crayon-colored, 8½ x 11 inch drawings of "Smokey and His Friends." Prizes were awarded in the 10 to 14 year age group for writing an essay on "What Does Smokey, Maine's Fire Prevention Bear, Mean to me."

Approximately 900 Keep Maine Green meetings were held at Granges, Men's and Women's Clubs, Community fire meetings, and schools during 1954-54. Usually Maine Forest Service personnel, Keep Maine Green county chairmen, or representatives from industry spoke and showed movies and slides.

During 1953, eight forest fire prevention films, available through the Forestry Department's film library, were shown 292 times. In 1954, 11 available films were shown 365 times.

At the Forestry Department training schools held in the springs of 1953 and 1954, fire prevention was emphasized. This helped to increase the number of warden prevention contacts. Fire prevention and the distribution of Keep Maine Green posters and leaflets are a definite part of the Department's forest fire plan.

Truck and car Keep Maine Green decals were distributed. E. G. Kelso, of the Hollingsworth & Whitney Division, Scott Paper Company, in Waterville, continued to handle the 4" car decals, at cost, and Ralph Merrill, Penobscot Development Company, Great Works, the 10" truck decals. By order of the Governor and Council, the Maine Forest Service furnished decals to all state cars and vehicles.

About half of the supervisor's time was spent on Keep Maine Green programs, with special emphasis on contacting newspapers and magazines, radio and television stations, theatres, banks, and utilities. The cooperation received was very gratifying. Each paper was acquainted with the ad mat services available from the U. S. Forest Service and American Forest Products Industries through the Maine program. Their staff writers featured fire prevention articles throughout the fire seasons. In many cases the supervisor furnished photographs and material to illustrate the articles.

Excellent cooperation was received from all radio and TV stations during 1953-54. Station managers were provided with fire prevention scripts which were used, especially during dry periods. Most of the stations continued to use the radio fire prevention platter service made available by the Maine Forest Service and AFPI.

Since the TV stations official openings in late 1953 and early 1954, they have made available time and featured 14 fire prevention and forest educational programs. The supervisor appeared on eight programs and assisted in preparing the script and furnishing movies and visuals.

Newspapers, radio and television stations cooperated effectively by using the press releases prepared by the Forestry Department during dry periods.

The Grange Herald carried forest fire prevention and informational ads during the biennium and the Maine Restaurant Association Bulletin during 1954. Space was sponsored by forest industries. Articles and fire prevention mats were used in the Maine Publicity News Bulletin, Maine Truck Owners' Association Bulletin, Lakewood Theatre publication, Northeastern Logger, Forestry Digest, and other publications.

Many banks cooperated by mailing fire prevention fliers with their monthly statements in fire seasons. In 1954, the Central Maine Power Company featured articles and mats in their house organ, "The Exciter." They also enclosed over 12,000 prevention fliers with their customers' bills in July 1954.

The Department of Inland Fisheries and Game and the State Park Commission cooperated by distributing prevention materials. The 1954 State Highway Department map featured a colored fire prevention sketch, with a Keep Maine Green message. Over 250,000 copies were distributed to motorists.

The State Insurance, State Highway, and Forestry Departments jointly purchased 150 new roadside signs in 1954 to warn the public that it is unlawful to throw waste and lighted smoking materials from vehicles on private or public ways (Chapter 97, Sec. 35, R.S. 1954). The Soil Conservation Service assisted by enclosing fire prevention material in their regular mail.

Excellent cooperation was received from the National Federation of Business and Professional Women's Clubs, Maine Federation of Women's Clubs, Red Cross, Boy and Girl Scouts, and from many other organizations.

Forest fire prevention is a problem that will require the cooperation of all groups and citizens for a long period ahead. "Keep Maine Green" has done a great deal to coordinate efforts of interested groups and its sponsors appreciate the cooperation from newspapers, radio, television, groups, and individual citizens.

**NORTHEASTERN FOREST FIRE PROTECTION
COMMISSION**

Membership from Maine

Louis J. Freedman	Governor's Representative
John Carter	Legislative Representative
A. D. Nutting	Forest Fire Head

A. S. Hopkins, with headquarters at Chatham, New York, served as secretary for the biennium. He completed the regional forest fire plan and distributed copies to each member state. The annual meetings held in Boston were attended by all commissioners. A. D. Nutting completed his third term as chairman in July 1954, and Austin Wilkins continued to serve as training advisor to the Compact training team.

The benefits and program of the Commission are covered in this report in the sections on fire. Maine was able to repay the assistance it received in 1952 from the Compact by sending equipment to New Hampshire in 1953. The Compact has proven valuable on every occasion when assistance has been needed.

Training continued as the outstanding contribution to Maine from the Compact. A Forest Fire Manual published by the Commission should prove to be very helpful to Maine personnel.

The Commission has done well the job it was set up for. Its chief objective has been to stimulate better state forest fire control programs and to provide assistance in emergencies.

INSECT CONTROL

H. B. Peirson, State Entomologist

The seasons of both 1953 and 1954 were years in which insect pests were very abundant in spite of what appeared to be adverse weather conditions. The lack of continued low winter temperatures meant that most insects were able to successfully over-winter. One exception was the killing of gypsy moth egg masses in some low spots in western Maine.

There appears to be considerable accumulating evidence of a slow but general change in our climate and this is bound to have its effect on tree vigor and insect populations. A slight rise in temperature effects the roots of trees and evaporation from foliage. When carried through the winter and spring higher temperatures permit a northern movement of insects that otherwise would not survive winter temperatures. In general, temperatures have been rising and precipitation dropping in the northern hemisphere. Hawboldt and Benson in Nova Scotia have gathered a great deal of evidence to bear out this change in climate that is taking place.

Winds have played a major role in the distribution of insect pests in Maine. Particularly has this been evident in the case of the spruce budworm. It would appear that southerly winds at the time of moth flights in Quebec have probably prevented heavy outbreaks in northern Maine. In 1954, easterly winds apparently brought a flight of budworm moths into northern Maine from New Brunswick. Few places in the country have such changeable wind currents as New England.

Personnel changes. The entomology Division has been very fortunate in holding most of its personnel. There have, however, been a few changes. Henry Willett, whom everybody loved and who had done a splendid job as forest insect ranger in the Allagash — St. John country, retired upon reaching the age of 70 after 22 years service with the department. Everyone will miss him. His place will be taken by Benjamin Ouellette. Harry Dyer, ranger in the Rangeley-Dead River region, resigned to accept year around work and his place has been taken by Carlton Merrill. Edwin Grove, our shade tree specialist transferred to service forestry and his place was taken by John Chadwick.

With the transfer of gypsy and brown tail moth work, and quarantine inspection, two new additions to the Division were made. Larry

Freeman was appointed to handle the control work on these two insects and Douglas Seavey transferred from the Department of Agriculture to continue the inspection work.

Major Control Projects. In 1953, the only large state control project was 1,200 acres sprayed by helicopter for tick control in an area north of Sebago Lake. Spray projects for protection of logs from borers and for the control of mosquitoes and black flies were carried on in a number of areas.

The 1953 Legislature transferred gypsy and brown tail moth control from the Department of Agriculture to the Entomology Division of the Maine Forest Service. The gypsy moth had been building up to epidemic proportions for a number of years in the forests of New England. In 1953, gypsy moth reached an all time peak in Maine with 142,000 acres of woodland heavily defoliated and 58,000 acres completely stripped. Requests came from many areas for help in combatting this insect which not only killed and weakened forest trees but made living conditions almost unbearable for those whose home or camps were in infested areas. Many people were driven from their summer camps by swarms of migrating caterpillars.

A second major control project took place in June of 1954 when 20,000 acres of spruce-fir forest were sprayed for control of the spruce budworm near Madawaska Lake.

A small area of poplar was sprayed by plane in the Dead River area for control of the forest tent caterpillar.

Spraying in all areas was highly successful with nearly complete kill of the insect being sprayed for.

The Dutch elm disease is one of the most serious threats facing the state. Diseased trees should be removed and burned at once. It was hoped that public interest and spirit would be sufficient to get diseased trees taken down. Unfortunately this has not proved the case in all situations and if the spread of the disease is to be stopped it appears that legislation will be advisable compelling the removal of these trees. Some degree of subsidy from the state is needed. Assistance in spraying nearby trees should also be given. It is much more economical to hold the disease in check than to let it run rampant and then try to do something.

A number of spray control projects have been laid out for combatting black flies, mosquitoes, and greenhead flies. The past rainy season

made effective control difficult. Temporary relief was obtained but heavy rains increased breeding areas. This has led some people to believe that mosquitoes were building up a resistance to the spray. It is our belief that this is not yet the case. The state has no funds for this work other than for advisory help.

Requests for Information. Requests from the general public for advice on insect problems continually increase and take a considerable amount of time to properly handle. Due to the great variety of insects, probably no science is on the march any faster in developing new approaches to problems affecting almost every phase of life than is economic entomology. To be effective, it is necessary to keep constantly abreast of new developments. Printed leaflets on many of the more common insects help materially in cutting down on the amount of writing previously necessary. New leaflets are being prepared each year and old ones brought up to date. A check on calls for our publications shows that they have gone to nearly every state in the Union and many foreign countries.

Forest Insect Survey. The insect survey is basic to all control problems. Each year sees an improvement in technique and coverage. Reports from the fire wardens remain about the same in number. They have increased their efforts and there is more complete coverage both geographically and during the different summer months. Those from the rangers have shown a gradual increase in numbers as well as a more complete coverage of areas not ordinarily visited by the wardens. Additional equipment in the way of trucks, canoes, and out-of-door camping necessities has had much to do with making it possible for the insect rangers to cover their districts better. Much of the state is now flown by federal planes to map in infestations from the air which could easily be missed on the ground.

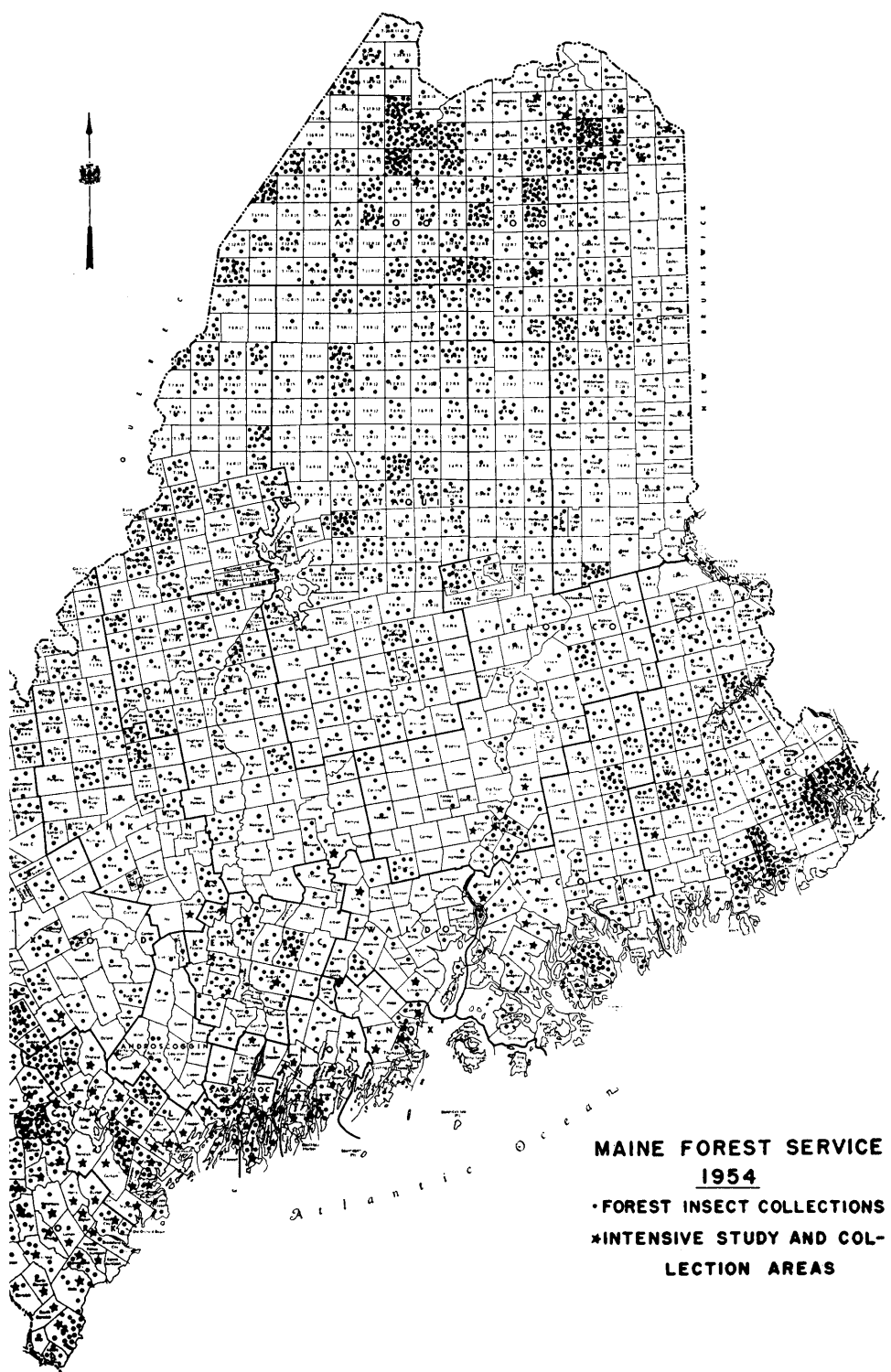
The number of collections received at the laboratory has continued to show an increase during the last two years. In 1953, a total of 2,516 collections containing insects were received and in 1954 this reached 2,818. This gives a more complete picture of conditions in the state. Collections contain an average of more than ten specimens each. Naming this great number of specimens, rearing, building up the collections, and compiling these records so they will be usable required a great deal of time. Much information is becoming available regarding the insects to be found on spruce and fir in Maine; and the desirability of getting a larger number of collections from other kinds of trees is apparent as an aid in insect control.

COLLECTIONS AND REPORTS MADE BY				
Year	Insect Rangers	Fire Wardens	Others	Total Collections
1945	476	550	86	1,112
1946	655	433	223	1,311
1947	1,348	580	208	2,136
1948	1,555	581	206	2,342
1949	1,350	1,017	307	2,674
1950	1,345	1,081	952	3,378
1951	1,481	1,430	488	3,399
1952	1,651	1,109	447	3,207
1953	1,485	1,194	571*	3,250
1954	1,941	1,084	527*	3,552

*At least 2,000 additional reports were made on Gypsy Moth Control Projects.

Light Trap Collections. The light traps which are run during July have again given a great deal of information on the abundance, fluctuation in numbers, distribution, and areas of greatest concentration of the forest feeding moths. Many species are obtained which are secured in no other way. In 1953, a large catch was made. The 1954 season was an extremely difficult one because of the cold, rainy weather. For instance, one trap operator recorded only 3 warm nights, but 12 rainy nights of which three had heavy rain. Cold and moderate to heavy rain inhibit the flight of the moths, and the rain water completely spoiled part of the nightly catches; nevertheless, over 150,000 moths were caught. Working over this amount of material takes much time, but gives us up to date information on many forest insects. For the first time in 1954 a black light trap was used. Even with unfavorable weather this trap caught over 23 times as many spruce budworm as a companion trap having a double-mantle gasoline lantern. Nearly 9,000 budworm moths were taken by this black light. This trial indicated that some groups of insects are attracted in much larger numbers by black light while others are less attracted.

Collecting on mountain tops to secure high altitude species and to try and discover migratory flights of the spruce budworm and other migratory species was not too successful because of cold or rainy weather when this was tried. Enough spruce budworm moths were found on the plateau of Mt. Katahdin to indicate a flight the night of July 16, 1953 and this coincided with a flight the same night to 14 of the 22 light traps. This showed a widespread flight of budworm occurred at that time, and this flight occurred simultaneously with a flight in St. Johnsbury and Lyndonville, Vt., where large numbers of moths were found.



MAINE FOREST SERVICE
1954
• FOREST INSECT COLLECTIONS
*** INTENSIVE STUDY AND COL-
LECTION AREAS**

In 1954 a flight was discovered by Forest Insect Ranger James Holmes at Portage, when spruce budworm moths swarmed to a store light. Collecting trips to Mt. Katahdin and the Bigelow Range encountered unfavorable weather and there was no opportunity to check high altitudes where moths from the flights commonly settle. Examination of the moths taken at the light traps showed spruce budworm present in 22 of the 23 traps and in larger numbers than formerly. Several traps showed a flight the night of July 21 with lesser numbers for two to three more nights at some of the traps. Unfortunately rain was widespread over northern Maine the night of July 21 and the flight could not be checked in many areas. Only the trap at Chesuncook Dam failed to catch budworm moths. U. S. Customs officers at Houlton and Fort Kent assisted by collecting moths on the customs houses, and at Fort Kent a considerable number of budworm moths were collected on July 21. Some interesting facts observed from the light trap catches were the increased number of specimens of species which have been thought of as Southern and the catching in recent years of species not previously found in Maine. Since there is proof from many sources that recent years have been milder than previously, the appearance of more Southern species is to be expected. Catches at the light traps were the first indication we had of the present rise of the birch skeletonizer. During the last two years the light traps show a strong rise in the numbers of the maple trumpet skeletonizer. (A. E. Brower)

Insect Rearing at the Laboratory. Insect rearing at the Entomological Laboratory in Augusta, except for major parasite rearing projects, is in connection with the forest insect survey. In this work insects collected all over the state by fire warden personnel and forest insect rangers are sent to the laboratory for identification and study. From these, many are reared to learn more about their biology; to secure and discover parasites of these insects; to secure good specimens for the laboratory collection and for exhibits; and to help in the more positive identification of larvae especially by rearing them to adult stage. During the 1954 season, more emphasis was placed on this last phase of rearing than heretofore. When several larvae of the same species were received, part of them were reserved for rearing and part of them were preserved by the processes of inflating. By this procedure, some were reared through to adults for more positive identification and the inflated larval specimens were held for checking against any received in the future to establish identity in that stage.

Below is a table showing the amount of rearing done and some of the results obtained over the last six years:

Year	No. lots of insects received at the laboratory	No. lots from which specimens used for rearing	No. rearing lots producing adults	No. rearing lots producing parasites	No. of individual specimens produced	No. different species produced (excluding parasites)	Percent of lots producing adults
1949	2, 035	615	228	44	758	60	40.0
1950	2, 345	765	368	75	1, 110	75	48.6
1951	2, 638	462	128	10	373	53	27.7
1952	2, 316	419	168	31	380	65	40.0
1953	2, 516	473	193	38	711	68	40.8
1954	2, 818	290	70*	12*	171*	33*	24.1*

* Data complete only to November 1, 1954. Rearing still in progress.

Two gypsy moth rearing projects were carried on in the winter and spring of 1954. In one project, egg masses were collected and brought to the laboratory where they were kept submerged under water for varying length periods to determine, if possible, what effect this might have upon their hatchability. In this test no eggs hatched that had been submerged longer than five weeks. This was done to test the possible effect such submergence might have upon gypsy moth eggs on infested pulpwood or logs floated in lakes or rivers.

The other project was testing the effect of low temperatures upon the hatchability of gypsy moth eggs, and to check the percent hatchability of eggs from areas in central and southwestern Maine, that were being considered for control spraying in the spring of 1954. Temperatures of -25° F. will kill all exposed eggs and -15° F. will kill some. Ninety-three collections of egg masses were taken from above and below the snow level since those below the snow are supposedly not affected by low temperatures. These eggs were processed in such a way that 200 individual fertile eggs could be picked out of each lot and kept in separate containers so that percent hatch could be checked. At the same time these 200 eggs were being separated from the lot, by the use of a microscope, general observations were noted as to the number of infertile eggs, variation in size of eggs, amount of egg parasitism, and other conditions. From the results obtained it would appear that temperatures had been low enough in some areas to kill most of the eggs that were not protected by snow, since those collected above snow produced almost no larvae while those collected below snow in the same place produced as high as 85%. (H. E. Bell)

General Forest and Shade Tree Insects. Large numbers of insects were received each year from the insect survey for identification. Records of the more important of these not mentioned in the

text are given in the following table. A comparison of their prevalence during the past five years is indicated as follows: H — Heavy; M — Medium; L — Light; — No record.

Host and Insect	Locality Affected	1950	1951	1952	1953	1954
Alder Alder Flea Beetle (<i>Altica ambiens</i>)	Southern Maine	H	H	M	L	L
Beech Beech Leaf Tier (<i>Psilocorsis faginella</i>)	General	M	L	L	L	L
Birch Argid Sawflies (<i>Arge</i> spp.)	General, mostly northern Maine	L	L	—	L	L
Birch Casebearer (<i>Coleophora salmani</i>)	Mt. Desert Isle	M	L	L	L	L
Birch Leaf Miner (<i>Fenusa pusilla</i>)	General	L	H	M	H	H
Birch Leaf-mining Sawfly (<i>Phyllotoma nemorata</i>)	General	L	—	—	—	—
Birch Skeletonizer (<i>Bucculatrix canadensisella</i>)	General, especially northern Maine	—	—	M	M	H
Rusty Birch Leaf-Beetles (<i>Syneta ferruginea</i> & Other spp.)	General (Root feeders)	L	L	L	L	L
Cherry Eastern Tent Caterpillar (<i>Malacosoma americana</i>)	General	L	L	H	L	L
Elm Elm Leaf Beetle (<i>Galerucella xanthomelaena</i>)	Central and southern Maine	H	H	H	H	H
Elm Leaf Miner (<i>Fenusa ulmi</i>)	Central and southern Maine	L	H	M	L	L
Mourning Cloak Butterfly (<i>Nymphalis antiopa</i>)	Central Maine	—	—	H	H	L
Hemlock Flat-headed Hemlock Borer (<i>Melanophila fulvoguttata</i>)	Central Maine	—	L	L	L	L
Hemlock Looper (<i>Elioptia fuscicollaria</i>)	General	M	M	L	M	M
Larch Larch Casebearer (<i>Coleophora laricella</i>)	East-central Maine	L	M	L	L	L
Maple Maple Bladder-gall Mite (<i>Vasates quadripedes</i>)	Scattered	L	L	L	L	L
Maple Trumpet Skeletonizer (<i>Epinotia aceiella</i>)	Central and northern	—	—	—	L	L
Mountain-Ash Mountain-ash Sawfly (<i>Pristiphora geniculata</i>)	General, mostly northern Maine	L	L	L	L	L
Pine European Pine Shoot Moth (<i>Rhyacionia buoliana</i>)	South coastal Maine	L	L	L	L	L
Pine Bark Aphid (<i>Pineus strobi</i>)	General	L	L	M	M	M

Host and Insect	Locality Affected	1950	1951	1952	1953	1954
Pine Needle Miner (<i>Exoteleta pinifoliella</i>)	Southern Maine	M	M	L	—	—
Pine Spittle Bug (<i>Aphrophora parallela</i>)	General	M	M	M	M	M
Red-headed Pine Sawfly (<i>Neodiprion lecontei</i>)	Burned Areas	H	L	L	L	L
Twice-marked Looper (<i>Semiothisa bisignata</i>)	General	L	L	L	L	L
Poplar Satin Moth (<i>Stilpnolia salicis</i>)	General	—	—	H	H	H
Spruce and Fir Aphids (<i>Aphididae</i>)	General	H	H	H	M	L
Balsam-fir Sawfly (<i>Neodiprion abietis</i>)	General	L	L	L	L	L
Brown Spruce Looper (<i>Eupithecia palpata</i>)	General	M	M	M	M	M
Dotted-Line Looper (<i>Protoboarnia porcelaria</i>)	General	M	M	M	M	M
False Hemlock Looper (<i>Nepytia canosaria</i>)	General	M	M	L	M	L
False Sawflies (<i>Pamphiliidae</i>)	General	M	M	M	L	L
Fir Harlequin (<i>Elaphria versicolor</i>)	General	M	L	L	M	H
Fir Tip Borer (<i>Pteroneura borealis</i>)	Western and northern Maine	M	L	H	H	L
Gall Aphids (<i>Adelgidae</i>)	General	M	M	M	M	L
Green-headed Spruce Sawfly (<i>Pikonema dimmockii</i>)	General	L	L	L	L	L
Green-striped Spruce Caterpillar (<i>Feralia jocosus</i>)	General	M	M	L	J	M
Green Spruce Looper (<i>Semiothisa granulata</i>)	General	M	M	M	M	M
Gray Spruce Tussock Moth (<i>Olene</i> sps.)	General	M	M	L	M	H
Phalaenid larva (<i>Zanclognatha</i> sp.)	General	L	L	L	L	L
Red Spruce Leaf-Miner (<i>Recurraria piceacella</i>)	General	M	L	L	J	L
Spruce Bud-moth (<i>Zeiraphera ratzeburgiana</i>)	General	L	L	L	L	L
Spruce Cene Worm (<i>Diorctria reniculata</i>)	General	M	L	L	L	L
Spruce Webworm (<i>Epinotia nanana</i>)	General	M	M	L	L	L
Transverse-banded Looper (<i>Hydriomena divisaria</i>)	General	M	M	L	L	L
Yellow-Headed Spruce Budworm (<i>Zeiraphera fortunana</i>)	Northern Maine	L	L	L	L	L
Willow The Willow Flea Weevil (<i>Orchestes rufipes</i>)	Mt. Desert	M	H	H	L	L

New Species Reported in Maine. Almost every year collections are made of insects not previously found in the state. Some of these have moved in from bordering states or Canadian Provinces; others are reported for the first time in Maine. Dr. Brower collected a small weevil (*Stomodes gyrosicollis* Boh.) in Augusta during 1952-1954 which has just been identified as a pest of alfalfa and field crops in Europe. Apparently this is the first record in the United States. The introduced bag worm moth (*Fumeo casta*) has spread north from Massachusetts to Fryeburg. Quite a number of different Southern species and several Western species of Moths have appeared in Maine, some in rather large numbers. The European Earwig was collected for the first time at Eliot, Cape Neddick, Gardiner, Augusta, and Bar Harbor. This troublesome household pest has been present in southern New England for some time. The European praying mantis was collected all over southwestern Maine in 1953 and was found near Bath in 1954. A few walking sticks were found. One, kept under observation, laid a total of 471 eggs between August 17 and November 5, 1954. The first Black Widow spiders recorded in Maine were found in Gorham in 1953 in a vegetable garden. These are quite poisonous.

Research and Control Projects

The plan of having each man carry on research projects of his own together with his regular work is being continued. This means that some projects have been going on for ten or more years and will eventually result in something worthwhile. Each year sees some progress being made. Study plots are scattered throughout the state. Whenever possible these experimental projects are carried on in cooperation with interested individuals, groups, or companies. The acquisition of a portable wheelbarrow type mist blower has made it possible to try out new insecticides and new methods of application. This past year it was used in mite or red spider control on evergreens and on black fly control. The Inland Fish and Game Department has cooperated in our research on large spray projects checking on possible damage to wildlife. The sprays used are well within prescribed safety limits. Research work is being done on the following projects by members of the entomology staff:

Arborvitae Leaf Miners (*Argyresthia* spp. and *Recurvaria thujaella*). The arborvitae leaf miners are in a low period in their cycle and no noticeable damage is being done over most of Maine. In spots the species of moths do persist in fair numbers. From St. Francis northward a heavier infestation exists, being medium in many local

spots. Coupled with this, in 1954 was a heavy cone crop on many trees and from a light to a fairly heavy attack of a leaf disease on arborvitae, which turns the twigs dark brown. This combination of three factors led to very noticeable browning evident from the air and the rivers. (A. E. Brower)

Balsam Woolly Aphid (*Adelges piceae*). The area of greatest abundance and damage by this insect has shifted in recent years from southeast Maine into central Maine. During the last two years the area of most severe damage has extended from Lovell, Chester, and Eddington westward to the Kennebec River, with local areas of heavy damage farther westward. In places in this area the larger firs are being killed, and most of these become a total loss. In this area most of the killing is done by the trunk phase of the insect, but in places serious stag-heading has followed injury to the buds and branches. The introduced predatory fly, (*Leucophaea obscura*) has continued to spread westward. It is common in many places and collections have been made with federal entomologists to transfer it to the Green and White Mountain National Forests. (A. E. Brower)

Beech Scale (*Cryptococcus fagi*) and **Nectria Disease**. This scale insect has continued to spread into the north and northeastern sections. It is now present well over the state but is rather scattering in towns from Rangeley north along the western part and has been found in only a very few towns in the St. John and Allagash River valleys. Nectria occurs in about 70% of the scale infested area.

In eastern Maine conditions remain about the same with generally light scale following severe killing of beech. Nectria is still heavy in places. In northcentral Maine severe killing has also occurred. In the west-central parts of the state scale infestations are heavy but still rather spotty and in many of the areas are light. In some areas in this section the scale has shown an increase; in others a drop in infestation. Nectria is rather limited and has not increased as rapidly as expected so that actual damage is light.

Twenty-six permanent sample plots established over the state in stands of all ages are used to judge rate of development of infestations and show 30% with increased scale and 40% with increased Nectria. The rest of the plots show the same or a drop in both organisms except that 20% never had Nectria recorded.

Eighteen additional permanent sample plots were established in 1951 to 1953 from Litchfield to Anson west to the New Hampshire boundary for close analysis of annual changes in the prevalence of

scale and *Nectria* in closed or uncut stands, and recently thinned stands. As of 1954, 78% of the uncut plots showed increased scale and 22% showed increased *Nectria* while partially cut plots showed increases of 55% in scale and 44% in *Nectria*. The basic purpose of these plots was to find if thinning would reduce or hold the scale at a level in which *Nectria* would not become established. To find the degree of thinning necessary for this a one-acre plot was laid out in 1953 at Anson in a cutting of the winter of 1952-53. Degree of cut over this acre was determined to be 24.3% of the basal area. Twenty-five individual beech trees were selected at random in which percentage of the basal area cut around each tree was determined. These percentages of cut ranged from 13% to 47%. Checks in uncut areas nearby were established. In 1954, at completion of one year, all that can be reported is the over-all result in cut versus uncut areas. Data shows that 12% of cut-area trees had increased scale, 20% had increased *Nectria* as against uncut-area trees having 70% increased scale and 60% increased *Nectria*.

A preliminary investigation leading toward possible control by aerial spraying was carried out in June 1953 using a helicopter from another project. In a closed, merchantable, beech stand spray deposit cards were attached on ground stakes or beech trees at five-foot height on four sides as follows: (a) On ground stake, upward exposure; (b) Under sides of branches, downward exposure; and (c) On side of the main stem, side exposure. These were across the line of flight. Cards A showed poor to good spray deposit, cards B showed none, and cards C showed a slight deposit. This appears to show helicopter spraying would give poor results when foliage is on, but it should be borne in mind that in large control projects evidence has pointed to effectiveness of the fine particles of spray — those too fine to show on deposit cards.

Spraying experiments were carried out in a stand at Belgrade on August 21, 1953 with a wheelbarrow type mist blower using ten trees for each of three tests. Insecticides used and mixture strengths were DDT — 2 lbs. 50% wettable powder to 2 gallons of water (6%); Lindane — ½ lb. 25% wettable powder to 2½ gallons of water (.67%); and Malathion — .19 pint of 57% emulsifiable liquid to 2 gallons of water (.7%). In the fall, control was apparently poor in all tests, the best being 55% with the DDT in tally areas at the bases of the trees. However, further checks made in September 1954 showed reductions in scale of 97% at the basal tally areas and 85% on other tally areas five feet up in the trees. Trees sprayed with the other insecticides and

those unsprayed showed increases in scale except for one slight reduction.

Valuable help on the beech work was given by C. S. Hood and Forest Insect Rangers Harold Bullock, Frank Manning, and Carlton Merrill. (Robley W. Nash — George A. LaBonte)

Birch Skeletonizer (*Bucculatrix canadensisella*). Another outbreak of this pest has been developing the last two years. Noticeable in 1953 over a considerable area in western Maine and in central Aroostook County, it had increased over a much larger area. In September 1954 skeletonizing was quite noticeable along the lower Allagash River. (A. E. Brower)

Birch Studies. For details and methods used since 1942 on all items reported herein, reference should be made to Bulletin 15, the 29th Biennial Report (1951–1952) of the Forest Commissioner, and Forest Insect Notes No. 2, May 1954 — all of this department.

Table I gives the general condition of birch on the permanent sample plots and shows a slightly poorer condition in 1953 but better in 1954. Trees having increased damage have been dropping in percentage while those remaining the same and improving have risen. However, the change in numerical rating did show a slight rise in 1953. Increased damage, as in the past, has been mostly with trees over half dead, with suppressed and intermediate trees, and about the same with yellow and white birch. All rangers reported improvement in the general appearance of birch, but less in western Maine.

TABLE I
ANNUAL CONDITION OF BIRCH

Year*	Damage	Percentage of all plot trees (2,184) having				Numerical rating for all trees	Change from previous year	
		Severe damage	Death	Increased damage	Same damage			
1950.....	62.5	43.7	25.7	10.6	83.2	6.2	3.488	Plus .288
1951.....	63.1	45.0	27.4	12.1	81.5	6.4	3.569	Plus .081
1952.....	60.7	47.4	29.6	8.2	83.4	8.4	3.615	Plus .046
1953.....	60.6	48.1	31.0	7.5	88.0	4.5	3.669	Plus .054
1954.....	60.2	48.5	32.7	7.1	87.5	5.3	3.714	Plus .045

* Figures for years 1943 — 1949 on are given in Maine Forest Service Bulletin 15.

Seeding. Tests in old fields have been made since 1950, with various methods of breaking the sod covering, in an effort to find means of starting birch stands on abandoned land. Except for seeding in 1950–1951 on bulldozed sod-fields and in the last open furrow of plowed land results have been very poor. In these cases 1950 seeds were used which were high in germination (Table 2). Sowing in bulldozed field-areas the next year gave poor results. Furrowed land has been the

only type of sod-breaking used since. Seeds have been stratified, soaked in cold water, or left untreated before sowing. One noticeable feature was good numbers of tiny seedlings at the end of the first season but few at the end of the second season. Apparently late germination occurs and the seedlings cannot get established before cold weather. In one area sowing was tried two years after sod was opened up with the idea that possible adverse chemicals in the soil from grass might have lessened. Results were no better. Excellent results have been obtained from sowings made in newly burned or cut-over areas which besides showing to date that such sowings were successful have also shown that failure in field plantings was not due to the seed. Belief is that it is still possible to find a method for seeding old fields and is worth trying to find.

Annual seed collections, storage, and germination tests have not given results (See Table 2) in agreement with ideas as expressed by others that (1) good crops of white birch seed occur about every year; (2) germination averages very low; and (3) great care has to be used in storage of seed through keeping moisture content low. For example, 1950 seeds sown in 1952 gave the only good results and some sown in 1954 gave only a few less seedlings than did 1953 seeds. Storage has simply consisted of drying seeds well in a cellar at 60° F., 38% humidity for four months and then putting them in tight cans in an attic where temperatures varied greatly from winter to summer.

TABLE 2
QUANTITY AND QUALITY OF BIRCH SEEDS 1948 — 1954

Crop Year	Test Year	Quantity W — White Y — Yellow	Percentage Germination (Average by various methods)	
			White Birch	Yellow Birch
New Seed				
1948	1949	W — Low	7.5	
1949	1950	W & Y — High	25.5	9.5
1950	1951	W & Y — Very high	73.0	71.0
1951	1952	W — Low, Y — Medium	15.0	24.0
1952	1953	W — Low, Y — Medium	45.7	47.0
1953	1954	W & Y — Low	78.0	62.0
1954	1955	W & Y — Low*	Incomplete	Incomplete
Old seed				
1948	1950		7.5	
1948	1952		2.0	
1950	1952		63.0	74.5
1950	1953		26.7	59.0
1950	1954		5.5	(Incomplete) 57.5
1951	1953		23.3	28.8

* 2 Hurricanes early September probably altered tally.

Planting. Supplementary to sowing tests, first appreciable planting tests were made in 1950 with seedlings grown for us by the Western Maine Forest Nursery, at Fryeburg, from seeds we collected. It became apparent that 2-0 stock gave better survival than 1-0 stock and that in fields furrowing gave the best over-all results with most practical, inexpensive sod treatment. Table 3 shows results with 2-0 plantings in the various years. Other observations are that (1) the smaller the seedling, regardless of age, the less change for survival; (2) field mice can cause serious mortality in grassy areas even during summer and more so to yellow birch. Furthermore, weather conditions have apparently caused much trouble. Mortality of 1952 spring plantings was likely influenced by drought for that year since the pine mortality was also high. Washing from the excess rains of 1954 probably caused increased mortality in all plantings in 1954 and more to native white birch than to Russian and Chinese white birch which were progressively closer to the top of a slope on which one planting was made in 1953. Clipping of seedlings was tried one year to find if better growth and less mortality would result. Benefit obtained for each feature was very slight and not enough to warrant doing it.

White pine listed in Table 3 was interplanted with birch in some areas with the hope of learning if the birch would prevent future weevil damage to the pine. Conclusion from plantings of two or more growing seasons is that considerably better results with birch must be obtained before recommendations can be made. Much thought should be given to ground conditions. At least 1954 plantings have given negligible and lowest initial mortality but it seems best to see how this bears out before discussing conditions further. Planting expense indicates the need to find a good means of sowing when converting fields to birch growth.

FOREST COMMISSIONER'S REPORT

TABLE 3
MORTALITY IN PLANTINGS OF BIRCH (2-0) AND PINE (2-1)

Sod Treatment	Planting Date	Species	No. of Trees	% Mortality, Fall of			
				1951	1952	1953	1954
Bulldozed	Fall 1950	White Birch	168	54	56	57	60
	Fall 1950	White Birch	168	54	56	57	60
	Spring of 1951	White Birch Yellow Birch	622 113	10 17	14 26	16 28	19 35
	Fall 1951	White Birch	100	..	24	26	26
	Spring of 1952	White Birch White Pine	399 100	.. ..	41 7	43 8	45 8
Plowed	Fall 1950	White Birch	155	70	79	84	85
	Spring of 1951	White Birch Yellow Birch	417 113	6 ..	15 35	30 74	33 80
Harrowed	Fall 1950	White Birch	156	30	86	92	93
	Spring of 1951	White Birch Yellow Birch	332 110	33 39	67 92	81 96	81 97
	Fall 1951	White Birch	100	..	66	68	70
	Spring of 1952	White Birch White Pine	498 100	.. ..	76 42	76 43	76 44
	Fall 1950	White Birch	153	46	94	96	96
Plowed & Harrowed	Spring of 1951	White Birch Yellow Birch	330 110	3 9	37 95	50 98	50 98
	Fall 1951	White Birch	102	..	46	47	48
	Spring of 1952	White Birch White Pine	507 102	.. ..	51 17	53 18	55 18
	Fall 1950	White Birch	153	34	76	92	93
Untreated	Spring of 1952	White Birch Yellow Birch	330 110	54 52	93 94	96 100	97 100
	Fall 1951	White Birch	101	..	85	86	86
	Spring of 1952	White Birch White Pine	500 96	.. ..	95 74	95 77	96 77
	Fall of 1951	White Birch	99	..	29	29	30
Furrowed	Spring of 1952	White Birch White Pine	367 123	.. ..	33 11	34 11	35 11
	Spring of 1953	White Birch	730	..	..	7	48
		White Pine	771	..	..	11	17
		White Birch	156	..	..	24	60
		White Russian	503	..	..	1	21
		White Chinese A	15	..	..	..	..
	White Chinese B	18	..	..	..	..
	Spring of 1954	White Birch	808	..	..	..	0.3
White Pine		804	..	..	..	0.2	
Burned Woodlot	Spring 1953	White Birch	100	..	..	2	16
	Totals (Trees Planted)	White Birch Yellow Birch White Pine Russian W. Birch Chinese W. Birch A Chinese W. Birch B	7,383 556 2,096 503 15 18				

Sprouting from Stumps. Tally of 361 white birch stumps in four areas cut in 1947 shows only 16% of the stumps now have sprouts. Severe deer browsing of 64% has shown no increase since 1951. Of these four areas, one having 106 stumps did have 42% with living sprouts at the end of the 1954 season which makes it stand out from the other three areas having 10%, 7%, and 2½% sprouts.

Of 105 stumps cut in 1949-50 in a young, fast-growing stand of white birch there are now only 6% having sprouts. Deer browsing of 55% has shown no increase since 1952. In this area twenty-one stumps were enclosed in poultry wire soon after cutting to protect them from deer browsing. Sprouts from 48% of these were dead by the end of the 1954 season as compared with 43% in 1953. The study has shown little hope for extensive reproduction of white birch from sprout growth and that deer are serious in preventing but not wholly responsible for failure of sprout growth.

Cleaning. The study at Salem of releasing white birch in a poplar-birch stand on a 1944 burn shows benefit to the birch following recovery from the initial shock of removing poplar in 1951. Height growth was originally measured but in 1953 it became better to use diameter measurements. Table 4 gives the detailed figures and shows definitely better growth of cleaned over uncleaned trees.

TABLE 4
GROWTH AND MORTALITY OF CLEANED AND UNCLEANED WHITE BIRCH

Year	Average Annual Height and/or Diameter Increases in Inches								Average Size			
	Summer Cleaning 100 Trees		Fall Cleaning 50 Trees		Summer and Fall Cleaning 150 Trees		Uncleaned Check 100 Trees		Cleaned		Uncleaned	
	Hgt.	Diam.	Hgt.	Diam.	Hgt.	Diam.	Hgt.	Diam.	Ft. Hgt.	In. Diam.	Ft. Hgt.	In. Diam.
1951	19.1	..	21.4	..	19.9	..	19.1	..	8.3	..	8.2	..
1952	10.8	..	7.9	..	9.9	..	12.1	..	9.1	0.61	9.2	0.52
1953	14.1	0.14	14.0	0.13	14.1	0.13	9.5	0.01	10.3	0.74	10.0	0.53
1954	..	0.10	..	0.08	..	0.09	..	0.01	..	0.83	..	0.54
	% Mortality											
1951*	0	0	0	0	0	0	0	0				
1952	1	8**	3	3	3	2	2	2				
1953	1	8	3	3	3	2	2	2				
1954	2	8	4	4	4	3	3	3				

* Data taken immediately after cleaning.
 * Higher fall mortality thought due to insufficient time in 1951 for trees to stiffen before snow
 * and ice occurred.

Management. Five representative plots of forty trees each for both species of birch were set up in 1948 and thereafter in fresh cuttings to find maximum degree of cut which would not result in death of

residual birch. Two cutting degrees were involved — 20-30% cut and 40-50% cut by basal area, as determined around each sample tree. Table 5 shows conditions through 1954. In addition a one-acre block in one area of white birch was established in which 32% of the basal area was removed. Table 6 shows conditions in this block.

Section A of Table 5, and Table 6, concern two sections of the same cutting area and apparently show that effects of the cutting on residual trees has stopped. There has been no additional death since 1953 while the numerical rating has remained the same in one case and dropped in the other. The smaller diameter white birch in each case and in the higher degree of cut shows the more adverse effects from the cutting with 40% dead. With one exception, Section B of Table 5, which concerns a younger stand of white birch, shows the same. The younger compared to the older stand in Table 5 also shows less death, no further death since 1952, and a better standing in regard to its numerical rating not only in its total rating but in its numerical rise after the cut.

Section C of Table 5 concerns three yellow birch plots which show considerable rise in numerical rating and in amount of increased injury — both of which are unusual in view of the fact that, through 1953, figures indicated the trees had gradually passed the effects of cutting. One tree died in 1954 and one is now dead in each case while smaller trees are slightly better than the larger ones. These trees were on an exposed site and rating or crown condition was taken after the two hurricanes of 1954 which undoubtedly removed and browned foliage. These factors may have prevented accurate rating. It, therefore, seems better to wait for another season's data before judging yellow birch results.

Extensive help in taking and compiling birch field data was given by Forest Insect Rangers Harold Bullock, Frank Manning, and Carlton Merrill. (Robley W. Nash — George A. LaBonte)

TABLE 5

Condition of 200 residual birch of varying diameters and degrees of cut 5 to 6 years after cutting, by numbers

- A. White birch 40* trees, 60-year old stand, 6 years after cut.
- B. White birch 40 trees, 40-year old stand, 5 years after cut.
- C. Yellow birch, 120 trees, uneven-aged stand, 6 years after cut.

Group and Numerical Ratings 1949-50-51 52-53-54 Respectively	Diameter Range	Year	In-creased Injury	Same Condition	Im-provement	Death	In-creased Injury	Same Condition	Im-provement	Death
A. White 2,150 2,575 2,625 2,700 2,850 2,850	3.5''- 5.4''	1954	0	8-80%	0	2-20%	0	6-60%	0	4-40%
	7.5''- 9.4''	1954	0	10-100%	0	0	0	10-100%	0	0
B. White 1,875 1,875 1,950 1,975 2,050	3.5''- 5.4''	1954	0	9-90%	0	1-10%	1-10%	7-70%	0	2-20%
	7.5''- 9.4''	1954	0	9-90%	0	1-10%	0	10-100%	0	0
C. Yellow 2,183 2,842 2,925 2,575 2,608 2,867	5.1''- 9.0''	1954	0	28-93.3%	1-3.3%	1-3.3%	5-16.7%	25-83.3%	0	1-3.3%
	11.1''- 15.0''	1954	7-23.3%	22-73.3%	0	1-3.3%	8-26.7%	21-70%	0	1-3.3%

* Addition of individual figures does not equal total trees given in each case. Reason is that a tree may have died this year and appears under both increased injury and death.

TABLE 6

Condition of residual white birch on 1-acre area, 32% cut, 6 years after cutting

Year	Percentage of 116 Trees Showing				Numerical Rating
	Increased Injury	Same Condition	Improvement	Death	
1949	32.8	64.7	25.0	6.9	2.97
1950	43.0	25.0	12.2	19.8	3.55
1951	6.0	50.9	18.1	24.1	3.38
1952	12.9	48.3	14.7	24.1	3.31
1953	9.5	57.8	6.0	26.7	3.39
1954	1.7	68.9	2.6	26.7	3.37

Brown tail Moth. (*Nygmia phaeorrhoea*). This European insect is particularly serious as it is one of our few poisonous ones. The barbed poisonous hairs on the caterpillars cause a very irritating rash when they come in contact with human skin. Outbreaks have been reported from a number of widely scattered points extending from Township 10, S.D., in Hancock County, to Hiram, Maine. An effort was made to clean up all of the infestations by cutting off and burning

the over-wintering nests or by spraying with DDT. Of seven reported outbreaks two remained to be cleaned up by spraying in the spring of 1955.

Elm Leaf Beetle. (*Galerucella xanthomelaena*). This insect, which in its larval or grub stage skeletonizes the foliage of elm, causing the leaves to turn brown, is one of the commonest and most serious of our shade tree pests. It is very common throughout most of the southern half of the state. Repeated attacks, which are common, greatly weaken the trees. This makes them very subject to bark beetles which carry the Dutch Elm disease. With this thought in mind the state cooperated in 1954 by paying 40% of the cost of spraying in Berwick, North Berwick, South Berwick, Eliot, and York in spraying their heavily infested elms, as these towns are in the Dutch Elm disease area.

European Spruce Sawfly. (*Diprion hercyniae*). This insect has been found in moderate numbers for some years. An interesting fluctuation in numbers from year to year is especially apparent the last four years, 1951 and 1953 had small numbers, while 1952 and 1954 each showed a four-fold increase over the preceding year. This may be correlated with the fact that this sawfly may spend several years in the cocoon. The heaviest infestation at present is in Hancock County, with Washington County following, and with noticeable numbers northwestward to the St. John River. (A. E. Brower)

Forest Tent Caterpillar. (*Malacosoma disstria*). For a number of years Maine has had extensive outbreaks of this insect in maple, poplar, and birch stands. Usually after the third year parasites themselves build up in such numbers that they become a nuisance to people by their great numbers. This has been particularly true in the past two years. During 1953-1954 outbreaks occurred in Redington and in Spencer Township 4, R. 5. Over 18,000 acres of poplar were defoliated along the Canadian Pacific Railroad between Lowelltown and Jackman. Approximately 1,200 acres were defoliated in the Roach Pond area east of Kokadjo. Collections from light traps would indicate a movement to the east or else new build-ups in the area from Greenville through Millinocket and Lincoln to Woodland. The only spraying done was by plane at the King and Bartlett Camps to protect them from swarms of caterpillars in 1954. This spraying was successful.

Green-striped Maple Worm. (*Anisota rubicunda*). A rather heavy outbreak of this insect was reported from T. 5, R. 16 in late

August 1954. A few moths appeared at the Greenville light trap thirty miles to the south of the defoliated area.

Gypsy Moth. The 96th legislature transferred gypsy and brown tail moth activities from the State Department of Agriculture to the Forestry Department, effective August 8, 1953. Need of a control program for 1954 was indicated by the extensive defoliation earlier in 1953 and by the many public calls for action.

In the late fall of 1953 all municipalities in the generally infested area of the state were notified of the gypsy moth threat, the state law and its provisions, and departmental policy. They were also asked to notify woodland and resort owners of the state's interest and to inform the department of areas in which inspection was wanted.

Cooperative Control Provisions. Federal funds were available for control of some forest insects but not for the gypsy moth. Federal activity was concentrated on control measures for preventing spread of gypsy moth beyond New England and included technical assistance to infested states. This was readily available at all times. For example, aerial maps completed in 1953 were given the department showing locations in Maine of 142,000 acres defoliated 50% or more, of which 58,000 acres were from 75 to 100% stripped of foliage.

State law provided for cooperation with municipalities and private groups by technical planning and supervision of control programs and by paying up to half the cost of control, dependent upon the amount of available funds.

Training in Organizing Control. Initial call for assistance in organizing a large project for 1954 came from the town and private groups in Lovell. A special town meeting was called on August 28, 1953. That day a federal cooperator gave excellent training in: (1) mapping areas needing spraying, based on susceptibility of stands, caterpillar nuisance and quantity of egg masses; (2) planning a control program for valuable resort or woodland property; (3) contacting interested leaders and town officials; and (4) effectively organizing a group. A town-private committee was set up to raise funds and cooperate with the Forestry Department. All of this served as an example to follow in other areas.

Further training of departmental personnel was later given by the federal co-operator to enable classification of stands susceptible to defoliation (open, dry, poorly stocked, ledgy or sandy, chiefly composed of oak, poplar or grey birch) or resistant (fully stocked rich

stands with a good understory). It was learned that one complete defoliation kills hemlock, fir, and spruce; if repeated it kills white pine; and if occurring two or three years in succession kills hardwoods. Severe defoliation also causes severe weakening of trees, loss in annual growth, damage to forest sites and watershed, increased fire danger, migration of animal life, and increased susceptibility to further gypsy moth attack.

The state was divided into areas to be taken care of systematically so that calls could be made on all towns and individuals requesting help. Inspection for egg mass numbers and susceptibility to defoliation was made in those areas for which inspection had been requested. Recommendations were then made to the towns or local groups that had requested the inspections. They were informed of the state's plans, and suggestions were made on organizing to raise cooperative funds.

Contacts and Publicity. Publicity on gypsy moth habits, damage and control was given by entomology personnel through illustrated talks to civic clubs, the Maine Municipal Association, newspaper articles, and distribution of literature.

The wood-using industry was acquainted with the facts through meetings with the Maine Hardwood Association and Western Maine Forest Forum. A one-day field demonstration was given to industry men to enable them to determine the need for spraying on their lands.

A meeting was held with the Maine Arborists Association to explain the reasons for airplane spraying in nearly every control project. Some members were perturbed by the small amount of mist blower work planned. However, it was pointed out that in most cases ground equipment could not cope with the situation.

Fund Raising. Contact with municipal officials showed that some were reluctant to take on costs of large-scale control due to: fear of prohibitive tax increase, belief that the damage could be endured or that control was not the town's responsibility, disbelief that the outbreak would appear in their areas, and doubt of the effectiveness of DDT. As a result, the majority of the control projects depended on raising of funds by private groups, chiefly concerned with protecting lake shore cottage property. Many of these people were anxious for action. Because large private groups were involved, it was decided to use volunteers as "organizers," who would attempt raising of money by contributions from each group. Each organizer was supplied with mimeographed material, concerning gypsy moth and the control

program, to go with a fund-soliciting letter. Letters were used because owners were scattered, many outside the state. Slowness in raising funds held up definite commitments for many projects until late winter or early spring. Likewise, town funds for projects had to be appropriated at town meetings and so were uncertain until March.

Individual woodlot owners and companies made their funds available the quickest of all, as would be expected. Some companies helped groups with funds. Some towns and groups were quite late in requesting help, and a few projects were accepted after spraying was under way. Cooperative funds and assistance were provided to every town and group requesting them and whose project justified spraying.

Policies. Policies gradually evolved were: that initiation of requests for control was up to municipalities or private groups; that 1,000 and 500 egg masses per acre were minimum numbers to be used to recommend spraying in woodlots and resort areas respectively; that lake shore control areas would be sprayed the full depth of wooded areas or a minimum of 1,000 feet in depth if wooded beyond; that resort areas would be sprayed at the rate of one pound DDT in one gallon of solution (12½%) per acre for complete caterpillar kill; that woodlots would be sprayed with 2/3 pound DDT in 2/3 gallon of solution (12½%) per acre to prevent defoliation; that all control areas would be combined into one state-supervised airplane spraying project to realize cheapest and most efficient control over the largest possible area; and those areas too small for efficient plane applications would be sprayed by ground equipment.

The reason for spraying to a 1,000-foot depth around lake shores was to give near, if not complete, riddance of the caterpillars to prevent nuisance to camp residents, to protect the trees for the duration of this outbreak, and to kill caterpillars blowing in from other areas. By the time caterpillars could crawl back to the shores (about 200 feet per year) in ensuing years, it is expected that natural control will have ended the outbreak. It is expected that any caterpillars blown in during 1955 will give negligible per-acre populations.

The Governor and Executive Council, upon recommendation of the Forest Commissioner, granted an additional \$10,000 in December, making a total of \$12,900 available for cooperative work. A contract was made for \$1.12 per gallon applied. As a result it was determined that the non-state share of the cost would be 60% and the state share would be 40%. To cover spraying and incidentals, costs were based on \$1.25 per gallon with the understanding that any unused money

would be refunded proportionately upon completion of the job. The further policy was established that if state funds became exhausted, additional groups could come into the program by paying full cost. No state spraying was to be started until all money for that job was received by the state.

Surveys showed that use of ground spraying equipment would be limited. Sufficient state funds were available to cooperate on ground spraying projects. A study showed an average cost of \$25.00 per hour for mist blower and \$16.50 per hour for hydraulic spraying. As a result, the policy was formulated that the state would cooperate by paying a maximum of \$10.00 per hour for mist blower spraying, \$6.50 per hour for hydraulic spraying, or 40% of the cost, whichever was the lesser. Towns or groups were to contract directly for the spraying and comply with prescribed state specifications. This system of assistance allowed freedom to towns and groups in choosing a contractor but also tended to ensure their hiring an efficient one. Upon certification by town officials of satisfactory completion of spraying, the state paid its proportionate share directly to the contractor.

Surveys and Maps. Besides determining egg mass numbers and susceptibility of stands, surveys also included determining acreage and boundaries and mapping the areas. Information was coordinated in Augusta. Designation of spray areas was made on U. S. Geological Survey maps. Seven copies of each map were made — one each for the three pilots, the airport supervisor, the field supervisor, and the two spray deposit assessment crews. The procurement of sufficient accurate maps for all personnel involved is essential to the orderly progress of airplane spray projects.

Ground Spraying. Concentration of effort on the airplane spraying limited time for observation of ground spraying. To meet this situation the department drew up a list of specifications for the parties planning ground spraying which were to be agreed on by the contractor. It specified type of equipment, its maximum speed during spraying, time of spraying, insecticide, and dilution, that any job was open to departmental inspection and that the town or group have a representative present during spraying.

Spraying involving 107 hours by mist blower and 7½ hours by hydraulic sprayers was done in May and June. The state's share of the cost was \$918.14. Projects were located in Brownfield, Camden, Falmouth, Harpswell, Lincolnville, Lovell, Rockland, Stoneham, and Topsham.

Hazard Areas. With airplane spraying certain items known as "hazards" necessitated taking precautions prior to the spraying. Planes should not fly low over poultry or mink farms; gold-fish pools must be covered; DDT-oil sprays should not be applied to fish hatcheries, reservoirs, dairy cattle, pastures in use, hay about to be cut, young peas, cucurbits, or small ornamentals — either because of the DDT or the oil.

With the help of town officials all hazard areas in or within a quarter mile of spray areas were located, designated on project maps, and listed with the type of hazard, name, address, and telephone number of the owner. Each owner was visited and told of care to be exercised by the pilots of the spray planes and of any precautions he should take. For example, poultry owners were to be with their flocks to quiet them if needed during plane flight nearby. Agreement was made to give notice just before the spraying.

Information for the general public regarding the spraying and hazards was provided in a detailed newspaper article and by radio and television. Spray areas were listed and known facts concerning DDT given. News and radio announcements of exact spray time for each area were given so that the public was notified to get cars, laundry, and fabric lawn furniture under cover to prevent temporary oil spotting.

Markers. Before spraying began, two colors of markers were erected to aid the pilots. These were grain bags stuffed with twigs to hold them expanded. The bags were attached to poles which were lashed to the tops of trees by tree climbers so that the bags were ten to fifteen feet above the trees. Yellow bags marked hazards and white bags boundary corners. Only a few of the latter were necessary, as there were usually suitable natural landmarks for the pilots, who can readily find area boundaries with accurate maps.

Hatching Tests. In March 1954 when sub-zero temperatures were definitely past, egg masses from each spray area were brought to the entomological laboratory at Augusta where they were hatched to determine percentages killed by low temperatures and by parasites. In a few places eggs above the snow line showed some high winter mortality, but it was not uniform. Eggs from below the snow line in the same areas were unaffected. Nowhere was there sufficient winter kill or parasitism to warrant discontinuance of any of the spray projects.

Bids and Contract. Bids for furnishing the insecticide and applying it by a minimum of three single-engine, fixed or rotor-wing aircraft on a per-gallon basis were requested in February for 12,700 acres with the possibility of 5,000 acres being added later. Large projects were planned in New Brunswick for the spruce budworm and in the other New England States and New York for gypsy moth. It was, therefore, deemed advisable to request the bid early to ensure availability of an experienced, well-equipped operator. The bid form used was patterned after the standard spraying bid form used by the federal government and was modified by one of their cooperators, Warren Harding, to fit our conditions. The bid form called for a 12½% solution of DDT. It specified that the successful bidder was to spray additional acreage accepted for the project by the state after date of contract issuance. Spray areas, acreages, gallonages, and ferry distances were listed.

Low bidder was L. F. "Jack" Reynolds of Candor, North Carolina, at \$1.12 per gallon applied, a considerably lower figure than that of the next lowest bidder. After investigation showed he had done impressive work for the federal government in New York in 1953, and that performance bonds were in order, Mr. Reynolds was invited to Augusta for discussion of the job, and the contract was signed. Mr. Reynolds arranged to have the insecticide furnished by Northeastern Chemical Company, of Westbrook, where his trucks would load for ferrying it to the air fields. It was agreed that plane-loading tallies signed by the pilots and the project supervisor would be sent to Augusta for weekly payment by the state of work done to date.

Proof was established that planes had C.A.A. clearance for low flight before spraying began. Normally out-of-state planes operating in Maine have to pay the state excise tax, registration, and non-resident pilot and aircraft licenses. Since the work was for the state, the Attorney General ruled these regulations did not apply.

Personnel. Assigned to the project was Larry Freeman, in direct charge under the immediate supervision of H. B. Peirson and Robley W. Nash. Entomologist George LaBonte also assisted throughout the field work as did Forest Insect Rangers George McGinley from the latter part of January, Harold Bullock and Frank Manning from the latter part of February, and Carlton Merrill from the middle of April to the completion of the project.

With the advent of spraying, a federal cooperator, Norman McFall, helped in final planning, then supervised the distribution of spraying

observers and spray assessment crews. Two farm foresters and five fire wardens at a time handled placing and gathering of spray assessment cards and helped observe spraying. A fish biologist and a game biologist of the Department of Inland Fisheries and Game were assigned to the project to note effect of the spray on wildlife.

Airplane Spraying. Before each project for a private group was accepted, approval by officials in the municipality was received to comply with the law. Where spraying was to be done over an urban area, a waiver was obtained from the municipal officials.

Spraying was planned to coincide with the general hatch of caterpillars, occurring first in the most southern areas in early May and progressing northward. Spraying at this time is most desirable because it quickly kills the caterpillars before any damage is done, prevents their blowing to other areas, and kills any blowing in from unsprayed areas. Young caterpillars are killed quickly because they move around extensively and so come rapidly into contact with spray deposits, which are densest on ground and tree surfaces if spraying is done when defoliation is only beginning. However, foliage was fully developed because of delays caused by rain and wind before the project was completed, but caused no noticeable lessening in control.

Spraying began on May 13 from the Sanford airport. By May 15 three planes (one Stearman and two Super Cubs) were operating. Operations were transferred to other air strips in the following order: South Portland, Lewiston-Auburn, Limerick, Bridgton (a highway strip), North Conway, and Augusta, where the project was completed on June 4. Proximity to spray areas is important from the time and cost viewpoint. It was hoped that some other unpaved landing strips and farm fields could be used; but despite much search, none could be found usable due to the frequent rains keeping the ground soft. At a crucial stage in the project a section of new highway in Bridgton was found suitable for operations due to its being straight, flat, wide, having no trees or utility poles near the edge, and having the old road as a detour for traffic. State and local highway officials made this available and it helped tremendously.

In suitable weather spraying was started at dawn and continued until winds, exceeding five to seven miles per hour, or rising air currents due to the sun heating the ground, prevented the spray from settling where wanted. Usual discontinuation was between 7:30 and 9:00 A.M. Sometimes conditions again became suitable for spraying

around 6:00 to 6:30 P.M. One unusual day, overcast, allowed continuous spraying except for two hours of excess winds. Spray deposits dry within a half hour; if rain did not fall within one hour after spraying, respraying was unnecessary.

The 1,000-gallon tank truck ferrying insecticide from Westbrook to the loading tank truck barely supplied needs at times and made necessary a demand that a supplementary 3,000-gallon tank trailer be parked near the center of operations.

Early each morning and each evening the Portland Weather Bureau was called to obtain special weather reports of conditions around spray areas for the next twelve hours.

Two anemometers were set up near spray blocks for wind velocity reports, which were radioed to the airport supervisor. These were valuable when large blocks were sprayed because variations may exist between conditions at spray areas and those at the operating base. However, in this project of many small areas it was impractical to try to get anemometers relocated as new areas were started. It was better to have men observe settlement of the spray or to depend on the deposit cards. The experienced federal cooperator trained our men to recognize proper spray settlement. Consideration was also given to opinions of the pilots. These experienced men knew their spray deposits were being checked and had to meet certain standards for acceptance; also respraying was a financial sacrifice to them. Significantly, observers and pilots usually recommended stopping operations at the same time.

Spray Deposit Cards. Assessment of the spraying of each area was based on 4 x 6 inch spray deposit cards covered with a red dye. The insecticide droplets readily bleach the dye and show up as light spots. Cards give a direct measurement and are indispensable in checking spraying results.

Placing, retrieving, and assessing deposit cards was made possible through the assistance of eleven fire wardens and three farm foresters. A training session was held to acquaint them with objectives, methods to be used, and location of spray areas.

Insofar as possible cards were put out the afternoon or evening ahead of spraying, but rain often prevented this. On days of average spraying, crews could easily handle things, but on the few days of extensive spraying they were harried placing and retrieving cards while also observing spraying.

Cards were placed along lines, which were perpendicular to the anticipated line of flight. In large areas the card lines were a half mile apart, and in smaller ones there were at least two lines. The lines were designated and numbered on the project map. Along the lines at 100 or 150-foot intervals, depending on the swath width to be used in the area, cards were impaled parallel to the ground on forked sticks where there was an opening to the sky. The cards were a few inches off the ground to prevent snail damage, and the forked sticks prevented their blowing away. Deer ate some of the cards. A number on each card with its line number and area showed its position on that card line. Card number one on each line was always at a road or lake shore with each higher numbered card progressively farther into the woods. This system let us know the specific location of every card on each line in each area.

Deposit cards were picked up as soon after spraying as possible — in the morning after dew was dry and in no case less than twenty minutes after spraying to be sure all spray was down.

Following collection of the cards, deposits were assessed in the field and the reports were radioed in to permit respray, if necessary, before a plane left the area. During that day or night cards reached the base of operations and were given final assessment. Gypsy moth caterpillars are so readily killed by DDT that spraying was acceptable if cards showed an even distribution of droplets. Dampening of bleached cards readily disclosed any deposit spots. All cards were saved in case of later question about deposits.

Exasperation developed with all project employees in waiting-out weather or wind. In order to take advantage of all suitable weather, men stood by for long hours ready to go at any time. Weather and wind were so fickle that plans had to be continually revised.

Radio. Two-way radio was of inestimable value to the program. A mobile unit was at the airport, two others plus those in warden trucks were in the field, and were supplemented by a pack set and two handie-talkie sets. Land stations of the departmental network at Ossipee Mountain, Opportunity Hill, and Augusta were usually in on transmissions and readily helped in relaying messages. Some of the most important radio messages were those instructing pilots, informing field men of the start of each flight, furnishing weather conditions, reporting spray settlement at spray sites, dispersing men to observe spraying and to place or retrieve cards, informing where

respraying was needed, and when areas were being started or completed.

Costs. A total of 27,590 acres in 102 areas was sprayed with 26,200 gallons of insecticide by airplane. A list of these areas accompanies this report.

Final cost came to \$1.18 per gallon applied, not including salary and expense of departmental employees. The contributors' 60% share amounted to .71 per gallon and the state's share .47.

All amounts received above .71 per gallon were refunded to each group in June.

Results. Control obtained everywhere was excellent. Owners were highly pleased and, as a side issue, were impressed with lessening of mosquito and black fly populations. Following completion of spraying, areas were checked for presence of caterpillars and feeding. Neither was found except at two of the lake areas sprayed 10 to 14 days previously. Here, either a delayed hatch or a blow-in of caterpillars had occurred, but all were killed within two days by the residual DDT in the area.

No damage was reported to personal property except for one odd case of receiving a bill for washing a car two weeks before spraying started and many miles from any contemplated spray area. A second case was dropped following inspection which indicated spotting of car was not due to spray. No other complaints were received.

The fish biologist assigned to the project found no dead fish in streams and no heavy mortality of aquatic insects. Streams were very high. Fish mortality was found to be negligible, but in one lake white perch were found dead possibly due to wind blowing insecticide temporarily on the surface into a small, shallow cove where perch were spawning. It is worthy to note that white perch have died in lakes in great numbers in other years with no spraying. No animal life was found affected by the DDT sprays.

Plots. During 1953 and 1954 assistance was given in establishing seventeen federal study plots for a study of defoliation damage to trees, especially white pine, but including hemlock, spruce, and oak. Twelve departmental study plots were established in representative areas to record population trends with the objective of being able to

carry out control before outbreaks develop in the future. A total of fifty such plots is planned.

Surveys — 1954. By the end of June heavily infested unsprayed areas were completely stripped. Airplane flights over sprayed areas revealed lush green foliage in spectacular contrast to nearby unsprayed areas that were bare and brown.

In the summer of 1954 defoliated areas were noted and roughly mapped by entomologists, insect rangers, fire wardens, farm foresters, federal blister rust, and gypsy moth quarantine agents. Aerial mapping by the federal gypsy moth control unit showed 166,350 acres with 75 to 100% defoliation.

However, it was found that due to starvation, disease, and parasites, drastic reduction of caterpillars occurred near the end of their feeding, before they reached the moth stage. Because large contiguous areas of heavy egg deposition have not been found in the fall and winter of 1954–1955, contrary to the situation of the year before, a great reduction in total defoliation is predicted for 1955. Potentially dangerous areas are, however, still considerable in extent, especially near openings at roads, fields, lakes, etc.

Program Plans for 1955. In the fall of 1954 officials of all towns where heavy defoliation was recorded were sent a letter informing of 1954 damage and asking that they send in requests if technical assistance were desired.

In the fall of 1954 the egg mass survey was begun, to be completed in the most seriously infested towns in January 1955. The infested part of the state was divided into sections, each to be covered by two men. Procedure was to first, contact all towns, groups, and individuals who had requested help and to inspect areas designated; second, contact officials of all remaining towns where heavy defoliation occurred; and third, contact officials of all towns adjacent to those known to be seriously infested. This procedure was to ensure that all town officials knew the seriousness and extent of gypsy moth problems and what could be done. It was also done to prevent a last minute flood of requests for help. As was expected, it did turn up some heavy depositions of egg masses in areas not showing defoliation in 1954.

As a result of 1954 experience, it was decided that programs should be arranged preferably with town officials in 1955. Contacts with them in the fall of 1954 showed more interest and desire to raise town

funds for 1955 spraying than in the previous year. Reasons are that people are now more aware of defoliation and its effects and have come to believe the problem is one affecting the whole town, and they know of the excellent and inexpensive control obtained in 1954.

From surveys and general knowledge of conditions, it is estimated that the 1955 spraying program will involve 18,000 acres, of which about 5,000 will be by ground spraying. Increased acreage for ground spraying in 1955 is due to changed location of heavy egg deposition from remote woodland areas to roadsides. (Larry Freeman, Robley W. Nash)

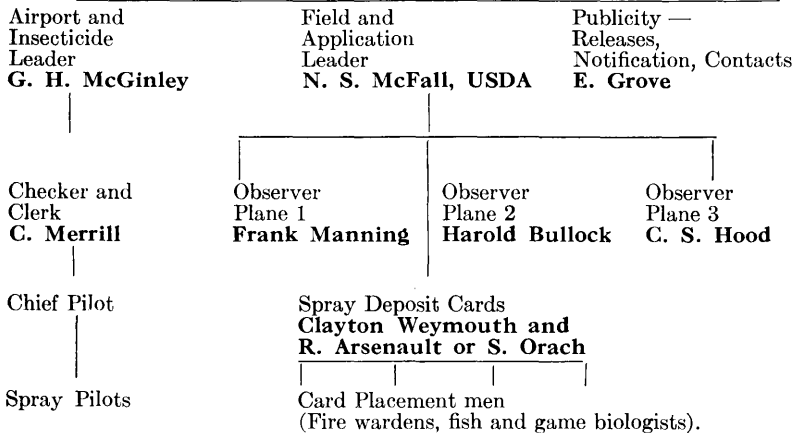
**GYPSY MOTH AIRPLANE SPRAYING PROJECT — MAY 1954
FINANCED BY PRIVATE, MUNICIPAL, AND STATE FUNDS**

**Administered by the
State Forestry Department — A. D. Nutting, Forest Commissioner**

**State Entomologist
H. B. Peirson**

**Field Project Head
W. L. Freeman**

**Assistant plus weather and wind analysis
R. W. Nash**



INSECT CONTROL

105

AREAS SPRAYED BY PLANE FOR GYPSY MOTH CONTROL —

May 13, 1954 — June 4, 1954

Town	No. of Area	Project	Gallon-age	Acreage	Organizer
Acton.....	1	Great East Lake	1,130	1,130	George Mann
	1	Horn Pond	61	61	Sanford Girl Scouts
	1	Loon Pond	195	195	Clarence Hartley
Acton & Shapleigh....	1	Mousam Lake	1,435	1,435	John B. Nutter
	1	Square Pond	921	921	John B. Roberts
Baldwin.....	18	Woodlands	2,395	2,395	Town of Baldwin
Bridgton.....	1	City of Bridgton	440	440	Town of Bridgton
	2	Moose Pond	75	75	Town of Bridgton
	2	Long Lake	246	246	John Schiavi
	1	S. D. Warren Co., Woodlot.....	212	318	S. D. Warren Co.
	1	Messalonskee Lake	102	102	C. T. Cassley
Belgrade.....	1	Woodlands	715	715	Owen Hancock
Casco.....	5	Woodlands	975	1,056	Town of Denmark
Denmark.....	8	S. D. Warren Co., Woodlot.....	1,025	1,537	S. D. Warren Co.
Falmouth.....	1	Woodlands	1,390	1,390	Town of Falmouth
Falmouth & Windham	1	Highland Lake	630	630	Ralph Johnston
Gray.....	1	Little Sebago Lake and Crystal Lake	1,855	1,855	Gray Kiwanis Club
	1	Notched Pond	200	200	Gray Kiwanis Club
Harrison.....	3	Long Lake, Village, Woodlands.....	1,000	1,248	Town of Harrison
	1	Barker Pond	113	113	Town of Hiram
Hiram.....	1	Clemons Pond	92	92	Town of Hiram
	1	Hiram and E. Hiram Villages.....	155	155	Town of Hiram
	1	Trafton and Stanley Ponds.....	297	297	Town of Hiram
	7	Woodlands	1,345	1,345	Town of Limington
Limington.....	7	Bradley Pond	36	52	Ernest Merrill
Lovell.....	1	Cushman Pond	128	128	Town of Lovell
	1	Diamond Match Co. Woodlot.....	205	205	Diamond Match Co.
	1	Kezar Lake	2,074	2,074	Rev. Carl Weist
Naples.....	1	Oxford Paper Co. Woodlot.....	512	512	Oxford Paper Co.
Newfield.....	1	Baleh Pond	420	420	Earle Davis
	1	Hidden Lake	133	133	Alfred Johnson
	1	Woodlands	683	683	City of Portland
Portland.....	1	Crescent Lake	102	102	Camp Naomi
Raymond.....	9	Panther Pond Area.....	947	947	Portland Boy Scouts
					Miss Collins, J. H. Gulick, A. Sheldon, & Portland Pipeline
Stoneham.....	1	Keewaydin Lake	461	461	John Fetter
	1	No. Waterford Spool Co. Woodlot.....	410	501	N. Waterford Spool Co.
	1	Virginia Lake	81	81	Mrs. Ezra Stevens
	1	Wht. Mt. National Forest.....	410	410	Wht. Mt. Nat'l For.
Stow.....	1	Saunders Bros. Woodlot.....	153	153	Saunders Bros.
Sweden.....	1	W. R. Dinneen Woodlot	51	51	W. Robert Dinneen
	3	S. D. Warren Co. Woodlot.....	532	798	S. D. Warren Co.
Vienna.....	1	Maine Dowel Co. Woodlot.....	102	102	Maine Dowel Co.
Vassalboro.....	5	Oak Grove School Area.....	495	495	Mrs. Robert Owen
Waterford.....	1	Bear Pond	82	124	Town of Waterford
	1	Five Kezar Ponds.....	54	82	Town of Waterford
Westbrook.....	1	Woodlands	195	195	City of Westbrook
Windham.....	2	Hall Point and Prides Hill.....	384	384	Town of Windham
Waterboro.....	1	Little Ossipee Pond.....	546	546	Town of Waterboro
Totals.....	102		26,200	27,590	

Gypsy Moth Quarantine and Inspection. This part of the gypsy moth project was carried on in cooperation with the U.S.D.A., Bureau of Entomology. We supplied one of the three inspectors with an additional man during the Christmas tree shipping season. The work is aimed to check the shipment of infested material into uninfested areas. This is extremely important from a national standpoint and is of benefit to Maine in that it makes possible the shipment and sale of material that otherwise would be prohibited. A total of 2,726 service calls were made in the past year. A summary of the material certified for shipment is as follows for the period July 1, 1953 to June 30, 1954:

Product	Amount	Estimated Value
Lumber, Board Feet	30,653,589	\$3,634,587
Logs, Posts, Poles; Pieces	111,418	110,266
Wood, Cords	24,198	391,840
Misc. Forest Products	25,686	22,562
Nursery Plants	1,989,903	270,121
Cuttings	603	7
Evergreen Trees, Cut	114,132	56,691
Boughs, Bls., Boxes	2,830	3,433
Quarry Products, Tons	1,609	28,085
Quarry Products, Pieces	211	6,025
Cable Reels	2,686	34,010
Shipped under limited permit:		
Pulpwood, Cords	1,900	49,400
Fuelwood, Cords	22	440
Certified to meet Canadian Quarantine:		
Lumber, Board Feet	7,622,000	429,600
Logs, Poles; Pieces	5,425	8,660
Logs, Board Feet	55,835,480	1,702,396
Wood, Cords	69,960	1,149,600
Quarry Products, Pieces	140	41,500
Misc. Forest Products	23,225	13,235
Total estimated value		\$7,952,458

Pales Weevil. (*Hylobius pales.*) This small snout weevil remains a serious threat to coniferous plantations on recently cut over or burned pine lands. It is also one of the principal problems in getting pine to succeed itself. During the past two seasons the damage caused by this insect has aroused considerable interest in the Southern states as far as Mississippi and Louisiana and to the west into Wisconsin. In some areas large plantings have been killed. A grower of Christmas trees in Pennsylvania, who made a practice of thinning and replanting his stand and who was losing most of his Scotch, red, and Austrian pines with some loss to Douglas fir, white spruce, white pine, and Japanese larch, found that spraying with Dieldrin, chlordane, and

arsenate of lead failed to give satisfactory results in the fall. By correspondence it was suggested that he spray the stumps with Benzene Hexachloride at the rate of one pound gamma (actual) to fifty gallons of water early in June. The result was that almost no damage from the weevil followed.

It is planned in the spring of 1955 to try this on freshly cut over pine land in Maine. It is also planned to start a small planting of white pine on a freshly cut over spruce lot.

Pine Leaf Aphid. (*Pineus pinifoliae*). White pine has been severely affected by this tiny insect for several years, including the past two. It has been rather general over the central belt of the state from Washington County to Georgetown and west to Fryeburg, Gilead, and the Eustis area wherever white pine and red or black spruce were together.

Injury shows as a yellowing to browning and stunting of the youngest needles and twigs, thinness of foliage, some drooping of these twigs, and in severe cases death of many of them. The appearance is rather striking and alarming especially on young pine, but except in cases where pine is under some competition beneath other trees little death of trees has been observed. Cumulative effects of continuance of severe infestations may increase the killing. The most severe cases noted have been in the Fryeburg — Albany — Gilead — and the T. 34 areas.

The insect has alternate hosts — red and black spruce along with white pine and has a complicated lifecycle. On spruce it forms galls and is of little importance except on ornamentals. These galls appear very early in the season and reach complete size of one to two inches quickly. At about the time normal new shoot growth of spruce is only 1/4 to 1/2 inch long; the greenish, cone-shaped galls assume a purplish-brown cast and open. Winged adults emerge and fly to the needles of white pine. The opened galls on spruce become dark brown, shrivelled in appearance, and may hang on for a considerable time. On pine the adults attach themselves on and face toward the base of needles of the previous year's growth and look like tiny, dark flies. They die in place after laying eggs. Young from these eggs crawl down the needles and out onto the newly developing pine shoots where they insert their mouth parts and settle down. A favored place on the shoot is at the base of a needle cluster. To the naked eye the insects appear as dark "pepper" spots on the light-colored new pine shoots. Apparently there is a two-year cycle in that the galls on spruce from any particular group of insects are formed every other year.

On June 9, 1953 at Albany galls on spruce were about 99% opened and the winged migrants were on white pine foliage with eggs numerous. On July 8 at Eustis, which climatically would probably be two-three days later, the new hatch of young were abundant on 1953 white pine twig growth and in some cases the new foliage was already stunted and brown. Occasional ones were found on older twig growth and apparently the same insect (not yet identified) in a few scattered cases on 1953 red pine and balsam twig growth which was intermingled with the white pine. The severe outbreak may account for this as none were found on fir or red pine away from heavily infested white pine. (R. W. Nash)

Satin Moth. (*Stilpnotia salicis*). For the past two seasons many reports have come into the office concerning the voracious feeding of this insect. Its favorite foods are ornamental poplars and willows. From Augusta to Caribou and west to the New Hampshire line many of these trees, used for shade around homes and farms and along streets, have been completely stripped of their foliage around the middle to the latter part of June. In severe infestations, when all available food has been eaten, the larvae migrate to fences, dwellings, etc. causing serious annoyance to the inhabitants. Spraying with DDT during this larval development will do much to eliminate this nuisance. (C. S. Hood)

Spruce Budworm. (*Choristoneura fumiferana*). The years 1953 and 1954 saw pronounced changes in the status of this insect as a threat to the spruce-fir forests of Maine. Each year careful observance by men of the Maine Forest Service and the Northeastern Forest Experiment Station, Division of Forest Insect Research, gives the location and population density of this major forest pest. In 1953 surveys showed a decided decrease in total acreage of defoliation, but at the same time showed a decided increase in intensity in the Madawaska Lake area in T. 16, R. 4 and Westmanland. Considerable dropping of larvae from the canopy onto young spruce and fir making up the understory indicated an epidemic budworm population. The situation presented a problem somewhat different than in other areas showing defoliation. Studies carried out in a number of plots across northern Maine by the U. S. Forest Service laboratory at Fort Kent have shown that a natural decline in a budworm population due to parasites is always indicated by a rise in two parasites — (*Lypha* and *Meteorus*). These gave no signs of increase in the Madawaska Lake area. This information was the cause of concern not only for the

timber within the area but for the stands of spruce and fir on surrounding lands. Thus during the winter of 1953-1954 plans were made to spray approximately 20,000 acres which contained the dangerous population.

During 1953 and 1954 the ground, aerial, and egg mass surveys were carried on as usual, as well as the operation of the 23 light traps located in strategic areas throughout the state. Parasites were reared at the Forest Service laboratory in Augusta and released in areas where it was felt that they might be effective in controlling outbreaks.

Ground Surveys. In the years 1953 and 1954, through the cooperative efforts of Maine Forest Service insect rangers, fire wardens, and entomologists, and men from the U. S. Forest Service, intensive ground surveys were again carried out. Information as to the location of suspected budworm outbreaks came from a number of different sources. Fire wardens, landowners, landowner representatives, and other interested parties who spend a great deal of time in the forests often relay this information to the Entomology Division and an immediate check of the area is then made. The basis which is used by the insect rangers and entomologists for determining the degree of infestation in an area is the 15 inch twig sample. Five twigs are cut from each of five trees and the larvae found on them are tallied. This system is used mainly during the larval stage of the insect and again after the eggs have been laid. The fire wardens, as part of their work, make a certain number of collections each season on specified dates. These collections are made by laying six by nine foot sheets under one side of a tree and beating the branches above the sheet with a ten to fifteen foot pole. The insects which drop on the sheet are collected, placed in a mailing can, and sent to the laboratory in Augusta for identification. This method of collecting, alone, gives us a wide coverage of the state. Another means of following the trend of the budworm in the spruce-fir regions of the state is through collections made by the insect rangers at sixty permanent observation points. A year by year record is kept of collections made at these points in order to show the rise or fall of the budworm in various parts of the state.

The year 1953, as in the past few years, showed most of the budworm collections coming from northern Aroostock County and most of these showing the heaviest budworm counts came from the north-eastern part of the county. The total area with defoliation, mapped by the aerial survey and checked on the ground, was approximately 155,000 acres as compared with 416,000 acres in 1952. This acreage

was contained within two general areas: the Fish River Lake-Beavertail Pond infestation covering 87,000 acres, and the Madawaska Lake infestation covering 68,000 acres. All of this defoliation was light except for 20,000 acres of medium to heavy defoliation in the center of the Madawaska Lake area. Two small spot infestations were found on the Allagash River — one just west of the Musquacook deadwater and the other at the mouth of Ben Glazier Brook.

The year 1954 showed the heaviest collections again coming from northern Aroostook County. The budworm population and feeding in the Beavertail Pond-Fish River Lake area was lighter than 1953. The two spots on the Allagash River showed no increase in intensity. In townships north and east of Madawaska Lake budworm populations were sufficiently high to cause medium to heavy feeding in spots.

In the area sprayed by airplane around Madawaska Lake budworm populations were reduced to a very low level, removing the threat of further damage and possible spread to adjoining areas. With the elimination of the heavy budworm population in T. 16, R. 4 and Westmanland only light infestations in spots remain throughout the state. There has been a slight build-up around Cross and Mud Lakes, in the Little Black River drainage, and in the Musquacook Lakes area. Collections in the Jackman area indicate a continued slow build-up there. Populations are extremely low in eastern Maine.

Aerial Survey. In both 1953 and 1954 the aerial survey was confined mainly to the forested portion of northern Aroostook County. The line-strip type of survey was again used. Budworm feeding was recorded as light, medium, and heavy in contrast to previous years when it was recorded as "scattered" or "continuous." In both years the survey was carried out in a Cessna 195 float type plane belonging to the federal government and piloted by Robert Heller. The observers for both years were Charles S. Hood, Maine Forest Service, and James L. Bean. Both Heller and Bean are members of the U. S. Forest Service. In 1953 two areas showed defoliation totaling 155,000 acres. The larger of the two, an area just west of Fish River Lake, showed only light feeding while the other area, although smaller in size, showed much more intensive feeding. This area, known as the Madawaska Lake infestation, had 20,000 acres of medium to heavy feeding. The small spot infestation just west of the Musquacook deadwater was of medium intensity and was picked up for the first time during this survey. In 1954 defoliation was difficult to see and appraise, as the noticeable feeding was mostly confined to the lower half of the crowns

with the tops often appearing green and undisturbed. This was probably due to the wet season and the fact that fir and spruce made very lush growth. Noticeable defoliation was picked up just east of the 1954 spray project and Madawaska Lake.

Egg Mass Survey. The last budworm survey of the season is the egg mass survey. It gives an indication of what to expect in the following season as far as the extent of infestations and population densities is concerned. Fifteen-inch twig samples are cut in areas where there may be possible budworm outbreaks. The twigs are examined for egg masses which are laid on the underside of the needles. A formula has been worked out whereby the number of egg masses found on twenty-five twigs will tell approximately how much defoliation should be expected in that area the following year. Besides regular collection points which are sampled each year an attempt is made to thoroughly examine those areas which showed defoliation during the preceding aerial survey. These two surveys are quite closely tied together.

The egg mass survey of 1953 showed 2.6 to 30 potential larvae per 15-inch twig. The lowering of the population in the Beavertail Pond-Fish River Lake area in 1954 was indicated in the 1953 egg mass survey. Egg masses were found at just four of the seventeen collection points in this area. The survey revealed unexpectedly heavy deposition of egg masses in fir stands throughout the townships north, east, and south of T. 16, R. 4. These egg masses were undoubtedly deposited by moths carried from the heavy infestation center near Madawaska Lake by strong west winds which prevailed at the time of moth flight.

The survey carried out in 1954 indicates a further decrease in budworm populations for the Beavertail Pond-Fish River Lake area. Around Cross and Mud Lakes and in the Little Black River drainage populations will be as high or higher than this year. Elsewhere in northern Maine budworm feeding is expected to be light or negligible.

Madawaska Lake Spraying Project. At the close of the 1953 season it was the opinion of entomologists connected with the work that spraying should be done to alleviate the serious budworm problem in T. 16, R. 4 and Westmanland just west of Madawaska Lake. To dispel the hazard of further spread of this heavy infestation and to prevent more serious damage to the stands there, it was recommended that approximately 20,000 acres in this area — an area about $4\frac{1}{2}$ miles by 7 miles covering the drainages of McCluskey, Black, Cary, and Johnson Brooks — be sprayed with DDT by airplane in 1954.

At a meeting in Augusta on September 15, 1953, attended by A. D. Nutting, Forest Commissioner; H. B. Peirson, State Entomologist; and assistants R. W. Nash and C. S. Hood; C. K. King, Forest Engineer, International Paper Company; and R. C. Brown, W. E. Waters, V. M. Carolin, Jr., and J. L. Bean, Entomologists, Division of Forest Insect Investigations, U. S. D. A., it was decided that spraying should be done.

A second meeting was held on October 8 and 9, at which time costs were estimated for the proposed spray job including marking, spraying, and checking of the area. It was decided to call a meeting of the landowners and landowner representatives of the pulp and paper industry of the state to present the problem and the approximate cost of the project to them. When presentations of the budworm situation in Maine, how the federal government would cooperate, and what would be expected from private industry were made by H. B. Peirson, State Entomologist, R. C. Brown, USDA, and A. D. Nutting, Forest Commissioner, the timberland owners were asked to contribute between one-third and one-half of the total cost of the project. This they agreed to do by assessing themselves on a per-acre basis. This was regardless of whether or not their land was involved in the actual spraying. The project was to be headed by R. W. Nash, with C. S. Hood as operations leader, and W. E. Waters, entomologist of the U. S. Dept. of Agric., as technical leader. Almost unanimous cooperation of all major landowners and users of fir and spruce showed recognition that any serious infestation is a serious threat to the entire state. The voluntary contributions were received promptly and exceeded needs by over \$7,000.

The work involved in timing the spray operation, checking the spray deposit, and determining the percentage of budworms killed was divided into three categories: biological studies to determine the larval development, mortality studies, and spray assessment. Crews were assigned to each of these phases of the project and work began on May 24. A base of operations and sleeping quarters was provided the crew on the shore of Madawaska Lake. The location was ideal as the working areas of the various crews were easily accessible. Two tree climbers, hired to assist in mortality studies, were put to work immediately. Both the International Paper Company and the Great Northern Paper Company supplied very capable foresters: Rhodes Sawyer, International Paper Company, and Richard Hoisington, Great Northern Paper Company.

The two spray assessment crews started to work immediately. Before the operation began the spray area was divided into three blocks,

defined by natural landmarks. A pair of planes was to be assigned to each block. In order to check on the coverage attained by the planes two lines were run across each block with spray assessment cards to be placed at 2-chain intervals. The assessment crews were headed by the two company foresters, each being supplied with a laborer. Six compass lines were run east to west along which the spray assessment cards were to be placed. These lines had to be bushed out and well marked in order to make traveling over them as easy as possible. Much of the value of the cards depends on how soon they can be picked up following the spraying. Areas to be resprayed are determined by the amount of deposit which shows on the cards.

At the same time the assessment crews were running out their lines, the mortality study crew, which consisted of D. S. Crosby, U. S. Dept. of Agric., leader, the two tree climbers, and three laborers began setting out their plots. Six of these plots were set out in the spray area and two in an area outside of the spray area. Each plot consisted of ten sample balsam firs spaced $2\frac{1}{2}$ chains apart on a line generally perpendicular to the lines of flight of the spray planes. Under each tree and supported by stakes was placed a drop sheet which approximated one-fourth of the area of the crown. The total budworm larvae falling upon the sheet multiplied by four gave us the number of budworms spinning out of the tree. These sheets were checked and the budworms counted periodically before and after the spraying. A few days after the spraying two mortality study crews were formed with men of the original mortality crew and the addition of men from the biological study crew. Each of the new crews contained one of the tree climbers whose job it was to climb the sample firs in each plot and cut and throw down onto a large drop sheet all of the limbs. These limbs were searched by the rest of the crew and a total kept of dead and live larvae found. When each plot was completed all of the larvae were totaled and a percentage of dead and live larvae was arrived at. This provided the percentage kill for the project.

While the other two crews were completing their pre-survey work the biological study crew began their task of determining the correct date to commence spraying. From experience gathered from other spruce budworm spray projects it has been found that a maximum kill is accomplished if spraying is started at the time between the peaks of the fourth and the fifth instars. In order to determine when this stage in the larval development has been reached the biological study crew set out four collection points, well spaced, within the spray project. Twig samples were collected from each point, put into bags,

and brought into the field laboratory to be examined for larvae. The instar of each larva collected was determined by measuring the head capsule. When the larval development showed that the time for spraying was approaching the plane operator was notified and the budworm spraying project began.

Before this time there were weeks of planning and arranging. Through Mr. B. W. Flieger, Manager of Forest Protection Limited, a Canadian cooperative insect control organization, a contract was made to use six spray planes at cost from their large pool of planes engaged to do the budworm spraying in New Brunswick. Because of the nearness to the Canadian project and the years of forest spraying experience of their pilots it was felt that our spraying would be very satisfactorily done. Arrangements were to be made for the purchase of 1,000 pounds of DDT and for shipping the 20,000 pounds of state-owned DDT stored in Presque Isle to the lowest bidder for mixing, and the transportation of the finished product back to Caribou, and then to the airport for loading into the spray planes.

The low bid for mixing the DDT and delivering the finished product at Caribou was awarded to the Northeast Chemical Co. of Westbrook. The insecticide was shipped from there to Caribou in three tank cars. The equipment at the airport for storing and loading the insecticide was furnished by the Dead River Oil Co. A large 5,000-gallon tank with two pumps for loading the planes was installed near the gasoline pumps. The storage tank was supplied by a tank truck which shuttled back and forth between the railroad siding and the airport.

Equipment such as sleeping bags, axes, pack baskets, radios, anemometers for checking the wind velocity, etc. had to be gathered together ready for immediate use. The Customs, the Civil Aeronautics Board, and the F.C.C. had to be notified in regard to the planes coming from Canada, the use of radio from airport to observer plane and the use of this same Canadian licensed observer plane in the United States.

With the approach in the larval development of the proper time to begin spraying the planes were alerted. On the afternoon of June 14 they arrived at the Caribou Airport, the base of operations. As the weather was ideal for spraying the operation began that evening. The insecticide was applied at the rate of one pound of technical DDT in one gallon of fuel oil to an acre. The planes were Stearman Bi-planes powered with 450 horsepower engines carrying 125-150 gallons of insecticide. Anemometers set up in the vicinity of the spraying operation were carefully observed during the spraying and the wind velocities

reported by radio regularly while spraying was in progress. If the wind velocity reached a point where it was believed to be too strong for good coverage the spraying was called off immediately.

A chief pilot in an observer plane flew over the area being sprayed. It was his responsibility to decide whether good spraying conditions prevailed and whether the pilots were covering their allotted areas well enough. When thermal updrafts became such that they made the application of insecticide difficult he reported the condition to the project leader and the spraying was called off until better conditions prevailed. The average length of flight from take off to landing was approximately 25½ minutes. The spraying was completed at 6:30 A.M. on June 17. Later, after the mortality studies had been completed, the data from the plots within the spray area were summarized in the table below:

Plot No.	Average No. Larvae per tree before spraying	Average No. of survivors per tree	Average percent reduction
1	1,840.5	7.4	99.6
2	4,638.5	4.6	99.9
3	1,447.3	53.6	96.3
4	2,844.1	17.1	99.4
5	3,287.6	19.7	99.4
6	5,922.4	41.5	99.3
Weighted Average	3,286.1	22.4	99.3

As can be noted in the above table the average percent reduction for the Madawaska Lake spruce budworm spray project was 99.3.

In order to accumulate data on injury to fish and wildlife Kendall Warner, a biologist for the Fish and Game Management Division, was present during the spraying project. His job was to determine, as accurately as possible, any detrimental effects to fish within the spray area. This information was to be considered in any future aerial spray projects in order to better protect and minimize injury to fish. Three streams — Johnson, Cary, and McCluskey Brooks — within the spray area were checked. Of the valuable species — brook trout and salmon — only nineteen were killed. It is believed that respraying in the Cary Brook area may have caused the fish killing. Respraying of stream areas will be avoided in future projects as a precautionary measure.

Conservation of tree cover is important to all conservation programs. This project preserved the trees with unavoidable, minor temporary loss of fish and no ill effect on game. (C. S. Hood)

Spruce Budworm Parasite Rearing Project. Rearing of the western hymenopterous parasite (*Phytodietus fumiferanae*) for release in the spruce-fir stands of Maine wherever spruce budworm infestations occur was carried on again in the springs of 1953 and 1954. The rearing of this parasite was done in the entomological laboratory at Augusta.

Host material consisted of spruce budworm larvae forced into hibernation each previous fall on selected fir twigs at the Fort Kent laboratory and over-wintered in Northern Maine. Each spring they were brought to Augusta.

The major problem seems to be in rearing healthy spruce budworm larvae from the over-wintering stage to the 6th instar when they are suitable for the parasites to lay eggs on. The difficulty begins soon after the season's growth on fir has started. It becomes progressively more difficult in the course of the rearing project because the over-wintering budworms have to be held back in refrigeration until they are needed. These tiny over-wintering budworms require newly opened, tender foliage on which to start feeding, and as the season's growth progresses the foliage soon becomes too tough for good rearing. Forcing of foliage in late winter so as to complete the project before new natural foliage becomes too tough has the drawback of requiring too much laboratory space. Newly opened fir shoots collected in the field and kept in cellophane bags or canning jars in refrigeration seem to be all right; larvae reared on them are apparently healthy. However, there was a high loss from death of larvae after the parasites stung and laid their eggs on them.

TABLE SHOWING RESULTS OF 1952, 1953, 1954 REARING

	1952	1953	1954
No. female parasites, rearing stock			
Emergued	182	63	119
Lived and laid eggs	140	56	96
Longest life-span of adult parasites (days)	56	57	60
Av. No. of eggs per female parasite	28.7	133.6	80.2
Total No. of parasite eggs produced	4,016	7,416	7,702
No. of parasite larvae that did not mature	156	269	80
No. of parasitized budworms lost			
pupated	1,335	3,083	3,482
died	1,625	771	2,195
No. of parasites that developed cocoons	900	3,360	1,945
Duration of rearing project (days)	76	67	62

The only deviations in 1953 and 1954 from the previous years' rearing work were as follows:

- A. An earlier start in rearing work to obtain healthier budworms for the parasites to lay eggs on.
- B. Placing the female parasites singly in egg-laying cages rather than 3 or 4 per cage, to permit easier handling and to prevent interference of other female parasites when one is laying its egg on the budworm. This fact may account in part for the increase in the average number of eggs per female parasite during the last two years.

Parasite colonies were liberated in heavily infested areas as follows:

1953	Beaver Tail Pond (T. 14, R. 10)	56 females
1954	Musquacook Deadwater (T. 13, R. 12)	300 females
	Square Lake (T. 16, R. 5)	85 females
	Hamlin Plantation	350 females

All female parasites were mated before being liberated. (George A. LaBonte)

White Pine Weevil. (*Pissodes strobi*). In order to study the effects of this insect on the same stands of young pine year after year twenty-two one-quarter acre plots were established in 1951 throughout the white pine region of Maine. Since the establishment of these plots approximately 12% of the trees have been weeviled at least once, and a number of these have been weeviled more than once. This insect and its subsequent damage to young white pines and Norway spruce has been at a rather low ebb during the past two years. In 1953 it was found that the largest percent increases in weeviled trees took place in plots in Lee — 16.7%; Passadumkeag — 34.7%; T. 30 M.D. — 10.5%; and Brunswick 11.5%. In 1954 it was noted that in the northern sections of Maine, lacking its favorite food plants, it attacked red spruce. In 1954 only 3 plots showed any appreciable increase over 1953; T. 30 M.D. — 11.1%; Brunswick — 20.1%, and Fryeburg — 5.0%. In most cases it has been noted that the average height of the trees being weeviled is equal to or more than the average height of the stand. (C. S. Hood)

Wood Borers. Large scale applications of benzene hexachloride (BHC) in the form of emulsions, solutions, and suspensions were made in 1953 on pine logs and 1½ to 2½ inch round-edge planking to prevent damage by wood borers. Close analysis of results was not made

but fairly good data and practical conclusions showed very good control. Applications of one pound of the gamma isomer of benzene hexachloride in fifty gallons of mixture were made by high pressure, hydraulic sprayers. Total costs were somewhere between .42 and .57 per thousand board feet for treating planking under the perfect accessibility conditions of a mill yard. For logs in woods yards where accessibility involved extra equipment, total cost was .93 per thousand feet. Insecticide cost in either case was approximately the same. It was slightly more for the wettable powder suspension used on the planking regardless of the use in that case of a stronger mixture. Small scale applications by other mill men gave highly satisfactory protection.

Benzene hexachloride is made up of various isomers of which as an insecticide the gamma isomer is the important one. For this reason the term "gamma isomer of benzene hexachloride" will simply be referred to as "gamma" in the rest of this report.

Requests were received in the spring of 1953 for information concerning protection of logs and round edged planking from borers. We recommended spraying with BHC and were shortly requested to outline tests, observe applications, and carry out analyses of results.

Operation 1 — 1953. Eastern Corporation, Brewer, Maine; William Eggleston, Woods Manager. 303,000 board feet of white pine logs at Beddington in yards varying from 3,000 to 25,000 board feet along bulldozed roads. Logs varied from 10-36 inches in diameter — 12-18 feet long. Spraying was done on May 26 and 27.

BHC miscible or emulsifiable stock was used of which each gallon contained one pound of gamma. To each gallon of stock, forty-nine gallons of water were added for an emulsion type spray. In an alternate test No. 2 fuel oil rather than water was added at the same rate to give a solution type which was applied to two yards. Either mixture resulted in one pound gamma to each fifty gallons mixture. Two log yards were left unsprayed as a check. 1,000 gallons mixture applied to the 303,000 board feet of logs averaged 3.3 gallons per thousand board feet and involved approximately thirty-five man hours actual spraying time (seven minutes per thousand).

20 gallons of stock were used at a cost of \$78.00. (.25 3/4 cents per 1,000 feet). Cost of spraying equipment and men came to \$204.00 (.67 1/2 per 1,000 feet) to give a total cost of .93 per thousand. Equipment and labor cost may seem high but it should be considered that Beddington is a remote area and that the job involved a truck with

two men for hauling the spray equipment from Bangor and around to the log yards. Actual spraying crew time and equipment amounted to .34 per 1,000 feet. The explanation is given to show that conditions affected costs — actually, cost of protection to prevent borer holes and thus maintain top value of lumber from the logs is low.

A 300-gallon tank, hydraulic sprayer, developing a pressure of 350 pounds, was loaded onto a dual-wheel truck which with hose lines from the sprayer made it easy to get completely over and around the yards. A regular spray gun allowed spray stream adjustment for close and distant spraying. All exposed surfaces were wet well. Spray was directed into holes and crevices on the tops and ends of yards.

At the time of spraying the only Cerambycids observed were a few ribbed pine borer beetles. Bark beetles, mainly *Ips pini*, were entering the logs in abundance as were a few Hister beetles. Only an occasional Ambrosia beetle was seen.

In August these logs were visited to ascertain results. Unfortunately the mill crews had misunderstood procedures for checking outlined by the management. The net result was that only a fair amount of checking was possible. Figures obtained showed 90% reduction of borers in logs sprayed with the emulsion, 98% reduction in those sprayed with the oil solution. The mill men were highly pleased with the practical results. No borers were observed by them in sawing the logs. They were not interested, of course, in the borer situation in the slab material removed in sawing. They did have experience in previous years with similar logs unsprayed or dusted with lime sulphur. In their words there was a vast improvement over untreated logs and considerable improvement over dusted logs.

Operation 2 — 1953. Wilner Wood Products Co., Norway, Maine. Burton Wilner, Manager of Wood Supplies.

In 1952, the first year of round edge sawing, planking was severely damaged. 5,535,000 board feet of white pine, round edge planking from 1½" to 2½" thick, but mostly 2¼" and 2½", in six-foot lengths was sprayed in 1953, in mill stock yard after sawing and sticking. Spraying was started in late May on all planking sawed after February 1. From May until mid-September spray was applied every other day to piles of planking sawed that day and the previous day. Thus each pile was sprayed but once.

During the "beetle" season logs were sawed in most cases within a week after trees were cut and always within two weeks. There was

some concern about possible young borers in logs before the latter were sawed and sprayed and which the BHC might not kill. Facilities were such that, after sticking, the planking on cars could be rolled into a steam shed for thirty minutes. The plan was that steam at 150° F. and 300 pounds pressure would be released to heat planking sufficiently to kill any young borers or eggs present. It worked out that temperatures reached only 140° F. at low pressures and that release was on only one side of the shed so that much of the planking was heated only a little. All was steam-treated except for some "check" material. It was believed that the steam treatment used had no effect as shown in the results below with some test piles of planking that were steam-treated but not sprayed.

6,150 pounds of BHC, 10% gamma, wettable powder was used at a mixture rate of 75 pounds BHC to 300 gallons of water. Thus the actual gamma rate was one pound gamma to forty gallons of water. This rate, rather than one pound gamma to fifty gallons, was desired by Mr. Wilner to give added assurance of protection. An average of four and one-half gallons of the mixture was applied per thousand feet of planking. This gave an average rate of 1.1 pounds of BHC per thousand or a material cost of .265 per thousand. Labor cost averaged .16 per thousand to give a total average cost of .425 per thousand for insecticide and labor. Cost of equipment should be considered. In this case the company bought a second-hand sprayer and intend each year to continue this protection to their logs. If charged off entirely to the 1953 job, equipment would add .145 per thousand.

Wettable powder in water (a suspension) was used rather than an oil solution or an emulsion because of danger from fire and impairment to some of the end-products of the company.

Application was made with a 300-gallon hydraulic sprayer operated at 500 pounds pressure. Spray was directed thoroughly on and into all sides of the piles to a point of drip from the planking. Due to possible dangers of contact with BHC, the operator wore a complete rubber outfit and a safety mask.

Checking of results when bark was removed from planking to tally prevalence of borers was made in the late fall and winter. Instructions were not followed by mill crews. Untreated check piles of planking were processed before checks could be made. Thus no technically conclusive data could be obtained. However, the operators said that protection was very good.

Sprayed planking was examined extensively by two men for nearly one day and only two borer grubs were found. Bark beetles, mainly *Ips pini*, were the only other insects found in and under the bark; some adults and grubs were found dead, about equal numbers were alive. Total bark beetles, however, were much less numerous than normally expected. These are of little importance to lumber.

Processing crews in the mill reported negligible borer damage to the planking.

Examination of planking unsprayed showed common prevalence of borers which were well into the wood. Bark beetles were much more prevalent than in sprayed planking. This planking was in a yard about one mile from the sprayed area.

Examination of untreated, round edge, one-inch boards, also in the latter yard, showed an abundance of the initial stages of borer attack. A few more were slightly into the wood and alive but the majority had died before entering the wood. This goes along with the common concept that round edge, one-inch boards, are relatively safe from damage due to the inner bark areas drying sufficiently fast that they are either unattractive to borer attack or if attack starts they are unsuitable to borer development.

Other operations. Some other operators in eastern Maine applied BHC at the dilution of one pound gamma in fifty gallons of solution or emulsion on smaller lots of pine and spruce logs. Applications were made by ordinary back pumps of five-gallon size. Normally these are used on forest or brush fires. Applications varied from four to five gallons of mixture per thousand feet of logs. Operators reported 90 to nearly 100% control of borers.

Miscellaneous Notes. On June 9, 1953 a visit to the Wilner operation showed an abundance of dead pales weevil, *Pissodes*, and carpenter ants around the piles. Also common were *Monochamus*, Buprestid, ground, bark, hisler, May and click beetles; ribbed pine borer; blue pine borer; syrphid flies and other diptera; and a few dragon and May flies. Peeling of bark on planking showed ambrosia beetles dead in tunnels, bark beetles (*Ips* and *Dendroctonus*) adults dead but not all of the larvae dead. Bark on steam-treated planking seemed to dry faster than on untreated planking.

Operations — 1954. Both the Eastern Corporation and the Wilner Wood Products Company used BHC again in 1954 on the same approximate amounts of material. Results were that their material

escaped borer damage. The Eastern Corporation applied a single application in late May on logs in woods yards. The Wilner Company seeking to reduce expense cut their dilutions in half and sprayed only every other day's production of round edge planking. It was their idea that the chemical was being applied in the mill yard so frequently that protection would extend over the general yard area either through killing or repelling of adults. Three conditions led to their procedure. These were: (1) a confined, accessible mill or sticking yard; (2) spraying of some planking in the yard every other day close to the previous day's production; and (3) nozzle pressure such that the air was rather saturated with the chemical for considerable distance.

BHC leaves a pronounced, persistent, musty odor for some time around sprayed material. By the time final manufacturing occurs the odor is mainly gone. Insofar as known it has caused no complaints from users of products of either company. (R. W. Nash)

Ticks, Eastern Wood or American Dog (*Dermacentor variabilis*). Heavy infestations of ticks in the Casco, Naples, Otisfield, and adjoining areas caused public concern by 1951. Experimental spraying was made that year to ascertain the effectiveness of DDT and extensive surveys were conducted to locate habitats and major infestations preparatory to a test control project.

Ticks have a two-year life cycle with young and adults present each year. Sprays only reach adults sufficiently to be effective as larval stages are protected in grass. For this reason it was expected that spraying two consecutive years would be necessary to effect control. Approximately 1,200 acres made up of twenty-two blocks were sprayed in 1952 and again in 1953 with one pound of DDT in 12% solution per acre. A helicopter was used due to its maneuverability — the small spray blocks were surrounded by woodlands. 93–98% reductions in ticks were effected each year. Detailed reports on the work were made in the 29th Biennial Report and in the May 1954 "Forest Notes" of the department.

To determine benefits from spraying, populations were again checked in 1954 by the usual system of dragging a yard-square piece of white flannel over the ground growth. The "drag" or unit was 25 steps after which the ticks on the cloth were counted.

1954 populations showed .69 ticks per drag in the areas sprayed previous years as against .93 prior to spraying in 1952. In unsprayed areas not adjacent to the spray areas but in the same general section

there were 11% less ticks per drag in 1954 than in 1952. 1952 rather than 1953 is used for comparison due to the two-year cycle and to our sampling for adults only. The good immediate or current year reductions of 93–98% in tick populations by spraying with DDT do not, at least from our figures, show lasting effects during following years. An explanation may be that reinfestation by infested animals is likely, and that our figures may be inadequate because of small acreages sprayed. Good comparative data on sprayed versus unsprayed areas were difficult due to tick habits and to the treatment of small blocks in their entirety.

Annual spraying seems to be necessary for control. Several annual applications should result in permanent reductions. Costs seem most justifiable in highly populated or valuable residential and resort areas. The use of repellents by people traveling infested regions seems practical. These have given quite satisfactory results in tests.

Elsewhere in the general Sebago region ticks are apparently becoming more abundant and widespread as judged from reports received. (R. W. Nash)

Tree Diseases and Injuries. The term diseases refers to injuries other than those caused by insects and animals. Excess rain and high humidity of 1954 were very favorable to the growth of fungi particularly leaf diseases during the early part of that summer. Previous years of drought, however, gave cumulative effects that have gradually been showing up even into the wet year of 1954. In fact there is the suspicion that on some sites it was too wet for roots that had become adjusted to drought conditions. Items covered below — white pine needle blight; death of red pine, brown ash, and beech; and early coloration of hardwoods; may all be due to the drought in the past. Death of fir is another sample. Studies to learn exact causes are time-consuming but they are none-the-less needed to find possible protection measures for forest resources. More provision should be given for such studies. To guess at reasons due to lack of time and personnel will give no worthwhile benefits.

The department was fortunate to have Dr. Donald Welch, Forest Pathologist at Cornell University, for July 1954 to help in advising on disease problems. He worked in the field almost constantly with members of the Entomology Division. Major attention was given to the Dutch elm disease problem and methods of organizing control programs, and to red pine death, white pine death at Wiscasset, and the general pine needle blight, death of ash, and mistletoe on spruce.

Chestnut Blight (*Endothia parasitica*). **Test Plantings of Chinese Chestnut.** Scientists of the U. S. Department of Agriculture have succeeded in finding a form of the Chinese chestnut (*Castanea mollissima*) known as PI 58602. They believe it to be a good substitute for the American chestnut which has been nearly exterminated by the chestnut blight and asked the department to plant some as a test of its reaction to Maine conditions. Two small plantings each of 49 1-0 seedlings were made in 1952 in Albany on the White Mountain National Forest and in Liberty on the Lake St. George State Park. Two more plantings each of 49 2-0 seedlings were made in the spring of 1954 in Chesterville on the game management area of the State Department of Inland Fisheries and Game with the help of Howard Spencer, Game Biologist. Tabulation of these follows:

GROWTH AND MORTALITY OF CHINESE CHESTNUT SEEDLINGS

Plot No. and Location	Planted Spring of	Average Height Inches	Tallest Height Inches	Average Growth 1954 Inches	Percent Mortality through 1954
1C — Albany	1952	18.3	32	5.2	16
2C — Liberty	1952	32.1	89	10.8	16
3C — Chesterville	1954	16.8	35	—	29
4C — Chesterville	1954	16.0	28	—	16

(R. W. Nash — G. A. LaBonte)

Dutch Elm Disease (*Ceratostomella ulmi*). This disease continues to remain a serious threat to all elms. It is considered a fact that once the disease is found in an area it is practically impossible to completely eliminate it and the tabulations of results these past two years substantiate this fact. However, some practical control is possible by removing and spraying or burning dead and diseased elm for a distance of 500 feet from live trees.

During the year 1953, a total of thirteen suspected elm samples were collected and cultured. The results show three elms having (*Cephalosporium*) and three elms having Dutch elm disease. All of these diseased collections came from the town of York. In the year 1954 tabulations show eighteen collections taken for culture with results confirming ten Dutch elm diseased trees. The following table shows the summarization to date of collections made from suspected elms.

RESULTS

Year	Collections Cultured	Sterile	Cephalosporium	Dutch Elm Disease	Location		No. Removed
1952	21	9	0	12	York	11	2
					Kittery	1	
1953	13	7	3	3	York	3	1
1954	18	8	0	10	York Harbor	1	1
					Cape Neddick	2	2
					Kittery	1	1
					York	4	
					York Beach	1	
					Wells	1	1
Total	52	24	3	25		25	8

Currently the disease has only been found in York County in the extreme southwest corner of the state. Of more significance and concern, however, is the fact shown by the table, that the disease is spreading and is now as far north along the coast as the town of Wells. This spread of the disease which is familiar to patterns encountered in other states, makes it most difficult to know where the next outbreak will occur. Such a situation dictates the need of absolute and positive control measures.

In endeavoring to locate and retard the spread of the Dutch elm disease, continuous scouting was carried out in all southwestern areas of the state. Occasional checks were made along our western border as far north as Bethel. Because of the damage to the trees by the August and September hurricanes it was extremely difficult to rely upon usual visual symptoms for recognizing suspected diseased elms. In most instances, therefore, it was necessary to take collections for positive identification and as seen in the above table for the year 1954 these were nearly 60% correct. Inspections of all old trap log sites were made and no new ones were established since hurricane blow-downs will provide sufficient material for this purpose. In the fall of 1954 frequent inspections of this fallen elm wood were made to ascertain any build-up in bark beetle infestations.

Probable explanations of the spread of Dutch elm disease could include such factors as transportation of infested logs, road construction equipment and other vehicular traffic, and flights of the bark beetle aided by wind currents. All of these means of spread can to some extent be restricted with the exception of wind currents. With the occurrence of hurricane winds this past year it is possible we may experience outbreak spread of Dutch elm disease at even greater distances in the coming years.

The need of state legislation in some form becomes apparent if the fight against Dutch elm disease is to become successful. A diseased tree can be posted and the owner informed that it should be removed, but there is no means of effecting removal of this menace. Financial assistance from the state would undoubtedly result in the removal of more diseased trees. It is these diseased elm trees left standing which encourage the spread of Dutch elm disease. Of twenty-five diseased elm trees found and posted to date, only eight have actually been removed, and some of these belatedly. It is expected that other means such as arousing greater public interest through education to the real seriousness of the disease will result in more known diseased trees being removed.

Summarizing, during the two years covered by this biennial report thirteen Dutch elm diseased trees were found of which six have been removed. Continuous scouting was carried out in the southern and western sections of the state. In the fall of 1954 the state provided a vehicle to aid in this work. The disease is now well established in Maine and has currently spread north to the town of Wells. Preventive and control measures consisting of pruning and burning of diseased and dead elm wood, proper and timely spraying and fertilizing to maintain health and vigor of trees are advocated. To this end state legislation providing for possible removal by law of diseased trees and financial assistance would be beneficial. (J. H. Chadwick)

Dwarf or False Mistletoe (*Arceuthobium pusillum* Peck), first reported in 1871, has for the past several years gone beyond being a rather scarce and novel parasitic plant on spruce. With more abundance and spread on the immediate coast and coastal islands and with the increased use of wooded coastal areas as resorts, it has become an obnoxious pest ornamentally to the extent that control measures are important. Two unique features about the coastal infestations suggest possibility of a species or variety different from (*Arceuthobium pusillum*) which is thought to be the only one present in the eastern United States. That species is said to be abundant only on black spruce in acid bogs where trees grow poorly but only infrequent on red and white spruce. The coastal mistletoe is severe and abundant on white spruce and to a lesser extent on red spruce. Furthermore, it is common on young and vigorous spruce as well as slow-growing, old spruce. Within a quarter to half mile back from the coast it becomes exceedingly difficult to find.

Prevalence of cool fogs on the coast has been advanced as a reason

for mistletoe abundance but this hardly explains confinement of abundance to the immediate coast. There may be some connection with salt spray either on the trees or on the soil as predisposing white spruce in some way more than red spruce.

The small, greenish-brown, erect plants are found on older twigs of spruce and are from $1/8$ to $1/2$ inch long. Fruiting occurs in September. They cause excess branching of spruce resulting eventually in large "witches brooms" which spoil the trees ornamentally and finally cause death of trees. One heavily infested area is the Boothbay - Pemaquid region.

Inquiries and a visit with Dr. Welch, of Cornell, to the area have revealed that certain herbicides have been sprayed on trees with safety to the spruce and have killed the aerial parts of the mistletoe plants. This spraying was done in Utah, New Mexico, and Alberta. However, the haustoria or "roots" under the bark of the spruce remain alive and soon sprout new plants.

Until a better control method is found all that can be done is to lower mechanically seed abundance by felling large infested trees or removing "Witches brooms" and frequently pruning out new infections. Plantings or thinnings should favor red over white spruce. (R. W. Nash)

Leaf and Twig Diseases. During 1954 leaf diseases were very abundant on both forest and shade trees. High humidity favored multiplication and growth of fungi which became severe in some areas. Heavy browning of aspen leaves by the fungus (*Sclerotium bifrons*) occurred in the area from Portage to Presque Isle, in Allagash Plantation, and in T. 4, R. 13. An unidentified leaf disease attacked Balm-of-Gilead over a wide area of northern Maine, infecting as high as 70% of the leaves causing them to turn brown. A powdery mildew (*Phyllactinia*) was very heavy on white birch foliage in the area from Ashland to Allagash Plantation and eastward to Presque Isle. This caused early browning of as high as 50% of the foliage. The cedar leaf blight (*Keithia thugina*) was so abundant on arborvitae in the lower Allagash region that browning of the foliage was apparent over wide areas. A leaf blister (*Taphrina*) caused almost complete defoliation of maple shade trees in several sections of the state. Foliage turned black and fell from infected trees. Tar spot on maple was quite common. The poplar canker (*Dothichiza populea*) severely injured lombardy poplars in the state. Willows throughout most of the state

were heavily infected with the willow scab fungus which a number of years ago killed a great many willows. Rust diseases were quite abundant on ash, balsam fir, hawthorn, and red pine.

Miscellaneous Diseases. Dying of beech in the Greenville-Jackman areas was reported abundant in 1954 by Rangers Manning and Bullock. While the beech scale and *Nectria* is present and can account for some of it, there appear to be other factors not known at this time. Further investigation will be made in 1955 in company with federal forest pathologists.

Brown ash of various ages was reported dying in the Skowhegan region by Service Forester Robert Lawrence. The shoe-string fungus was found on too small a percentage of trees to be significant. Further investigation for the cause will be made.

Bleeding of White Pine. During 1953 and 1954 white pine trees were commonly noticed as having an excess amount of "bleeding." Oozing pitch on the outside of the tree dries, whitens, and becomes very noticeable. The condition varied from a few trees in a stand to practically all trees and occurred on trees of about all ages. Blister rust workers believe it not to be new but rather much more common lately.

There are evidently three conditions involved: (1) bleeding around branch stubs or scars or mechanical wounds, (2) bleeding which would seem to occur quite often in areas of smooth-bark changing to the normal ridge bark condition, and (3) bleeding for which we have found no cause.

The last condition occurs on trees of all ages and shows evidence of some happening of a wound nature. As each small wound heals from each side, a shallow pitch-pocket is left, which varies from $1/4$ to $1/2$ inch in width and $1/2$ inch in length. No permanent effect on the life of the trees has been noticed and unless the wounds get much more numerous it is not believed that they will be a serious problem due to their shallowness.

A somewhat similar condition with larger cracks occurring on spruce in England was studied and found to be due to drought injury. It occurred on older trees on poor sites. A further study of Maine conditions will be made and it seems possible that the cause of the injury will be found to be similar to that in England.

Climatic Factors — Wind Damage. In 1953 foliage of hardwood trees, either individually or in groups, was injured by what was believed to be high winds early in the foliage season. Maple especially

had thin leaves, torn, and desiccated. The new foliage put out retained its small size and juvenile, reddish-tinge well into or in some cases through the season to give trees an off-color. Beech leaves were sub-normal in abundance and size and were commonly browned around all edges or torn and brown. Birch leaves were also sparse and torn but not noticeably off-color. At a distance hardwood stands appeared to be experiencing or recovering from defoliation to the extent that they were visited in several cases to ascertain the cause responsible. Injury was noticeable over at least the southern half of the state.

1954 was a year of excess rainfall after many years of light to severe droughts. Hardwoods generally were off-color and yellowing or assuming fall coloration in August. This was perhaps best exemplified and at the earliest dates by the fall colorations of red maples.

In the fall of 1954 two severe hurricanes, Carol on August 31, and Edna on September 11, struck the state and did much damage to shade and ornamental trees. In general elms seemed to have suffered most due to their height and rather shallow root system. Injury to sugar maples seemed to be confined more to old, decaying trees. The damage emphasized the need of choosing lower trees and of keeping them in good condition. The very high winds accompanying hurricane Carol dried and tore the leaves of elm and birch through the storm area so that they were as crisp as in late fall particularly on the south and east sides. A rough estimate indicated that 1,600 elms were blown down which at a cost of \$100 per tree would amount to \$160,000 for removal. An added \$90,000 for pruning of broken limbs and supervision brings a total of \$250,000 storm damage to shade trees. The most serious and far reaching damage was the tremendous amount of dead and broken elm wood left by the storm. This made ideal breeding grounds for the elm bark beetles which carry the Dutch elm disease. Unless this can be cleaned up Maine can expect a big upswing in the intensity of this disease. Every effort is being made to get as much of this wood cleaned up and burned as quickly as possible. Considerable help is being given to cities and towns through federal disaster relief. Fifty-seven cities and towns have requested such aid (December 15, 1954).

Salt Spray Damage. Southeast and easterly winds of the 1954 hurricanes, particularly those of Carol on August 31, blew salty spray on to and severely browned many evergreens and deciduous trees and shrubs for a mile or more inland. This was most extensive in the southern end of the state. In fact, close to shore just about everything was brown from grass through to trees. White pine were strikingly browned, deciduous trees and shrubs were either totally browned or

defoliated to give a late fall appearance. Pitch, Scotch, and Mugho pines were quite resistant to browning as was spruce and Japanese yew. Some white pines were noted and tagged to follow through for determination of final damage.

By October foliage of affected white pine had fallen to considerable extent; occasionally branch tips were dry, but for the most part buds were still green. Many trees and shrubs — elm, locust, apple, lilac, barberry, syringa, wild rose, and others — were exhibiting the unusual late condition of putting out new foliage on defoliated branches.

It had been noted for a number of years that there was very little white pine on the points of land extending out into the ocean which might feel the effects of salt spray in storms. A short distance inland on almost identical sites, often on shallow, ledgy soil, white pine is found. In order to check on the reason, white pine was planted by Mr. Alles at Pemaquid Point in 1953 in cooperation with the department. During the summer salt spray browned most of the trees. In the spring of 1954 additional white pine were planted which did well until the September hurricanes. The trees were examined in October and all but one had been severely browned. This one tree was protected by a high stump from the ocean spray. Most of the trees were in a dying condition. The results of these two experiments would make it seem advisable not to plant white pine close to the shore. Spruce seems relatively immune to spray damage.

Red Pine Death. Death of appreciable groups of red pine in a plantation of approximately fifteen years age in the Kennebec Water District, in Waterville, was reported in September 1952 by Service Forester Robert Lawrence. Inspection showed no evidence of fungus or insect as the cause. The trees had been riddled very abundantly by bark beetles (*Ips Pini*) but these were believed to be secondary. Very few bark beetles in any stage were present and with slight exception trees were either dead or unattacked. The exception was that a very few living trees did have longitudinal streaks, sometimes spiraling, in which bark was dead and bark beetles had bred. Experience with other bark beetles of even secondary types which attempt attack on adjacent living material has readily shown small, circular, incipient holes in the bark from which resin has exuded noticeably. None of these were found. The only explanation we could give was drought conditions aggravated by a ledgy, shallow-soiled site on which all dead trees occurred. Off the ledge, trees were normal. Groups of dead trees were spotty, followed areas of ledge, and were not at all regular

or circular in outline. One feature, however, leaving some doubt as to extreme dryness being the cause, was that the final year's terminal or shoot growth was such as to be considered good and practically as good as on uninjured trees. Wood growth was good and quite regular although some showed a slight reduction a year before death. There were three trees living but having short terminal growth. Death of trees apparently took place at about the same time and suddenly. Condition of the trees made it appear that death occurred some time after the 1951 growth was completed but it could have happened after completion of the 1952 growth. Scarcity of bark beetle stages indicated 1951 death but smallness of wood-boring grubs 1952 death. Weather in 1952 was quite wet in the spring but by August it was severely dry.

Lightning as a cause was ruled out. No trees or ground areas could be found to indicate it and the very irregular pattern of the killed area did not fit lightning injury.

All dead trees were spotted with paint and no additional tree death had occurred to August 1954.

In 1953 in the Troy Town Forest, and 1954 on Augusta Water District land at Readfield, death of red pine in 16-year and 25-year old plantations respectively were reported by Service Foresters Lawrence and Adams. Inspection showed all characteristics as discussed above including death in irregular patches over ledgy areas. A very few trees with dead tops but living lower whorls led to the conclusion that death occurred after the 1952 growth was completed. The live parts had short 1953 growth. One group of trees at Troy exhibited very short internodal growth for 1953.

Dr. D. S. Welch, Forest Pathologist of Cornell University, examined all areas in 1954 and could find no evidence of a parasitic fungus present. Those saprophytic ones present indicated trees had died at the same approximate time. His conclusion was that an adverse environmental factor or series of such may be involved. The ledges suggest a possible connection but the relationship is not clear and suggests the need of excavating to determine depth and direction of slope of the rock and to examine roots. Dr. Welch further stated that red pine "is said to tolerate dry sites, consisting of porous, sandy, well-drained soil and dry sites over rock ledge, hardpan, or clay. The dying of Norway pine on 'wet sites' over hardpan, recently described from New York State, is different in appearance from the dying in Maine, but the New York studies show that the shallow root systems, developed

over hardpan which impedes drainage, will not maintain that species very long after it reaches 15 to 25 years of age." (R. W. Nash)

White Pine Needle Blight. During early July of 1954 severe and widespread browning of new growth pine needles occurred throughout southern and central Maine. The needles turned color before they were half grown so remained short. In many cases almost entire trees were browned. This condition caused widespread concern. It occurred in several other New England States and New York. Dr. Welch spent some time on this. In general those trees most affected were on dry sites such as sand, sandy loam, or thin soil over ledges. A chemical analysis made at the Maine Agricultural Experiment Station showed a deficiency of potassium and magnesium in the browned needles.

ANALYSIS OF NEEDLES IN PERCENT

	Moisture	Ether Extract	Ash	Nitrogen	Phosphorus	Calcium	Magnesium	Potassium
Healthy	10.10	6.89	2.28	1.70	0.235	0.267	0.139	0.631
Blighted	10.41	5.51	1.80	1.47	0.213	0.213	0.096	0.448

An examination of roots showed many had died apparently from previous drought. The rainy season of this year apparently forced growth beyond the ability of the weakened root system to supply necessary food elements. Some trees have been tagged for further observation and some were fed.

Insects and other Pests found in Buildings. During the past two years many requests for help have been received in regard to pests in homes and other types of buildings. Most of these requests concern the more common household pests such as flies, carpet beetles, clothes moths, and insects invading the pantry, etc. Occasionally, however, homes and buildings are invaded by less common pests. In line with this, although not actually found in a home, were the first specimens of black widow spiders found in Maine. This spider is ordinarily connected with warmer climates although an occasional specimen is found as far north as Massachusetts. A man was severely bitten by a spider while handling baled cotton in Augusta. Many homes are invaded by insects which do not cause any damage in the home, but merely make themselves obnoxious by their presence. Among these are elm leaf beetles, strawberry root weevils, snow fleas or springtails, wasps and bees, and one that is relatively new to Maine -- the European earwig. The latter is a particularly ferocious looking insect which loves damp-

ness and often enters homes in search of such places. Several reports were received from southern Maine in 1954 in regard to this insect. Information concerning the eradication of other pests besides insects and spiders, such as rats, squirrels, and bats which have invaded camps and homes is often requested.

The following is a list of the more common pests reported invading buildings:

1953-1954

Pests Troublesome in Household and to Stored Products	Locality Affected or Reported	Infestation	
		Status	Type of Danger
Ants (house) (Several species)	General	Common	In houses
Bats	Wayne, Rome	Common	In camps and buildings
Bean Weevil (<i>Acanthoscelides obtectus</i>)	Mostly south-central Maine	Common	Injury to dry beans
Bed Bugs	General	Occasional	Bites humans
Bees	Gardiner	Occasional	In house
Black Carpenter Ant (<i>Camponotus herculeanus pennsylvanicus</i>)	General	Common	Tunneling and destruction of building timbers
Burrowing Bug (<i>Shivus cinctus</i>)	Mostly southern Maine	Common	
Carpet Beetles (2 species)	Skowhegan	Rare	In old logging camp
Clothes Moths	General	Common	Destruction of woolen goods
Cockroaches	General	Common	Destruction of woolen goods
Crickets	Lewiston	Occasional	Attracted to food wastes in cellar
Dried Fruit Beetle (<i>Carpophilus hemipterus</i>)	Dryden	Rare	
Elm Flea Beetle	Bridgton	Occasional	In homes
Elm Leaf Beetle	General	Common	In homes
European Earwigs	Southern Maine Bar Harbor	Occasional	Invading homes
Fleas (Cat and Dog)	General	Common	On animals and humans
Hairy Fungus Beetle	West Gardiner	Rare	Breeding in grain in barn
Hornets	Augusta	Occasional	In home
House Centipede	Portland	Occasional	In homes
House Flies	General	Common	In homes
Indian Meal Moths	Portland, Augusta	Common	In homes
Larder Beetles	Augusta, Greenville	Common	In homes
Lice (Crab)	Belgrade	Occasional	On humans
Mites Bird Clover	General	Common	In homes
Powder Post Beetles	Mostly central and southern Maine	Common	Tunneling and destruction of timbers, furniture, and wood products
Pseudo Scorpion	South Berwick	Rare	In house
Psocids	Jefferson	Occasional	
Saw-toothed Grain Beetle (<i>Oryzaephilus surinamensis</i>)	Augusta	Common	In homes
Silver-fish	Augusta, Lewiston Hallowell	Common	In homes and buildings feeding on starched paper and cloth goods
Spider (<i>Agalenopsis</i>)	Augusta	Rare	Bit man handling stored cotton
Spider Beetles	Lewiston	Rare	Attacks books
Spider (Black Widow)	Gorham	Rare (1st found in Maine)	In garden
Springtails	Portland, Farmingdale	Occasional	In homes
Squirrels	Wayne	Occasional	In camp
Strawberry Root Weevil	Central and coastal Maine	Common	In homes
Ticks	Southern Maine	Occasional	On animals
Wasps	Southern Maine	Common	In homes
Woodborers	Augusta	Rare	Emerging from house five years old

(C. S. Hood)

Mosquito and Fly Control. The interest in control of mosquitoes, black flies, and green-head flies increases each year. An effort is made to keep informed on latest developments in control so as to outline projects for interested groups. Although most of the mosquito control work is along the coastal areas there was call for assistance around inland lakes. The gypsy moth spray project did much to abate the mosquito nuisance around lake shores. Our portable wheelbarrow mist blower was used at Baxter State Park for black fly control but results were only temporary as it was not possible to spray the streams that were being used for drinking water. Plaster of Paris blocks saturated with DDT were tried by one of the pulp companies. If placed in the streams early in the spring fairly good results can be obtained. It is hoped to experiment further with these as reducing black flies around summer logging operations should prove of economic value. Some assistance was given in outlining two green-head fly spray projects on the coast. In control of these three out-of-door pests spraying by planes give the most satisfactory control as the spray can be put where it will do the most good.

A new repellent was tried at Reid State Park against mosquitoes and green-head flies. This was supplied by the Whitmire Research Laboratories, Inc., of St. Louis, Missouri. It was furnished in the nature of an aerosol bomb and proved quite effective. It goes under the name "Ticks-off."

Shade Tree Protection. Yearly increases in inquiries on shade tree problems made it desirable in 1951 to set up within the Entomology Division the position of a shade tree specialist. In addition to scouting for outbreaks and spread of tree diseases, it is part of his job to make recommendations and to render assistance to communities setting up programs for the improvement and protection of shade trees. Shade tree programs are organized on a long range basis and are sub-divided into yearly projects which make it financially feasible for even the smaller communities to foster them. It is emphasized that better results can be expected if definite responsibility for administration of the program is delegated to a committee or tree warden.

Other duties of the shade tree specialist include administering state tree surgery examinations as well as inspecting tree surgery work being done in the state. To increase the public interest in shade trees, talks are given to civic clubs and organizations, and discussions are held with community officials. The public is further informed and educated

through such media as exhibits, TV, radio, and newspaper releases, and by issuing entomological bulletins and notices.

A shade tree exhibit designed by Division personnel and titled "Tale of Two Towns" was used extensively in many towns and fairs. This exhibit portrayed in miniature the good and poor tree practices of two neighboring towns. It attracted much interest and comment.

As a result of extensive hurricane damage to trees in August and September 1954, federal disaster relief was made available to states and towns to help them financially. It included removing and cleaning up storm-damaged trees. At least 56 towns have already made application for assistance and others have been urged by letter to submit applications. Many Maine communities suffered heavy losses due to these 1954 hurricanes, and many so-called "hangers" left in the trees become physical hazards as well as good breeding wood, in the case of elm trees, for bark beetles which carry the Dutch elm disease.

In 1953 a shade tree program was completed for the Bridgton area. The state has already completed similar projects in a number of towns and several others have requested such projects.

Tree Surgery. In January 1955, there were 140 licensed tree men in the state. This is a drop of 16 over 1951. Most of these licensed men have workers under them. The tree surgery act which has been in effect since 1933 has done much to raise the standard of work in Maine and has given private owners more confidence in tree protection work which was at a very low ebb when the law was passed. It calls for the examination and licensing of men doing this type of work. Utility companies, such as power and telephone, and municipalities have cooperated by having their line clearance and tree work done by licensed men. This has done much to improve public relations. In 1953 sixteen took the examination. In 1954 two examinations were held, fifteen taking them in March and fourteen in December. These examinations cover spraying, pruning, planting, feeding, bracing, tree identification, and cavity work.

Following the August and September 1954 hurricanes there was a great upsurge in the need for tree work and a number of complaints were carefully examined. In practically every case work being done was removal of trees which does not require a license. In a few cases work was being done by men who did not know of the law but who were very cooperative in stopping such work immediately. The situation was rapidly cleared up. Dr. F. H. Steinmetz retired as a member

of the tree Surgery Board in 1954. Professor J. E. Livingston, of the University of Maine, was appointed to succeed him.

The Maine Arborists Association held its annual meeting in Augusta in March 1954 with fifty members and guests present. An educational program of speakers and moving pictures was held after the dinner banquet.

Publications

1. Compatibility insecticide Chart, Mimeographed, March 1953.
2. Three New Species of Microlepidoptera, by A. E. Brower, *Annals Entomological Society of America*, Vol. 46, No. 1, pp. 95-98, March 1953.
3. Poison Ivy, mimeographed, April 1953.
4. The Spruce Budworm in Maine in 1953. Joint report, Maine Forest Service and USDA
5. Forest Insect Notes, No. 1 — Feb. 1953, No. 2 — July 1953, and No. 3 — Nov. 1953.
6. Protection of Logs and Round-edge Planking from Wood Borers by Benzene Hexachloride Sprays 1953, by R. W. Nash, Mimeographed pp. 1-4, April, 1954.
7. Carpet Beetles, mimeographed, May 1954.
8. White Pine Blight, mimeographed, August 1954.
9. Dutch Elm Disease, mimeographed, September 1954.
10. Maine's Forest Pest Program, by H. B. Peirson. Article in *Maine Forester* 1954, pp. 43-47.
11. Tests to Determine the Effects on Gypsy Moth Eggs by Submergence Under Water, by Horace Bell. *American Pulpwood Association*, Release No. 208, October 1954.
12. The Spruce Budworm in Maine in 1954 and Results of the Madawaska Lake Spraying Project. Joint Report, Maine Forest Service and USDA.
13. Forest Insect Notes, No. 1 — April 1954, No. 2 — May 1954, No. 3 — July 1954, and No. 4 — August 1954.
14. Forest Insect Survey Procedures in Maine, H. B. Peirson; *Cooperative Economic Insect Report*, USDA, Vol. 5, No. 3, pp. 50-51, January 1955.
15. Control of Forest Insects in Maine, H. B. Peirson. *The Northeastern Logger*, March, 1955, pp. 12-13.

WHITE PINE BLISTER RUST CONTROL

Introduction. Blister rust disease of white pine has been recognized as a problem requiring organized control measures since it became established in the Northeast. Since 1917, the State of Maine, in cooperation with the United States Department of Agriculture, has been working with towns and individual pine owners to control this disease.

White pine is predominant on approximately one million acres of land within the state. Its economic importance justifies control measures.

Nature of the Disease. Accidentally introduced into this country at the turn of the century, this fungus disease spread rapidly throughout the white pine region of the Northeast. This condition was brought about through natural occurrence of the two host plants, white pine, and all varieties of currant and gooseberry plants, botanically known as *Ribes*. The disease occurs alternately on white pine and *Ribes* and is transmitted by wind-borne spores from one host to the other. It cannot be carried from one pine to another. Therefore, control can be established by removing the *Ribes*, both wild and cultivated, from pine areas and their limited protection borders. Under average conditions, spores developed on *Ribes* are seldom effective in establishing disease in the pines beyond a few hundred feet from their source. Because of this factor, it is possible to protect white pine from extensive damage.

While the disease affects white pine of all ages, it is especially destructive to young growth. Areas of young growth, therefore, are given first consideration in control programs.

Control Methods. Before the work of removing *Ribes* is started, maps must be prepared showing location and extent of white pine areas justifying protection. Protection zones or border strips must be indicated to limit the extent of work necessary for adequate protection.

Re-mapping of control areas is often necessary to record changes in pine growth and protection boundaries brought about through harvesting, new areas of reproduction, fire, blow-down, etc. Much of the area examined has been mapped by aerial photographs. These were used by eradication crews and scouts to carry out needed control measures. Thousands of acres of land have been eliminated from control work at a very low cost per acre by the use of these photo-

graphs. Special qualifications and training are required to do mapping. Men assigned to this work are under the direct supervision of technically trained district leaders who are federal employees of the U. S. Department of Agriculture. Additional labor was hired on a seasonal basis to carry out control work during the eradication season. Town funds were matched during the biennium by state and federal funds.

Ribes Eradication. The control areas are first examined by trained scouts to determine where crew work is needed. Scattered Ribes were removed in the process of these examinations and areas requiring crew work were marked on the maps and then turned over to crew foremen who completed the job. Many areas require examination to remove Ribes developing from seedlings, broken roots, etc., within a few years after first workings. Surveys were made to locate new pine areas needing protection and to discontinue others because of reduced pine stocking, resulting from harvesting, blow-down, fire, etc. Any disturbances to the forest soil tend to encourage regrowth of Ribes from dormant seed.

Chemical Eradication. The use of chemicals for eradication of Ribes has increased during the last two years. While methods of application and types of equipment, best suited to the needs, are still in the experimental stage, the chemical used (2, 4, 5-T a selective killer) has proven to be effective. In addition to savings in man days of labor, areas treated by this chemical show no signs of reoccurring Ribes either from sprout or seedling growth. Efforts to improve and increase chemical treatment of Ribes will be made in the future programs. This should result in savings of time and expense.

When Ribes are reduced to an average of less than four bushes per acre, the areas are placed on a maintenance basis. Examinations on a 5 to 10-year interval are generally all that is required to maintain commercial protection of pine on such areas. This is the ultimate goal of the blister rust control program.

Cooperative Control. The federal government provides funds for salary and expenses of the Area Leader and 3 District Leaders, field supplies, transportation of field workers, and for hire of seasonal labor. State funds were supplied to employ mappers and scouts and to supplement federal funds for matching town expenditures. The state also provides office space, a part-time clerk, and telephone service for the Area Leader at Augusta.

District Leaders inform selectmen and other interested people on control needs for each town. Based on District Leaders' recommendations, the Forest Commissioner urges that towns appropriate funds to carry out their share of the program. During the biennial period, an appropriation of \$1,400 was provided through the Oxford County Commissioners for work in unorganized towns where work was badly needed. This action established a precedent which may well be followed by other counties. In order to get areas on a maintenance basis, it is necessary that funds be appropriated by political sub-divisions over a period of years to provide funds for mapping of white pine areas and protection zones, inspection, and eradication. On January 1, 1954, the federal White Pine Blister Rust project was transferred to the U. S. Forest Service of the Department of Agriculture. Regional headquarters are at Upper Darby, Pennsylvania. Maine and New Hampshire are included in Area 1 of the Blister Rust Division in Region 7 of the Forest Service. Mr. Paul H. Simmonds, Area Leader, with headquarters in Augusta, is responsible for coordination and general supervision of the project, and H. G. Bradbury, M. G. Calderara, and J. B. Pike, Jr., three federally-employed District Leaders, are responsible for control work within their districts. One mapper was employed in the Bridgton and Belfast Districts during the biennial period. Two mappers were employed in the Auburn District on a seasonal basis. Additional local labor was hired on a seasonal or part-time basis, for the most part from town funds.

At the close of the 1954 season, the status of control was as follows:

White pine area	897,786 Acres
Total control area (including pine and protection zones)	2,269,658 Acres
Control area worked once	2,159,726 Acres
Control area worked twice	1,538,428 Acres
Control area worked three times	495,870 Acres
Control area now on maintenance	1,514,712 Acres

Program Accomplishments. Following is a summary of accomplishments during the seasons from October 1, 1952 to September 30, 1954:

CONTROL AREA EXAMINATION AND MAPPING

	1952-53	1953-54	Total
Control area examination	118,619 Acres	139,761 Acres	258,380
Initially Mapped	17,090 Acres	15,932 Acres	33,022
Re-mapped	58,182 Acres	112,596 Acres	170,778
Examined outside of control area	144,883 Acres	140,975 Acres	285,858
Man days of employment			
State	477	696	1,173
Federal	225½	148	373½
Total man days	702½	844	1,546½

Eradication			
Original eradication	10,028 Acres	7,003 Acres	17,031
Follow-up eradication	71,126 Acres	56,031 Acres	127,157
Subsequent eradication	86,386 Acres	66,523 Acres	152,909
Maintenance area examined*	31,205 Acres	74,332 Acres	105,537
Maintenance area worked	651 Acres	102 Acres	753
Number of Ribes removed (all stages)	589,708	387,696	977,404
Number of man days worked			
State and towns	3,030½	2,042	5,072½
Federal	791	287	1,078
Total man days	3,821½	2,329	6,150½

* To determine need for Ribes eradication. There is much to be done to bring uncontrolled areas up to a maintenance basis.

**SUMMARY OF COOPERATIVE EXPENDITURES
JANUARY 1, 1953 THROUGH DECEMBER 31, 1954**

Source	1953	1954	Total
State.....	\$13,644.79	\$14,333.69	\$ 27,978.48
Federal*.....	33,436.00	27,533.00	60,969.00
Town.....	17,854.57	11,179.10	29,033.67
County.....	101.30	466.70	568.00
Private.....	12.00	—	12.00
	<u>\$65,048.66</u>	<u>\$53,512.49</u>	<u>\$118,561.15</u>

* Includes salaries, expenses for technical supervision and funds for control work.

Program Highlights. During the biennial period, federal administration of the program was transferred to the U. S. Forest Service with no change in personnel assigned to the project in Maine.

A new memorandum of understanding was drawn up between the Maine Forest Service and the U. S. Forest Service acting as agencies for the state and federal governments.

Town appropriations were above the previous biennium — in 1951–52 they amounted to \$32,950; in 1953–54 they totalled \$35,234.

Control costs were reduced through use of chemicals applied to heavy Ribes concentration.

The over-all program resulted in the following accomplishments:

1. Reduction of net control area by 231,119 acres.
2. Original eradication increased from 94% to 95.1% of established net control.
3. Follow-up eradication increased from 59.2% to 67.7% of established net control.
4. Acreage on maintenance increased from 47.4% to 66.7% of established net control.

SERVICE FARM FORESTRY**W. Robert Dinneen, Supervisor**

Farm forestry is conducted under a cooperative agreement between the Forest Commissioner and the U. S. Forest Service of the Department of Agriculture.

The purpose of this cooperative program is to provide specific in-the-woods assistance to the small woodland owner. Working with the owners, the farm forester assists in marking the trees to be cut and in marketing of the timber. When requested or advisable, a management plan for an area is made covering all phases of handling woodlands according to good forestry practices. Information on planting, thinning, protection from insects, fire, and grazing are included in the management plan.

This is essentially a service program and the major portion of the foresters' time is spent in the field servicing requests for woodland assistance. The office of each forester is maintained at his home and the heat, light, and space is furnished at no cost to the state. In addition, all clerical work is performed by the foresters themselves. Because of this arrangement, almost 100% of their work is in the field on direct forestry promotion.

Personnel. During this period, the following personnel changes occurred: Joseph Lupsha replaced Edwin Gerry at Island Falls for Aroostook County; Edwin R. Grove, Jr. replaced Harold Kilbreth, Jr. at Machias for Washington County. On September 1, 1953, Blynn Merrill was employed to be forester for the Dover-Foxcroft area, thus filling in a blank spot on our statewide coverage. On September 27, 1954, Robert Locke was employed as forester for northern Aroostook County, thus dividing this large territory into two sections that can be more adequately handled.

Below are listed the names and addresses of the farm foresters and the names of their project areas:

York County Project — Richard W. Arsenault, 6 West Elm Street, Sanford, Maine

Piscataquis Project — Blynn Merrill, 115-8 Lincoln Street, Dover-Foxcroft, Maine

Cumberland County Project — Stephen Orach, RFD 2, Gorham, Maine

Androscoggin Project — Sumner Burgess, Box 308, Dixfield, Maine

Kennebec Project — William J. Adams, Box 22, Readfield, Maine

Skowhegan Project — Robert Lawrence, RFD 3, Skowhegan, Maine

Northern Aroostook Project — Robert Locke, RFD 2, Limestone Rd.,
Caribou, Maine

Rockland Project — Robert Umberger, Box 161, West Rockport, Maine

Penobscot Project — Elwin Macomber, RFD 5, Brewer, Maine

Washington Project — Edwin R. Grove, Jr., Box 177, East Machias,
Maine

Southern Aroostook Project — Joseph Lupsha, Box 13, Island Falls,
Maine

Training. Farm foresters must be graduates of a four-year college course in forestry. Farm foresters require additional training to acquaint them with local conditions, tree species, logging methods and practice, markets, and timber marking principles adapted to their districts.

During the last biennium, training schools were held each summer and winter. The results of this training were evident in the quality and quantity of the work accomplishments. A school was held by the U. S. Forest Service to train the foresters for their work in the Timber Resource Review, a survey made nationally by the U. S. Forest Service in cooperation with industries and the State Forest Services.

A Farm Forester's Handbook was compiled during this period. The purpose was to get as much pertinent field and office data under one cover for easy reference. New information is constantly being added. This data has been made available to private foresters working with the small woodland owner.

The supervisor checks the work of the foresters in the field and aids them when special problems arise.

In October 1954, Bridgton, Maine was chosen to be the site for the first training meeting for farm forestry supervisors in the United States. This meeting was sponsored by the U. S. Forest Service. Supervisory personnel from the fourteen states of Region 7, from Maine to Kentucky, participated in this meeting.

Cooperation. The task of promoting and improving forest management practices on private woodlands is so large that the cooperation of all government and private agencies working with the landowner is necessary to accomplish maximum results. A number of agencies are interested in the farm forestry program, so it is advisable that there be coordination and uniformity of recommendations and procedures.

The service forester works with the Extension Service, Soil Conservation Service, Agricultural Stabilization and Conservation Program, Farmers Home Administration, and the Fish and Game Department. These agencies cooperate with farm and woodland owners in education and training, farm planning, and financial assistance. Service foresters provide the clients of these agencies with a program of woodland management and marketing. The service forestry program has been greatly aided by cooperating agencies through the furnishing of names of those interested in obtaining woodland advice.

The service forester cooperates in the Keep Maine Green and the Tree Farm Programs. They participate in Keep Maine Green meetings, and encourage fire prevention in all of their contacts. Most of the woodland owners who have been awarded Tree Farm certificates are cooperators of the farm foresters.

The foresters also cooperate with Civil Defense.

Service foresters took an active part in the Boy Scout conservation program in 1954. They gave technical management information at conservation schools, conducted at three of the Boy Scout camps in the state. Forestry talks were given at several boys and girls camps; informing these youth groups should provide a better informed public in forest problems and programs.

Public Relations. An informed public is important to the success of any program. During the past year the service foresters contributed 54 articles to local newspapers on accomplishments in their areas. During this same period they have attended and participated in forestry talks and discussions at 202 meetings, at which time they have promoted good cutting practices, conservation, and forest fire protection. They have participated in radio and TV programs.

During this biennium, a town-owned land survey was completed and published. This gives land and woodland owned by each town, by counties, and by various types of use and acquisitions. The survey fills a long existing need.

A forest management folder was printed, giving information on the purpose of the program and how it can aid the small woodland owner with his problems of management and marketing.

The farm foresters cooperated with the U. S. Forest Service in the Timber Resource Review. This portion of the survey was Task VIII which checked the reproductivity on recently cut lands. 259 days were spent on this survey.

During the fall of 1953, a partial census of Christmas trees shipped out of Maine by railroads was made by the foresters. It was a preliminary project to check the need for and the amount of work necessary for a more complete census of this product of our forests. A more detailed census of the 1954 cut gave the following information:

193,764 bundles of Christmas trees
160,391 Wreaths
2,403 Bundles fir boughs (50 lbs. each)

During the past two years, an outstanding accomplishment was the cooperative pulpwood agreements. These agreements provide markets for Maine Forest Service woodland management cooperators for the pulpwood removed from their land according to the recommendations and marking of the service forester. In the 1951-1952 biennial report of the service forestry program, it was noted a start had been made in this direction and it was hoped that more pulp companies would become interested. The idea has progressed beyond being just a hope. It is now a reality.

There are now agreements with seven pulpwood companies for the purchase of all marked wood produced by the woodland owners in their territories. The companies have made a major contribution to the success of forestry by helping to promote cutting practices on small woodlands in Maine.

This approach has been adopted by a consulting forester and is now being considered in other states with farm forestry programs.

Conclusion. The service forestry program is well under way. The principal needs during the immediate period ahead are to continue the work on going projects by:

1. Increasing the number of cooperators cutting their timber on a marked basis.

2. Encouraging markets for cooperators products, such as pulpwood agreements and markets for normally unused materials such as waste.
3. Working out methods of planting trees on unforested areas, such as tree planting machines.
4. Taking Christmas tree census in order to follow the trends in sales of Maine trees just as is done with other forest products. Encouraging Christmas tree culture to provide high grade trees to meet competition of other areas.
5. Encouraging the development of maple sugar bushes in suitable areas.
6. Continuing to work with youth groups interested in forestry.
7. Teaching of forest conservation in public schools would be beneficial to the program and to forestry.
8. Cooperating in exhibits and displays in order to bring out the need for both management and protection.

ACCOMPLISHMENT REPORT — SERVICE FORESTRY PROJECT — MAINE FOREST SERVICE

January 1, 1953 to December 31, 1954

Project Name	Landowners Given Management Assistance	Forest Products Operators Advised	Unserviced Requests 12-31-54	Acres Woodland	Timber Marked for Cutting			Volume Harvested MBF	Acres Harvested	Stumpage Returned	Gross Returns Stumpage and Labor	Man Months Project Operated
					MBF	Cords	Acres					
Androscoggin . . .	458	21	50	13,242	4,517	2,353	1,276	4,123	5,037	\$120,470	\$158,015	24
So. Aroostook . . .	403	4	77	8,862	179	1,504	403	778	519	7,081	23,668	24
No. Aroostook . . .	—	—	57	—	—	—	—	—	—	—	—	3
Augusta	322	7	23	9,392	1,649	1,409	765	1,047	1,240	30,953	45,489	24
Cumberland	419	21	11	10,682	5,049	3,707	1,809	3,419	3,811	75,304	115,783	24
Penobscot	319	6	2	16,550	1,150	4,290	1,330	2,145	1,590	35,985	73,700	24
Piscataquis	308	8	2	13,316	489	4,421	1,692	1,590	1,717	19,219	60,972	16
Rockland	356	48	9	11,113	1,825	1,847	960	925	944	13,755	24,827	24
Skowhegan	478	39	33	14,771	2,877	1,910	1,029	2,083	1,818	41,375	51,414	24
York	346	9	99	10,073	2,732	1,286	643	2,405	1,222	59,472	68,842	24
Washington	319	10	34	14,265	120	1,568	373	331	287	5,303	34,764	22
Totals	3,728	173	397	122,266	20,811	24,295	10,280	18,846	18,185	\$409,287	\$657,474	

STATE FOREST TREE NURSERY

The State Forest Nursery has continued its intensive use of all suitable land area on the two acres available at the main nursery site. This area is located on the west bank of the Stillwater River at the University of Maine campus in Orono. The additional two-acre area at the annex in Stillwater has also been used intensively for both seed beds and transplanted stock.

Production of seedling stock in the classes 2-0 and 3-0 is increasing over transplants. This has helped meet the increased demand for more trees to reforest land in the State of Maine.

A limited supply of transplant stock will continue to be made available. This will be allotted for use on planting sites which are not suited to seedlings.

Methods are being carried out to bring about the development of a larger and better seedling with more roots and a heavier stem. This is very important because of the need for sturdier plants to be used with mechanical tree planters. These machines have cut the cost by planting up to 1,000 trees per hour under good field conditions here in Maine.

Site Development. With the assistance and expert advice of the Soil Conservation officials headed by Mr. W. B. Oliver, State Conservationist, several contour drainages and erosion control structures were established which have proven valuable in the better use of the main nursery site. Underground soil drainage pipes were laid in low areas, which has made additional ground surface usable at both the main nursery and the annex.

Nursery Operations. The use of Savosol as a spray for weed control has proven effective to reduce the labor cost of hand weeding. Sawdust has been applied on paths and one year old seed beds to hold down early weed growth. This use of sawdust fits in well with its general application for adding organic matter to improve soil in the nurseries.

During the school year labor is drawn for the most part from the University of Maine students majoring in forestry and wildlife. Over 2,000 man hours were worked in 1954 by these students. Those on the payroll received the regular student wage rate. The State Forest

Nursery has been glad to cooperate with the University of Maine student labor program, thus providing an opportunity for students to earn money in their spare time. In the summer local high school boys have been used to carry the work load. During the rush season in the spring of 1953 and 1954 timely assistance was given by the Maine Forest Service fire warden force, which made it possible to complete the lifting and transplanting work.

Tree Species. White pine continued to be the most popular specie with Norway (red) pine followed by white spruce for reforestation. Some Norway spruce and small quantities of balsam fir, Scotch pine, jack pine, larch, and a few other species have been produced on an experimental basis to study their suitability in our soil and climate. All trees produced have been for reforestation purposes or the protection of the soil and windbreaks.

The demand for trees from the farm owners in the State of Maine has been met.

Distribution of trees from the State Forest Nursery has risen steadily since 1948 from less than 200,000 to more than half a million trees in 1954.

TREE DISTRIBUTION

Calendar Year Period	White Pine	Norway Pine	White Spruce	Norway Spruce	Other Species	Totals
1953 Spring	230,250	177,050	63,200	68,500	1,500 B.F. 1,500 D.F. 50 Hem.	
Fall	4,600	100	..	500	1,000 Mx. Spr. Wldg. ..	643,050 5,200
	234,850	177,150	63,200	69,000	4,050	648,250
1954 Spring	227,800	231,450	122,675	9,850	1,000 J. Pine 13,000 Larch	605,775 34,200
Fall	21,000	2,150	11,000	50	..	
	248,800	233,600	133,675	9,900	14,000	639,975

A new method of nursery tree stock distribution was tried during the spring seasons of 1953 and 1954. This involved the establishment of a "distribution center."

From Alfred, Service Foresters Richard Arsenault and Stephen Orach assisted in the distribution for Cumberland and York Counties. From Augusta, Service Forester William J. Adams took charge of nearby deliveries in his district. Deliveries were made through the Franklin - Oxford County area under the jurisdiction of Service

Forester Sumner Burgess, of Dixfield. This was a combination trip to a distribution center at Dixfield plus direct deliveries to customers through western Oxford County.

This service was provided at a cost of .60 per thousand trees. It reduced labor and other costs of packaging at the nursery for shipments necessary when trees are sent by railway or truck express. Trees were found to be in better condition on arrival at their destination.

This procedure was so successful that it will be used in other areas in the state in 1955 wherever it is possible to effect a saving to our customers.

New Equipment. A small 4-wheel Garden-Master tractor was purchased in the spring of 1954 to speed up transplanting. By use of proper wheel spacing and control of the plow-beam, long rows are possible. This mechanization tripled the number of trees planted per hour over all hand transplanting as done heretofore.

Such lining out also permits cultivation with this tractor unit during the summer growing season and reduces our labor costs on weeding time over previous years.

Another important addition has been the purchase of a freezer chest to store tree seed. This should extend the viability of seed when kept for several years. It will permit accumulation during good seed crop years of important seed needs.

It is hoped that experimentation with the zero compartment for processing as a substitute for stratification of seed will give better germination results.

Future Plans. Plans are being studied and specifications drawn up for a cold storage room to hold seedlings dormant throughout the winter and early spring seasons. Such an installation will permit early distribution of tree planting stock to areas in the state which are ready for spring planting before trees can be lifted at the nursery and provide better distribution of the nursery work load.

Nursery production of three-fourths to one million trees for field planting annually is the goal being sought. Careful use of fertilizers, addition of organic materials such as sawdust and compost, and cover cropping on rotation should help reach this goal.

Development of our own source of seed in Maine as a need was agreed upon at a conference of the Maine service foresters held at the

Orono nursery in June 1954. Through cooperation of service foresters, fire wardens, and other personnel, Maine seed collection seems possible in the near future.

Visitors to the nursery have increased. Not only do many customers call for their trees, but the nursery has been host to several groups of Maine children and other organizations in the past two years. The 4-H Club summer groups at the University spent a day at the nursery in 1953. The spring of 1953 saw the initial visit of a group of over 70 fifth grade school children from the Orono elementary school under the guidance of their principal, Mr. William Kopp, and teachers. Mr. Kopp was graduated some years ago in forestry from the University of Maine and is very enthusiastic about the forest tree nursery program. This visit was repeated in 1954 and appears to be a planned annual event. Each one of the school children participating received a small tree for planting.

Cooperation with the various departments at the University has enabled the nursery to profit from the best authorities on seedling production. Dr. Roland S. Struchtemeyer, Head of the Agronomy Department, has been most helpful with advice on soil treatments and nutrient problems. Dr. Jesse E. Livingston, new Head of the Department of Botany, and an authority on diseases of plants, has rendered valuable assistance and cooperation in a special problem involving study and treatment against disease losses in some seed beds. Dr. Robert Olson, of the Department of Entomology, has provided important assistance on problems of insect control that arose in the fall of 1953 and spring of 1954.

Advice on insects and disease problems found in nursery operations has been received from Henry B. Peirson and Dr. A. E. Brower of the Maine Forest Service.

Request-order cards for trees were handled by service foresters, County Extension Agents, Soil Conservation Service field offices, the Extension Service Forestry Specialist, and the Supervisor of the State Forest Nursery.

Questions on tree planting problems were referred to the service foresters. Their assistance was very helpful to the nursery program.

Tree prices during the biennium were \$10.00 per thousand, F.O.B. Orono, Maine, for all species.

MAINE TREE FARM SYSTEM

Joel W. Marsh, Supervisor

The Tree Farm system is nationally sponsored by American Forest Products Industries. This is a non-profit organization supported by forest industries from all parts of the United States. Its Northeastern representative is L. C. Rawson, of Boston, Mass., who has made many visits to the state to assist with the program. The Tree Farm system in Maine was sponsored by the Maine committee of American Forest Products Industries and the Maine Forest Service until mid-1954. Since that time, the AFPI committee has been the sponsoring group with the Maine Forest Service cooperating.

The committee is in charge of all activities and is largely made up of foresters from industry. The members of the committee are:

Edwin Giddings, Chairman	Penobscot Development Co.	Great Works
Elmer G. Kelso	Scott Paper Co. (H & W Div.)	Waterville
John Maines	Great Northern Paper Co.	Bangor
George Sawyer	Dunn Heirs	Ashland
Richard Waldron	Chadbourne Lumber Co.	Bethel
Morris Wing	International Paper Co.	Chisholm
Norman Gray	C. B. Cummings & Son	Norway
E. C. Melcher	S. D. Warren Co.	Cumberland Mills
Philip Cunningham	Eastern Pulp Wood Co.	Calais
Lewis Bissell	Extension Forester	Orono
George Winter	St. Regis Paper Co.	Bucksport
Linwood Rideout	Pejepscot Paper Co.	Brunswick
Joel W. Marsh	Maine Forest Service	Augusta

Joel Marsh is executive secretary and spends one-half of his time on this activity and the other half on Keep Maine Green. All Tree Farm records and correspondence are kept by him.

Several times during 1953 and 1954 committee meetings were held to discuss Tree Farm policies and to keep in close touch with the progress. The general publication committee, with E. G. Kelso as chairman, prepared a new Tree Farm leaflet in 1954. It will be printed by American Forest Products Industries and 10,000 copies will be furnished Maine for distribution in 1955.

There has been no change in Tree Farm specific standards since the start of the program but there is now closer cooperation with the American Tree Farm standards. The original wooden Maine sign has been replaced with the metal American Tree Farm sign which complies

with national standards. The sign posts are made available by forest industries. Stock piles of 4" x 4" x 10' green-painted cedar posts are located in Westbrook, Brunswick, Norway, Rumford, Livermore Falls, Waterville, Bucksport, Old Town, and Calais and are supplied to new tree farmers as needed.

There is a long list of available inspecting foresters, representing Maine forest industries, the Maine Forest Service, the Extension Service, and other groups that are cooperating with the inspection committee in making woodland inspections prior to certification, as required by Maine standards.

For the past two years, E. C. Melcher has acted as chairman of the finance committee. Funds subscribed by cooperating industries are used to furnish new tree farmers with signs, certificates and frames, postage, and minor expenses of the executive secretary as authorized by the committee. The executive committee acts as certification committee and is in contact with the progress of the program.

As applications are received the executive secretary makes arrangements to have the woodland area inspected. At least one forester representing industry and one representing the Maine Forest Service are assigned. For larger areas, more than two are used. The inspection record, together with recommendations, are forwarded to the executive secretary who screens them and forwards the material to the executive committee for its consideration. When areas are approved for certification, the executive secretary makes plans for an early dedication, at which time the woodland owner receives the tree farm certificate and sign, of which they are so deserving. Those found not quite ready for certification are urged to continue their efforts and to seek advice from foresters so that certification may become possible at a later date.

Since Maine joined the Tree Farm System in 1952, 127 Tree Farm applications have been received: 41 in 1952, 34 in 1953, and 52 in 1954. More and more woodland owners are becoming interested in tree farming.

By the end of 1954, 79 Tree Farms had been dedicated, 3 approved for certification with dedications planned, 6 approved pending dedication, 4 approved and referred to the committee for consideration, and 12 applications received requiring inspection. There were 23 woodlands inspected but were found not ready for certification.

Of the 79 Tree Farms, with a total of 122,484 acres, 4 were dedicated

in 1952, 31 in 1953, and 44 in 1954. The distribution by counties is as follows:

Androscoggin	7
Aroostook	4
Cumberland	10
Franklin	4
Hancock	2
Kennebec	12
Knox	0
Lincoln	4
Oxford	6
Penobscot	4
Piscataquis	7
Sagadahoc	2
Somerset	2
Waldo	3
Washington	6
York	6

Each dedication was carefully planned by the executive secretary with representations from industry invited to participate. The programs were sponsored by Granges, Men's Clubs, Soil Conservation Districts, and at general forestry meetings. Over 2,500 interested woodland owners attended these dedications which shows their interest in better woodland management.

Good publicity was received from newspapers, radio, and television. Feature articles appeared in the Forestry Digest, Northeastern Logger, and other forestry publications. Several dedications were televised and television stations showed movies on Tree Farms and woodland management eleven times. One of the television stations, serving over 90,000 sets, estimated that 250,000 people viewed their programs. The executive secretary appeared on five television shows and was interviewed on eight radio programs during the biennium. Many of the radio stations made short progress announcements throughout the year. A scrap book of Tree Farm clippings has been made and is on file in the secretary's office. During the two years, over 260 interested persons have received eight progress reports.

W. Lawson Dauphinee, of Guilford, was selected as Maine's outstanding Tree Farmer for 1954. The presentation of a bronze plaque and a Terrill chain saw was made by State Grange Master, Maynard Dolloff, before 500 Grangers at the State Grange meeting in Lewiston,

on December 8, 1954. This was the first of a series of presentations to be made by the Maine State Grange and the Grange Herald for the outstanding Tree Farmer of the year.

Preceding the formal presentation the Grange Herald arranged a luncheon at the DeWitt Hotel in honor of the Dauphinee family. Distinguished guests present were representatives of the Maine State Grange, Grange Herald, Maine Tree Farm Committee, Maine forest industries, and the Maine Forest Service. Forest Commissioner A. D. Nutting, and Edwin Giddings, Chairman of the Maine Tree Farm Committee, spoke on Tree Farms. All applications for the 1954 award were carefully considered by the committee, and the winner was selected for outstanding activity in carrying out requirements best fitted to the management of woodlands.

It is expected there will be considerably more interest in the 1955 award as there are now approximately 75 approved Tree Farmers as of September 1, 1954 who are eligible to compete.

Of special significance was the launching of a Tree Farm Family in central Maine in 1954. A ceremony at Unity, on the farm of Robert Elwell, marked the establishment of the first New England Tree Farm Family, consisting of 25 timberland owners. Hollingsworth & Whitney Division, Scott Paper Company, and Diamond Match Company were joint sponsors and offered the services and professional advice of their foresters to Tree Farm Family members without cost, and when the timber crop is ready for harvesting, they will give the members market priority. At the end of 1954 there were 51 members enrolled in the Family, owning more than 18,000 acres of woodlands.

Additional owners, by continued application of good forest management practices, will soon be eligible for certification as Tree Farmers and members of the Tree Farm Family. The goal is 100 Tree Farms dedicated by April 1955. There are many woodland owners beginning to follow good forest practices who should become Tree Farmers in the future.

STATE LAND

Public Lots. The demand for stumpage continued to be active. Sales were \$10,000 less than in the previous biennium and leases increased by \$4,000. The entire cut on the public lot in Macwahoc Plantation was on a marked tree basis and marking was done by personnel of the Northeastern Forest Experiment Station and members of the department. The results should be helpful in selling similar projects to other plantation officials. Old fields in Moro Plantation were planted to pine, spruce, and larch.

The practice of using departmental fire and service forestry personnel to supervise and handle management was continued. Glen Tingley, Ralph Bagley, and John Walker did much of the boundary and checking work. Service foresters were used as consultants on several of the areas. Widely scattered lots, and in the case of plantations, selectmen approval of selling prices, makes management complicated. More technically-trained field forestry personnel should lessen the problem.

Thought needs to be given the fact that most of the present timber is growth during recent years in contrast to timber already grown when the statutes were made in 1820, and the income from sales should be considered as interest rather than as a capital trust fund. Minnesota, other states, and Canadian Provinces with school land have given consideration to this change. A study of this will be presented to a future legislature. A change in Maine's statutes, allowing income from timber harvests under good management to be used as interest, should be considered by the legislature.

INCOME FROM PUBLIC LOTS—CALENDAR YEAR 1953-1954

	Stumpage	Leases
Aroostook County		
Silver Ridge Twp.....	\$ 2.00	.....
T. 3, R. 2, (Forkstown) WELS.....	108.90	20.00
T. 4, R. 3, WELS.....	.....	30.00
T. 10, R. 4, WELS.....	.....	45.00
T. 16, R. 4, WELS.....	978.46	.....
T. A, R. 5 (Molunkus) WELS.....	.....	275.00
T. 17, R. 5, WELS.....	.....	1,170.00
T. 14, R. 6, WELS.....	701.38	.....
T. 18, R. 13, WELS.....	.....	20.00
Allagash Pl.....	9,030.61	.....
Caswell Pl.....	4,676.68	.....
Glenwood Pl.....	1,308.13	86.50
Macwahoc Pl.....	5,941.55	.....
Reed Pl.....	.....	60.00
Winterville Pl.....	140.40	320.00
Franklin County		
T. Letter E.....	.....	240.00
T. 4, R. 2, BKP, WKR.....	48.40	.....
T. 4, R. 3, BKP, WKR.....	34.80	.....
T. 3, R. 3, WBKP.....	.....	600.00
T. 3, R. 4, WBKP.....	42.00	1,625.00
Rangeley Pl.....	1,813.26	.....
Sandy River Pl.....	1,927.00	.....
Hancock County		
T. No. 4, ND.....	.....	7.50
T. No. 8, SD.....	20.00	.....
Nc. 33 Pl.....	2,966.34	10.00
Oxford County		
T. A No. 1 (Riley).....	8,189.99	.....
Andover North Surplus.....	2,171.81	.....
T. 4, R. 2, WBKP.....	.....	485.00
T. 4, R. 3, WBKP.....	.....	10.00
T. 4, R. 4, WBKP.....	.....	10.00
T. 5, R. 4, WBKP.....	.....	54.00
Penobscot County		
T. 5, R. 8, WELS.....	1,088.59	20.00
Webster Pl.....	16.89	.....
Piscataquis County		
T. 2, R. 11, WELS.....	.....	30.00
T. 7, R. 12, WELS.....	.....	30.00
T. A, R. 13, WELS.....	.....	112.50
Elliottsville Pl.....	.....	50.00
Lake View Pl.....	590.87	.....
Somerset County		
T. 3, R. 4, BKP, WKR.....	106.80	50,040.00
T. 1, R. 6, BKP, WKR.....	.....	927.57
T. 1, R. 7, BKP, WKR.....	.....	477.03
T. 1, R. 5, BKP, EKR.....	.....	125.00
T. 1, R. 6, BKP, EKR.....	.....	1,095.40
T. 6, R. 1, NBKP.....	.....	10.00
T. 4, R. 3, NBKP.....	328.63	.....
T. 5, R. 20, WELS.....	1,131.65	.....
Dennistown Pl.....	3,574.07	75.00
Highland Pl.....	2,500.98	.....
The Forks Pl.....	7,034.56	.....
West Forks Pl.....	8,706.36	.....
Washington County		
T. No. 18, MD.....	.....	300.00
T. 1, R. 3, TS.....	7,607.61	.....
Codyville Pl.....	238.52	20.00
	<u>\$73,027.24</u>	<u>\$58,380.50</u>

No. 33 Pl., Hancock County. Sale of school lot, 50 acres to J. M. Norris, February 2, 1954, authority Chapter 189, Resolves of 1952—\$2,000.

Indian Township. All timber cut since 1948 has been marked. Most of the marking was done by University of Maine forestry students under the supervision of the professor in charge of the summer camp.

The department has an agreement with the Eastern Pulp Wood Company to harvest about 500 cords of pulpwood annually. The price is set in the spring of each year and Indians are used to do the cutting. One hundred thousand board feet of white pine sawlogs are sold yearly. These cuts are conservative and should increase the growing stock on the town. The continuing agreement provides a yearly income for the Indian Improvement Fund and work for the Indians. The University of Maine uses the area as a summer camp site and laboratory for forestry students and forest management experiments.

	<i>Pulpwood</i>	<i>Sawlogs</i>
Income — 1953	500 cords — \$2,000	101,195 BF — \$1,315.54
1954	500 cords — \$2,000	102,480 BF — \$1,332.23

Ralph Bagley serves as supervisor and caretaker of the forest with Professor R. I. Ashman and Professor Arthur Randall serving as consultants.

Other State Land. By authority granted by the legislature, state lot 102 in St. Agatha was sold for \$251.00 and house lots in Hallowell for \$465.00.

Land Office. Old surveys and land records continue to be in frequent demand. The department supplies copies of maps and field notes upon request.

Island ownership is a real problem. There are often questions on whether they are state or privately-owned. Methods of township sales or tax history are generally the only known facts. The Land Office maintains a record of all state-owned real estate.

EXTENSION FORESTRY

Good forest management by the farmer and small woodlot owner has been a part of the educational program of the University of Maine Agricultural Extension Service for many years. County agents in all counties include forestry in their educational and demonstrational work. State forestry specialist has been Lewis P. Bissell since November 1949.

Information and guidance in tree planting, improvement cutting, harvest cuttings, and products marketing are given by extension agents in the public press, on radio and TV, in circulars and bulletins, during calls on individual woodland owners, and in public meetings. A bi-monthly mimeographed publication entitled, "Forestry Facts," is sent to nearly 3,500 persons. This publication contains information on all phases of forest management and is prepared primarily for the small woodlot owner.

Public forestry meetings include those held indoors, usually with a variety of visual aids, and those held in the woods. Outside meetings are planned to demonstrate good management methods, new machines, and new chemicals for weeding, insect control, and chemical bark peeling. Forestry meetings are usually planned and carried out cooperatively by the county agent, Soil Conservation Service personnel, and the local service forester of the Maine Forest Service.

The Extension forestry program includes work with maple syrup and Christmas tree producers, town officials in the management of town-owned forest land, and with homeowners on landscaping problems. Interest is increasing in forestry as a 4-H Club project for individual members and for clubs as a group. For the fifth and sixth years in 1953 and 1954, pulp and paper companies buying wood in Maine made cash contributions to bring one boy from each county to Orono for two days of intensive training in forestry and group living with other members.

Bulletins and other printed material are available from county Extension offices and from the University of Maine, Orono. Maine Extension Circular 286, Chemical Debarking, was issued in March 1954 to describe the advantages and disadvantages and methods of producing peeled pulpwood by chemically debarking standing trees with sodium arsenite.

Close cooperation between the Extension Service, the Maine Forest Service, and other agencies, both public and private, has strengthened the forestry programs of each agency, whether the work has been research, teaching, or service.

TIMBER PRODUCTION

Timber cut reports have proven to be increasingly valuable, and should become more important as years are added. Primary wood users are improving in their cooperation with the report. However, a few late reports hold up the preparation of the summary until late April or May.

After the completion of the timber survey by the U. S. Forest Service, the timber cut report will be a good means of comparing growth and drain in any given area.

TIMBER CUT — 1949 TO 1954

Year	Pulpwood Cords	Softwood Board Feet	Hardwood Board Feet
1949	1,275,928	442,699,508	94,803,422
1950	1,557,189	429,471,443	68,015,035
1951	1,963,422	496,005,151	89,077,128
1952	1,957,499	504,606,726	101,879,182
1953	1,644,736	488,231,284	100,978,134
1954	1,719,172	378,801,829	84,894,083

HARDWOOD LUMBER PRODUCTION IN MAINE — 1953

In Board Feet
(348 Mills Reporting)

County	Birch	Maple	Beech	Oak	Ash	Poplar	Elm	Basswood	Mixed Hardwoods	Total Hardwoods
Androscoggin	475,472	787,735	24,934	192,359	9,889	600	82	96,040	58,040	1,645,151
Aroostook	404,924	2,048,999	32,259	80,185	8,070	25,000	1,680	70,740	1,680,375	4,352,232
Cumberland	2,013,647	60,966	382,075	970,072	3,180	4,960	112,600	1,540	11,520	3,560,560
Franklin	7,830,898	2,610,542	1,082,314	96,000	121,929	200,542	2,800	366,414	—	12,311,439
Hancock	486,945	—	—	53,144	—	—	—	—	8,000	548,089
Kennebec	1,091,628	359,373	244,931	218,734	90,318	12,000	4,600	78,174	—	2,099,758
Knox	83,778	9,837	5,224	74,883	1,000	—	—	—	—	174,722
Lincoln	146,811	15,550	21,367	476,103	1,000	2,000	—	—	—	662,831
Oxford	12,423,696	2,648,322	3,082,943	745,327	183,229	847,742	7,500	149,465	179,222	20,267,446
Penobscot	3,000,313	7,337,299	1,057,765	47,666	1,010,192	1,000	22,387	178,897	294,992	12,950,511
Piscataquis	15,307,557	777,969	19,798	5,438	219,170	2,886	—	287,804	—	16,620,622
Sagadahoc	9,702	1,385	210	92,262	425	140	52	—	—	104,176
Somerset	10,816,650	3,704,447	548,172	107,392	2,991,827	159,804	10,816	400,462	—	18,739,570
Waldo	1,853,697	683,582	196,896	369,280	17,823	29,000	4,000	16,300	22,820	3,193,398
Washington	1,541,146	209,690	56,808	33,500	112,568	10,000	—	13,600	10,000	1,987,312
York	300,422	84,414	82,500	1,016,594	11,333	2,000	892	3,735	258,427	1,760,317
Totals	57,787,286	21,340,110	6,838,196	4,578,939	4,781,953	1,297,674	167,409	1,663,171	2,523,396	100,978,134
Per cent of total	57.2%	21.2%	6.8%	4.5%	4.7%	1.3%	.2%	1.6%	2.5%	

SOFTWOOD LUMBER PRODUCTION IN MAINE — 1953

In Board Feet

(636 Mills Reporting)

County	White Pine	Hemlock	Spruce	Fir	Norway Pine	Cedar	Pitch Pine	Tamarack	Mixed Softwood	Total Softwoods
Androscoggin	19,557,967	5,300,345	510,984	385,200	555,000	26,895	18,281	3,686	—	26,358,358
Aroostook	9,046,397	268,915	29,241,972	8,036,030	608	3,264,991	—	2,000	—	49,860,913
Cumberland	34,356,670	11,501,441	502,352	32,500	1,173,864	5,000	251,890	1,200	766,946	48,591,863
Franklin	5,597,500	2,790,700	254,000	164,000	40,000	182,200	1,523	7,000	—	9,036,923
Hancock	9,841,889	651,592	3,521,725	50,150	329,557	214,500	209,000	4,000	38,041	14,860,454
Kennebec	20,333,888	8,255,209	289,701	83,846	36,700	89,737	39,300	13,529	80,000	29,221,910
Knox	3,127,603	1,129,024	1,191,822	161,380	43,000	25,000	250,000	—	—	5,927,829
Lincoln	11,747,839	2,437,245	3,014,014	50,226	102,500	—	37,500	—	—	17,389,324
Oxford	56,936,493	16,614,160	2,943,383	171,100	440,237	—	500	10,000	68,243	77,184,116
Penobscot	29,988,540	3,814,089	6,339,746	2,119,496	461,496	1,427,460	970,124	15,000	—	45,135,951
Piscataquis	16,563,985	881,372	2,062,246	313,359	33,983	157,817	—	1,700	—	20,014,462
Sagadahoc	9,510,385	573,725	397,041	30,101	28,718	33	25,587	454	—	10,566,044
Somerset	12,783,067	3,034,516	581,334	382,940	234,400	360,006	393,259	13,767	5,004	17,788,293
Waldo	10,811,060	2,537,775	3,389,452	422,009	206,300	248,000	151,500	10,000	832,146	18,608,242
Washington	20,636,434	530,426	3,922,228	153,800	1,053,535	563,831	—	8,400	—	26,868,654
York	61,917,571	7,154,335	768,334	123,000	390,108	19,000	445,400	200	—	70,817,948
Totals	332,757,288	67,474,869	58,930,334	12,679,137	5,130,006	6,584,470	2,793,864	90,936	1,790,380	488,231,284
Per cent of total	67.9%	13.8%	12.7%	2.5%	1.5%	1.1%	0.5%	.01%	0.3%	

TIMBER PRODUCTION

PULPWOOD PRODUCTION IN MAINE — 1953

(In Cords)

County	Hardwood		Poplar		Spruce & Fir		Hemlock		Pine		Tamarack		Totals	
	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled
Androscoggin	12,231	2,281	1	43	2,590	380	618	630	9,294	185	97	—	24,831	3,519
Aroostook	200	1,984	—	25,465	161,861	92,328	598	4,186	—	—	411	103	163,070	124,066
Cumberland	29,799	436	—	—	4,126	492	153	262	22,350	60	5	—	56,433	1,250
Franklin	9,121	6,474	1	21	43,055	2,367	824	2,173	2,277	79	120	—	55,398	11,114
Hancock	585	2,485	—	317	30,295	10,915	385	6,469	50	—	99	22	31,414	20,208
Kennebec	7,956	3,370	5	171	9,362	952	818	1,755	11,616	154	13	—	29,770	6,402
Knox	445	50	5	171	5,913	686	316	1,160	257	124	—	—	6,936	2,191
Lincoln	2,476	15	8	214	7,476	1,267	425	1,511	17,283	167	—	—	27,668	3,174
Oxford	107,998	8,667	—	20	61,814	4,301	2,729	4,074	9,905	76	502	—	182,948	17,138
Pencbscot	16,101	14,348	—	8,971	74,464	31,289	6,006	39,481	11,638	384	987	42	109,196	94,515
Piscataquis	3,362	8,667	1	5,365	76,877	22,530	489	6,913	111	60	12	5	80,852	43,540
Sagadahoc	2,764	150	1	43	3,679	559	98	300	3,851	24	—	—	10,393	1,076
Somerset	18,489	9,595	—	864	189,988	55,421	1,581	5,189	2,347	82	132	—	212,537	71,151
Waldo	3,208	3,139	5	904	16,249	2,129	387	2,743	541	—	12	14	20,402	8,929
Washington	600	4,971	—	4,879	65,285	30,670	868	5,605	112	336	161	88	67,026	46,549
York	16,952	8	—	—	219	10	651	10	12,753	—	170	—	30,745	28
	232,287	66,640	27	47,448	753,253	256,296	16,946	82,461	104,385	1,731	2,721	274	1,109,619	454,850
Conversion of "Peeled" to "Rough"	78,400		55,821		301,525		97,013		2,036		322		535,117	
Total Rough	310,687		55,848		1,054,778		113,959		106,421		3,043		1,644,736	

HARDWOOD LUMBER PRODUCTION IN MAINE — 1954

In Board Feet

(321 Mills Reporting)

County	Birch	Maple	Beech	Oak	Ash	Poplar	Elm	Basswood	Mixed Hardwoods	Total Hardwoods
Androscoggin	622,885	25,079	5,245	281,942	780	—	—	95,445	58,335	1,089,711
Aroostook	430,703	4,771,431	552,606	10,000	243,648	20,000	11,025	52,463	728,152	6,820,028
Cumberland	1,107,010	34,411	120,500	688,677	2,552	591	514	—	141,490	2,095,745
Franklin	4,571,828	1,032,631	123,368	51,845	13,264	102,520	3,000	321,540	—	6,219,996
Hancock	649,000	5,000	1,500	77,500	—	—	—	—	2,000	735,000
Kennebec	5,008,100	1,900,000	497,900	253,270	42,566	4,000	4,400	49,680	—	7,759,916
Knox	73,000	35,000	—	39,288	2,000	—	3,000	—	—	152,288
Lincoln	118,845	11,000	1,000	579,209	—	—	—	—	—	710,054
Oxford	11,175,725	1,529,882	2,781,293	611,833	368,079	434,450	—	97,166	134,503	17,132,931
Penobscot	1,948,501	4,694,141	687,320	40,450	501,294	2,000	134,000	63,933	—	8,071,639
Piscataquis	17,361,455	349,662	—	6,000	154,590	—	6,000	245,000	—	18,122,707
Sagadahoc	45,215	2,386	118	103,098	1,246	35	120	—	—	152,218
Somerset	8,652,160	1,418,657	280,465	56,477	421,220	546,317	7,000	244,293	—	11,626,589
Waldo	1,410,928	209,570	50,000	371,837	33,500	—	—	27,700	—	2,103,535
Washington	442,958	175,621	12,500	69,679	137,081	10,000	—	4,025	10,000	861,864
York	492,547	74,380	54,941	571,494	4,500	2,500	2,000	1,000	36,500	1,239,862
Totals	54,110,860	16,268,851	5,168,756	3,812,599	1,926,320	1,122,413	171,059	1,202,245	1,110,980	84,894,083
Per cent of total	63.8%	19.2%	6.1%	4.5%	2.2%	1.3%	.2%	1.4%	1.3%	

TIMBER PRODUCTION

SOFTWOOD LUMBER PRODUCTION IN MAINE — 1954

In Board Feet

(554 Mills Reporting)

County	White Pine	Hemlock	Spruce	Fir	Norway Pine	Cedar	Pitch Pine	Tamarack	Mixed Softwood	Total Softwood
Androscoggin	16,977,179	4,780,255	489,317	140,366	1,000,593	2,000	138,003	1,000	—	23,528,713
Aroostook	12,035,579	236,830	19,922,728	4,816,981	6,000	2,080,433	—	49,800	25,642	39,173,993
Cumberland	26,223,207	7,323,479	511,708	149,006	577,688	76,680	333,964	—	860,340	36,056,072
Franklin	4,749,751	1,878,036	176,868	98,585	25,000	13,000	—	15,500	—	6,956,740
Hancock	7,260,896	393,000	2,638,358	61,500	174,683	110,373	2,000	29,000	759,014	11,428,818
Kennebec	11,037,220	7,002,065	680,546	82,845	41,400	80,661	625,000	13,845	—	19,563,582
Knox	2,251,388	868,290	1,251,934	80,088	5,000	10,000	135,000	700	—	4,602,400
Lincoln	9,889,368	2,386,088	2,584,255	30,245	160,000	—	165,000	390,437	—	15,605,393
Oxford	46,944,613	12,256,638	2,431,773	128,704	587,957	5,500	455,000	—	46,169	62,856,354
Penobscot	23,003,688	2,568,714	2,692,992	304,687	534,159	1,414,331	196,202	7,500	5,000	30,727,273
Piscataquis	15,205,155	231,790	526,181	173,540	56,157	115,759	—	3,000	—	16,311,582
Sagadahoc	1,660,624	412,803	519,662	16,505	16,588	1,563	291,228	3,215	—	2,922,188
Somerset	10,511,241	2,089,391	1,306,552	220,046	174,000	5,198,688	100,764	20,480	688	19,621,850
Waldo	7,889,034	2,356,618	2,375,778	205,822	30,000	207,151	53,842	3,000	8,339	13,129,644
Washington	13,252,408	353,705	2,556,496	100,000	947,985	1,329,971	—	44,665	—	18,565,230
York	46,683,002	7,964,458	813,075	40,725	609,545	—	549,267	2,000	1,089,925	57,751,997
Totals	255,554,407	53,102,160	41,478,223	6,649,645	4,946,755	10,646,110	3,045,270	584,142	2,795,117	378,801,829
Per cent of total	67.4%	14.2%	11%	2%	1.4%	2.2%	.8%	.2%	.8%	

PULPWOOD PRODUCTION IN MAINE — 1954

(In Cords)

County	Hardwood		Poplar		Spruce & Fir		Hemlock		Pine		Tamarack		Totals	
	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled	Rough	Peeled
Androscoggin	13,127	1,557	—	—	3,329	919	1,781	713	12,988	—	217	—	31,442	3,189
Aroostook	—	955	—	50,111	180,649	96,321	—	8,439	—	—	1	—	180,649	155,827
Cumberland	24,225	—	—	—	4,495	227	234	137	18,243	351	6	—	47,203	715
Franklin	9,814	8,013	—	—	36,697	4,964	3,021	1,617	2,554	—	205	—	52,291	14,594
Hancock	1,860	1,669	19	208	17,836	12,303	230	4,922	100	15	14	227	20,059	19,342
Kennebec	11,153	2,349	—	500	14,606	3,893	1,003	564	8,311	—	82	—	35,155	7,306
Knox	278	19	—	—	15,788	3,311	—	44	100	—	—	4	16,166	3,378
Lincoln	2,457	—	—	—	10,508	3,577	—	111	8,400	—	—	30	21,365	3,718
Oxford	86,457	5,212	—	—	49,600	2,999	6,048	2,487	15,608	—	628	573	158,341	11,271
Penobscot	13,160	16,280	—	19,071	91,465	52,565	2,412	34,424	1,348	25	114	72	108,499	122,437
Piscataquis	2,701	16,680	—	12,096	96,961	15,336	153	9,165	—	—	—	108	99,815	53,385
Sagadahoc	2,730	92	—	—	3,466	734	50	97	2,052	—	—	19	8,298	942
Somerset	15,269	5,261	—	—	195,454	43,975	937	979	42	—	4	200	211,706	50,415
Waldo	1,558	2,059	—	300	15,174	4,153	25	456	41	—	3	120	16,801	7,088
Washington	34	8,120	—	4,290	54,563	54,173	4,433	3,075	25	20	—	192	59,055	69,870
York	14,326	—	—	—	692	10	870	—	20,345	—	227	—	36,460	10
	199,149	68,266	19	86,574	791,283	299,460	21,197	67,230	90,157	411	1,500	1,546	1,103,305	523,487
Conversion of "Peeled" to "Rough"	80,313		101,852		352,306		79,094		483		1,819		615,867	
Total Rough	279,462		101,871		1,143,589		100,291		90,640		3,319		1,719,172	

TIMBER PRODUCTION

EXHIBITS

Exhibits continued to be an excellent medium for public education of the department's activities. Over thirty exhibits were prepared for various state fairs, expositions, and sportsmen shows. Featured subjects were fire and "Smokey," disease and insect control, and woodland management. As in the past years, special emphasis was placed on the exhibits for the Eastern States Exposition, at Springfield, Massachusetts. In 1953 a contrasting life-like scene of green forests and burned areas with "Smokey" was featured, and in 1954 a complete model lay-out of a typical board yard, operating sawmill with incinerator, and a selectively cut woodlot was shown.

In addition, the department exhibited at trade shows, outings, camporees, and in store windows.

CIVIL DEFENSE

The Maine Forest Service during the past two years has worked closely with the State Civil Defense Agency in cooperative programs, practical field exercises, dry run tests, and staff meetings.

Under the Civil Defense Act, the Forest Commissioner, by Governor and Council appointment, has served on a five-man advisory council committee. Regular monthly meetings were held. Policies, reviews, training exercises, and reports were the usual order of business discussed.

State and county staff meetings were also held with representation by the Forest Commissioner and/or his representatives. Discussions and short tests were held on responsibilities, chain of command, function and operation of the Civil Defense set-up, and matters of general interest in cooperation and coordination.

All forestry personnel connected with the Civil Defense effort have taken the Loyalty Oath.

In 1954 a National Civil Defense alert was held on June 14 and 15. The Forestry Department played an important part in the Maine problem by handling an imaginary enemy diversary attack of a 30-hour major forest fire problem, in the Bingham, Athens, and Solon area. The entire problem was worked out as a paper exercise. Large forest fire organization was immediately in operation with chain of command orders carried out in message form and handled over the department's radio network. All radio traffic was handled in pre-arranged code. Situations were created to give a realistic touch to the problem. Many valuable lessons were learned from this test alert operation.

During hurricanes Carol, Edna, and Hazel, the department's radio system provided communications for the State Civil Defense organization. Under a natural disaster from these hurricanes our radios performed very well and were the only means in many cases of reaching county staff headquarters and assisting in rescue and evacuation work. In spite of electric power loss, the department's radio system was kept operating by battery and gas engine auxiliary units. Mobile and base station radio operators are to be congratulated for good performance under severe conditions.

In December of 1954, the Forestry Department participated in a joint conference on problems of Civil Defense between New Brunswick, Canada, and Maine Civil Defense officials. The Canadian officials were given an opportunity to see first hand how the Maine Civil Defense organization functioned in a complete CPX, entitled "Operation Snowflake." The exercise involved specific situations in Maine, yet had a background of International significance.

An important forest fire control measure with the State Civil Defense Agency was the "Agreement of Understanding Between the Maine Forest Service and the Civil Defense and Public Safety Agency in Matters Pertaining to Forest Fires." The purpose of the agreement was to establish a clear understanding of the function of each whenever a forest fire or forest fires occur. The following are some of the essential procedure of operations plans:

1. It shall be the responsibility of the Maine Forest Service to take full charge of all forest fire suppression work, both prior to and after a state emergency has been declared.
2. At no time shall the Civil Defense Agency assume "command" of any forest fire.
3. The Forestry Department shall keep the State Civil Defense Director informed of forest fire situations.
4. During a state of emergency the Fire Services of the Civil Defense Agency shall become procurement officers of men and equipment requests as made by forestry officials.
5. In normal times on fires, the services of the Civil Defense Agency shall be feeding, communications, evacuation, air reconnaissance, transportation, police traffic control, etc.
6. Close liaison shall be maintained between forest fire and Civil Defense officials on forest fires.
7. The Civil Defense Agency through its Fire Services shall recognize and function in the major forest fire districts as established by the Maine Forest Service.

This agreement has been discussed with all state and town forest fire wardens and incorporated in the state fire plans.

ALLIED PROGRAMS

The Forest Commissioner serves as a member of a number of state, regional, and national agencies and associations that affect Forestry Department work:

Member — State Park Commission

Baxter State Park Authority (Chairman 1953 and 1954)

Association of State Foresters (Vice President 1954)

Maine Development Commission

Maine Mining Commission

Northeastern Forest Fire Protection Commission (Chairman 1953 — July 1954)

Northeastern Forest Experiment Station Advisory Council

Northeastern Tree Improvement Committee

State group, New England — New York Inter-Agency Study

University of Maine Forestry Department Advisory Committee

Advisory Council, Civil Defense and Public Safety

New England Council Forestry Committee

INDEX

	<i>Page</i>
Introduction	7
Finance and Accounting	9
Inventory Summary	11
Departmental Receipts and Expenditures	15
Maine Forestry District	19
Financial Statements	28
Fire Records	30
Fire Summary	35
Organized Towns	37
Fire Records	48
Fire Summary	66
Keep Maine Green	67
Northeastern Forest Fire Protection Commission	72
Insect Control	73
Introduction	73
Forest Insect Survey	75
Tree Research and Control Projects	79
Insects	79
Diseases and Injuries	123
Insects and Other Pests in Buildings	133
Mosquito and Fly Control	134
Shade Trees	134
Publications	136
White Pine Blister Rust Control	137
Management	141
Service Farm Forestry	141
State Forest Tree Nursery	147
Maine Tree Farm System	151
State Land	155
Public Lots	155
Indian Township	157
Other State Land	157
Land Office	157
Extension Forestry	158
Miscellaneous	159
Timber Production	159
Exhibits	166
Civil Defense	167
Allied Programs	169