PUBLIC DOCUMENTS

OF THE

STATE OF MAINE

BEING THE

REPORTS

OF THE VARIOUS

PUBLIC OFFICERS
DEPARTMENTS AND
INSTITUTIONS

FOR THE TWO YEARS

JULY 1, 1932--JUNE 30, 1934

STATE OF MAINE

TWENTIETH BIENNIAL REPORT

OF THE

FOREST COMMISSIONER

1933 - 1934

STATE OF MAINE

January 5, 1935.

To His Excellency, Louis J. Brann, Governor of Maine:

I have the honor to submit herewith my biennial report for the years 1933-1934.

NEIL L. VIOLETTE,
Forest Commissioner.

CONTENTS

PERSONNEL

Forest Commissioner,
NEIL L. VIOLETTE, Augusta

State Entomologist,
HENRY B. PEIRSON, Augusta

Assistant Entomologist,
ROBLEY W. NASH, Augusta

Field Entomologists,
AUBURN E. BROWER, Bar Harbor
ARTHUR M. GILLESPIE, Bar Harbor

Blister Rust Agent,
WALTER O. FROST, Augusta

District Blister Rust Agents,
H. G. BRADBURY, Belfast
D. S. CURTIS, N. Bridgton
G. H. KIMBALL, Auburn
J. M. WHITE, Waterville

District Supervisors,
GEORGE A. FAULKNER, Winter Harbor
GEORGE H. GRUHN, Seboomook
ROBERT G. STUBBS, Hallowell
HARRY G. TINGLEY, Island Falls

Town Supervisor,
AUSTIN H. WILKINS, Augusta

Draftsman,
T. L. MARTIN, Augusta

Bookkeeper,
LILLIAN J. COLEMAN, Augusta

Stenographers,
BLANCHE L. VIOLETTE, Augusta
MABEL C. ROWELL, Augusta

APPROPRIATIONS AND ACTIVITIES AS AUTHORIZED BY THE 1933 LEGISLATURE

For Departmental operations in 1933-34 and 1934-35, the Eighty-Sixth Legislature appropriated $25,000.00 for each period. This was budgeted in the department as follows:

Administration of Public Lands	$ 100.00
Blister Rust Control	5,000.00
Entomology	11,000.00
General Forestry	3,350.00
State Nursery	900.00
Salaries and Clerk Hire	2,550.00
General Office Expenses	2,100.00
	$ 25,000.00

Forest Fire Protection in the organized towns, which comprise about 5,000,000 acres, is carried on under the appropriation for General Forestry Purposes.

Forest Fire Protection in the Maine Forestry District, which comprises about 10,000,000 acres of unorganized territory, is supported by an annual tax of 2¼ mills on the dollar, which is assessed on all property in the District. This amounted to $158,878.22 in 1933 and 1934.

Under the Clarke-McNary Act, the State received $37,739.51 from the Federal Government in 1933 for cooperation in forest fire protection, of which $11,019.63 was used for forest fire protection in the organized towns. While for the period of 1934 this sum was increased to $64,000.00, of which $14,985.35 was used to pay for the hire of watchmen and county wardens within the organized towns. The remainder, amounting to $49,014.65 was used in the Forestry District.

FOREST FIRE PROTECTION

MAINE FORESTRY DISTRICT

Seasons 1933 and 1934

The forest fire season of 1933 was one of the most favorable for many years, except in Aroostook County where there was a protracted dry spell during the last of May and the first of June, and again in August and September, at which times there was an unusual number of fires. The first fire was reported on April 15 in York County. The last fire of record occurred on November 2 in Washington County. However, during the spring the records show that there was one inch more precipitation in the State as a whole, than during the same period of the previous year, which carried the country through this critical fire period.

There was an average of 1.3 inches less rain throughout the Forestry District during the month of May, 1934, than during the same month of the previous year. This shortage varied from 1.7 inches to 0.8 inches in different sections of the District. During the month of June, however, there was 1.6 inches more rain than during the same month of 1933. This lack of rainfall, low humidity, and dry northwest winds, brought about such a condition that during the week of May 27th-June 2nd there were about forty fires reported or burning, which was nearly one quarter of the fires reported for the entire season.

Therefore, acting upon the recommendation of the Forest Commissioner, the Governor saw fit, in view of the prevailing emergency to proclaim a Suspension of the Open Season on Fishing in the inland waters of the State, to take effect at sundown June 1, 1934. The dry woods were kept closed to fishing, smoking, and the building of fires for 12 days, which was the longest that they ever have been closed under such conditions. During this time there were five separate fires burning which spread until they covered areas from 2,000 to

59,000 acres before they were brought under successful control. By the 13th of June there was sufficient rainfall to warrant opening the woods to the public again, which the Governor did so declare.

For the rest of the season, with the exception of a fire in July in Washington County, there were no more large fires. In September there were only two fires in the District; one of 30 acres in northern Aroostook and one of less than an acre in Washington County. These brought the fire season to a close.

Comparison of Burned Area 1931 to 1934

1931	1932	1933	1934
561 acres	36,342 acres	5,299 acres	130,293 acres

District Supervisors

The Forestry District is handled in four sections, each in charge of a supervisor who reports directly to the Forest Commissioner and who keeps in close touch with the chief wardens.

I. The Eastern Section is in charge of Supervisor George A. Faulkner, with headquarters at Winter Harbor.

II. The Northern Section is in charge of Supervisor Harry G. Tingley, with headquarters at Island Falls.

III. The Western Section is in charge of Supervisor George H. Gruhn, with headquarters at Seboomook.

IV. The Southern Section is in charge of Supervisor Robert G. Stubbs, with headquarters at Hallowell.

As a result of the numerous bad fires in the northern part of the District, the Commissioner appointed two extra men as temporary supervisors during the season of 1934. One was Rex E. Gilpatrick of Houlton, who took charge in Northern Aroostook, and the other was Robert I. Ashman of Chelsea, who supervised the section in northwestern Maine near the Canadian border.

Chief Wardens

George E. Hathaway, who has been the chief warden of the East Machias District since 1914, passed away in September, 1934. An appointment for this district will be made next season.

Ralph Brick of the Fish River District resigned at the end of the 1933 season.

Stanley E. Drake was transferred from the Madawaska District where he was chief warden of the Fish River District to take the place of Mr. Brick.

Joseph M. Gagnon of Frenchville was appointed chief warden of the Madawaska District.

Ervin L. McKenney resigned as chief warden of the Seven Islands District in June, 1934, and John Gardner was appointed to fill the vacancy.

Deputy Wardens

There was no increase in the number of deputies appointed during the past two seasons—practically the same men were reappointed. The Department is fortunate in having this large body of experienced woodsmen upon whom to call in the time of emergency, the majority of which have been with the Forestry District since it was organized.

Lookout Stations

A 47-foot steel tower with stairs was erected on No. 5 Mountain and put in use in the spring of 1933. This tower surplants the old Sally Mountain tower. It has an extensive view of the entire Moose River valley from Long Lake to the International border.

During the season of 1934 two new steel 60-foot towers with inside stairs were erected with the aid of the C. C. C.; one on Washington Bald Mountain in Township 42, M.D., and the other on Pocomoonshine Mountain in Princeton. Each tower is 15 feet higher than the old wooden ones, which greatly increases the area to be covered by the watchman.

For use in critically dry weather three 30-foot wooden towers were erected in the towns of Whiting, Grand Lake Stream, and Millinocket.

Patrol

Patrolmen are used in sections where there is a large amount of travel and where the country is too low and flat for satisfactory use of fire lookouts, but they are not a substitute for them. They serve to keep the chief warden in direct contact with the public, to run down reported fires, and assist him in the administration of his affairs and duties and in the maintenance of equipment. In dry times additional temporary patrolmen are employed.

Pumps

The small portable back pump, operated by hand and having a capacity of 5-gallons was first adopted by the Department for use during the season of 1927. During the past two seasons 600 improved pumps have been furnished to our chief wardens. There are now over 1,000 such pumps in the District as regular equipment. With the axe, shovel and grub hoe, they are the most important equipment for fighting fire.

Since the Department adopted the light portable gasoline fire pump for its use in 1924, it has supplied each chief warden with at least one and in the larger districts two or three of these pumps. There are now 50 gasoline pumps in the Forestry District.

Each pump is fitted with 1,500 feet of fire hose. There is now available over 60,000 feet of this light fire hose as equipment. About 5,000 feet is purchased each year for replacement and to supply new requirements.

Telephone Lines

There are now approximately 2,000 miles of telephone line which the Department owns and maintains. Every chief warden is connected directly with his lookout men and these lines connect him with all remote parts. During favorable weather when the wardens are not otherwise engaged, they

spend a large amount of time in the improvement and upkeep of these lines. The Department has purchased annually about 250 miles of wire for this purpose.

Roads and Trails

The program of maintaining roads and trails and opening of new ones, has been greatly advanced by assistance of the C. C. C. camps. This is a very important part of the fire protection program because of the way time is reduced in getting to fires.

Airplanes

On account of the increase and extension of the activities of the Department, the Forest Commissioner in the fall of 1933 availed himself of the opportunity to secure a Ryan monoplane. Skiis were placed on this plane in place of wheels in order that it might be used during the winter and early spring to prepare for the coming season. A hangar was erected at the new Augusta Airport, which was made the main base. During the serious fire season of 1934, this plane was used for over 100 hours. On the Millinocket fire alone, it was used for 40 hours, where it was indispensable.

As the result of the 1934 season's experience, a new Stinson monoplane was purchased and fitted with pontoons for use on the lakes and rivers of Maine. Bases have been established and stocked with gasoline, oil and other equipment at Seboomook, Millinocket, Rangeley, Umsaskis Lake, Eagle Lake on the Allagash, and Princeton. This has greatly increased the field which can be covered.

It has been shown that an airplane is of great use in Maine to supplement the system of fire lookouts. In hazy or smoky weather it has been found that the plane is useful in patroling areas beyond the observation of the fire lookouts. In the case of small, variable, elusive smokes, such as lightning fires or small camp fires which lookouts have difficulty in locating satisfactorily, the plane is essential. The chief warden can go in the plane, note the fire and its location. Then he can arrange to go directly and quickly, taking only such a crew as may be necessary to control it. In the case of a fire, which

may come to cover as large an area as the 1934 fire in the vicinity of Millinocket, it is necessary to have a plane in order to make a quick and comprehensive survey.

Aside from the use of the plane in locating and observing fires, regular use was made with it to transport men and supplies to jobs of construction and maintenance. These jobs are often remotely located and it is such work that is often neglected for this reason. During short, wet periods of little fire danger, it is now possible to use the regular fire warden force on such work. Other uses outside the Department are cases where it was used in the search for parties in the woods who were lost, drowned, or in distress.

The Department is fortunate in having the services of Lieut. Earl F. Crabb as pilot of its planes. He received his early training as a member of The Flying Service in Europe during the World War, and has been piloting planes of all types since then. For the past six years he has been in Maine and is very familiar with flying conditions in the State.

Camp Sites

There are within the Maine Forestry District 80 camp sites. The standard camp site is a small tract of land which is leased by the Department from the owner for the public for camping purposes. The accommodations depend on the conditions about the site and the apparent demand by the public. One quarter of these are large enough for two or more parties. They are located near a spring or running water in non-hazardous places, as far as the danger of fire is concerned, and furnished with a fireplace, and a table and benches with a shelter. They are indicated by a large yellow sign with the word "Camp Site" on it.

It is provided under the Statutes that any party, native or non-resident, may kindle a fire at such places without laying themselves liable to penalties for building a fire on the land of another or performing such act unaccompanied by a registered guide.

In Oxford and Franklin Counties the Department in cooperation with the land owners has established about 50 lunch

grounds for picnic and lunch purposes only. These are indicated by a Lunch Ground sign and equipped with a fireplace and table.

The following is a list of camp sites situated within the Forestry District:

Aroostook County

T. 1, R. 5, Gulliver Brook on Route 2.
T. 1, R. 5, Brandy Brook on Slewgundy Road.
*T. 1, R. 5, Little Molunkus on Slewgundy Road.
T. 3, R. 2, (Forkstown), The Bell Field on Route 166. (2)
T. 7, R. 5, Cold Spring on Patten Road, Route 11. (2)
T. 8, R. 5, Camp Violette on Patten Road, Route 11. (2)
T. 9, R. 5, Road Side Springs on the Oxbow Road.
Oxbow Plan., Oxbow Flat. (2)
T. 9, R. 7, Aroostook River at LaPomkeag Stream.
T. 8, R. 9, Aroostook River at Foot of the Munsungen Dead Water.
T. 11, R. 13, The Thoroughfare between Umsaskis and Long Lakes.
T. 14, R. 6, Beaver Brook on Fort Kent Road, Route 11.
T. 14, R. 7, Fish River at Hewes Brook.
T. 14, R. 8, Fish River Lake Dam.
Nashville Pl., Near Portage Town Line—On Ft. Kent Road, Route 11.
T. 13, R. 12, On Allagash River—Round Pond. (2)
T. 13, R. 12, Mouth of Musquacook Stream on the Allagash River.
T. 14, R. 12, Mouth of Five Finger Brook on the Allagash River.
T. 15, R. 6, Hedgehog Mt., Fort Kent Road, Route 11.
T. 15, R. 11, Big Brook on the Allagash River.
T. 15, R. 11, Allagash Falls.
T. 16, R. 4, Carlstrom Hill, on Caribou-Ft. Kent Road, Route 161.
T. 16, R. 4, Carlstrom Brook, on Caribou-Ft. Kent Road, Route 161.
T. 16, R. 4, Center Line Brook, on Caribou-Ft. Kent Road, Route 161.
T. 16, R. 10, The Allagash River at East Twin Brook.
Hammond Pl., "B" Road at "B" Stream. (2)
Macwahoc Pl., Molunkus Stream on Route 2.

Franklin County

Dallas Pl., Stratton Road, Route 4.
Jerusalem, The Spring Farm, between Kingfield and Bigelow, Route 27.
Jerusalem, Redington Stream, between Kingfield and Bigelow, Route 27.
Jerusalem, The Welch Opening, between North New Portland and Dead River, Route 16.
Crockertown, The Campbell Field, between Kingfield and Bigelow, Route 27.

*Jim Pond Town, Greenbush Pond, on the Arnold Trail, Route 4.
*Jim Pond Town, Alder Stream, on the Arnold Trail, Route 4. (2)
*Alder Stream Town, Seramphos Falls, on the Arnold Trail, Route 4. (2)
Four Lunch Grounds on Kennebago Lake.
Four Lunch Grounds on Kennebago River.
*Four Lunch Grounds on Rangeley Lake.

Hancock County

Twp. 10, S. D., Fish Hatchery on Tunk Lake, Route 182.
Twp. 3, N. D., Grand Falls on Nicatous Road, Route 188.

Oxford County

Adamstown, Big Birch Island in Cupsuptic Lake. (2)
Richardsontown, Little Pine Island in Richardson Lake Narrows. (2)
Richardsontown, Student's Island in Mooselucmeguntic L. (2)
C. Twp., Spirit L. Island in Richardson L., South Arm.
Lincoln Plan., Small Island in Richardson Lake, West Arm.
Magalloway Plan., Small Island in Umbagog L. near Hedgehog Landing. (2)
Parkertown, Aziscoos L. at Twin Brook. (2)
Grafton, Screw Auger Falls, Route 26. (2)
Grafton, The Notch, Route 26.
Grafton, Cedar Brook, Route 26. (2)
12 Lunch Grounds on Mooselucmeguntic Lake.
13 Lunch Grounds on Richardson Lake.
8 Lunch Grounds on Aziscoos Lake.

Penobscot County

T. 1, R. 7, Rossignol's, on the East Branch, Medway Road, Route 11.
T. 1, R. 7, Grindstone Falls on the East Branch, Medway Road, Route 11.
T. 2, R. 6, Neally Brook on Medway Road, Route 11.
T. 3, R. 9, Windey Pitch, reached by the Katahdin Road.
*T. 3, R. 10, Foot of Hunt Trail, reached by the Katahdin Road.
*T. 3, R. 10, The Abol Trail, reached by the Katahdin Road.
T. 6, R. 7, Seboeis Bridge on the Seboeis Tote Road.
T. 7, R. 7, Camp Colby, Seboeis Farm on the Seboeis Tote Road.
T. 7, R. 8, Sawtelle Bridge on the Seboeis Tote Road.
Mt. Chase Town, Shin Ponds on Shin Ponds Road. (2)

Piscataquis County

T. 2, R. 12, Chesuncook Brook—On the Great Northern Road.
T. 3, R. 11, Frost Pond on the Great Northern Road. (8)
T. 3, R. 11, Ripogenus Dam on the Great Northern Road.
T. 7, R. 15, The end of The Seboomook-Caucomgomac Road.
Elliotsville Plan., Wilson Stream.

Somerset County

Pittston, Canada Falls Dam on Great Northern Road.
Plymouth, The Pittston-Seboomook Road.
T. 5, R. 16, Lost Pond on the Seboomook-Caucomgomac Road.
Dennistown, The Graft Farm, on the Quebec Road, Route 201.
Johnson Mt. Tract, The Spring on Johnson Mt., Route 201.
West Forks, Wilson's on Jackman Road, Route 201.
The Forks, The Steel Bridge, Moxie Road.
Caratunk, Jackman Road, Route 201.
Dead River, The Ledge House, on Route 16.
Dead River, Hurricane Brook, on Route 16.

Washington County

Devereau, Lovejoy Hill on the Airline Road, Route 9.
Twp. 30, The Race Grounds, on the Airline Road, Route 9.
Cooper, Dead Stream, on Meddybemps Road.
Edmunds, Cobscook Bay, near Burnt Cove, Route 1.
Twp. 18, E. D., Northern Stream, Route 191.
Twp. 27, E. D., The Chopping on Big Lake.
Twp. 27, E. D., The Falls on Grand Lake Stream.
Hinkley, Cold Spring on Grand Lake Stream Road.
Topsfield, Musquash Lake, Route 16. (2)
Codyville, Tomah Stream, Vanceboro Road, Route 16.
Forest City, Spring Brook.
Indiantown, Lewey's Lake on Route 1.

* Constructed by the C. C. C.

RAIN PRECIPITATION—1933-1934

NORTHERN SECTION

	Katahdin District		Davidson District		Mattawamkeag District		East Branch District		No. 9 District		Aroostook Waters District		Fish River District		Madawaska District		Allagash District	
	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934
May	3.09	1.07	2.24	1.26	2.08	1.16	2.71	1.29	1.62*	0.93	1.31*	0.80	1.28*	0.84	1.48*	0.59		0.54
June	4.22	3.86	3.95	4.54	4.29	5.44	4.71	5.72	3.20	4.20	4.14	4.35	4.55	4.00	2.51	4.57	4.85	3.37
July	1.38	2.48	1.20	2.19	2.87	4.77	1.62	3.09	1.15	4.41	3.13	3.97	3.06	3.81	2.64	3.29	4.57	3.80
August	3.93	2.57	2.65	3.00	1.99	2.33	3.64	2.40	2.14	1.15	1.74	1.99	1.86	2.42	2.89	2.22	4.10	2.66
September	4.60	4.11	4.50	3.48	4.05	3.08	4.45	4.03	1.62	1.35	4.24	4.05	4.30	5.33	4.18	2.41	1.76	2.19
Totals	17.22	14.09	14.54	14.47	15.28	16.78	17.13	16.53	9.73	12.04	14.56	15.16	15.05	16.40	13.70	13.08	15.28	12.56

* Record began May 14.

EASTERN SECTION

	Pleasant River District		Passadumkeag District		Musquash-St. Croix Districts		East Machias District		Machias District		Union River District	
	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934
May	1.30	.75	3.16	.49	2.15	.25	3.40	.47	1.49	.20	1.76	.48
June	4.32	4.35	3.74	3.67	3.65	3.58	2.70	5.63	2.57	2.83	1.90	3.58
July	3.06	3.63	.68	3.74	.56	.87	.78	1.59	.87	.97	.71	2.48
August	3.80	1.72	4.85	2.68	3.69	3.75	6.04	2.43	4.09	2.99	3.74	2.16
September	1.60	4.60	2.47	3.56	2.08	4.46	3.76	6.58	3.55	6.58	3.05	5.98
Totals	14.08	15.05	14.90	14.14	12.13	12.91	16.68	16.70	12.57	13.57	11.16	14.68

RAIN PRECIPITATION—1933-1934

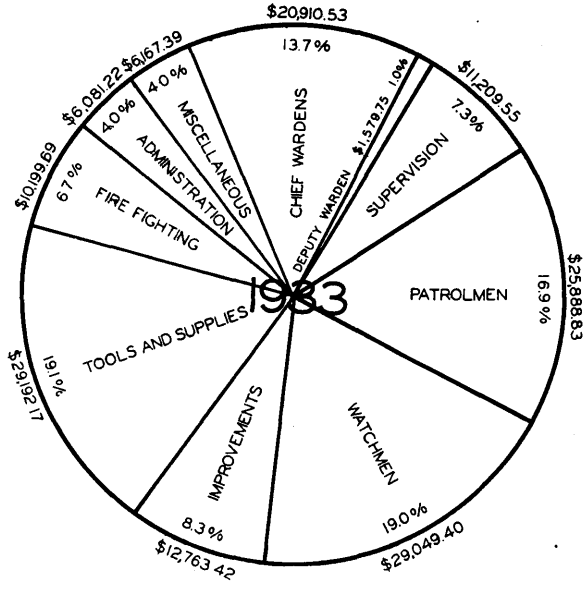
SOUTHERN SECTION

	Dead River District		Parlin Pond District		Moose River District		Carrabassett District		Rangeley-Upton District		Rangeley-Cupsuptic District	
	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934
May	3.09	0.60	2.71	1.55	4.25	1.80	3.30	1.75	2.52	1.65	2.26	2.48
June	2.08	2.65	1.78	4.40	2.15	4.04	1.40	4.95	1.89	3.37	2.01	5.68
July	5.09	3.74	3.15	2.69	2.54	3.28	5.55	3.10	5.19	4.93	5.96	4.80
August	3.59	2.42	3.22	2.69	2.26	2.57	5.40	2.60	3.71	1.22	5.36	2.79
September	2.23	3.70	0.51	3.68	1.29	4.24	3.10	6.60	0.33	3.61	2.03	4.34
Totals	16.08	13.11	11.37	15.01	12.49	15.93	18.75	19.00	13.64	14.78	17.62	20.09

WESTERN SECTION

	Upper St. John District		Musquacook District		Seven Islands District		Chamberlain District		Seboomook District		Moosehead District		Chesuncook District	
	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934	1933	1934
May	1.91	1.35	1.85	2.06	1.95	1.00	2.54	2.24	2.01	1.49	3.72	1.74	3.10	1.61
June	5.47	4.33	4.60	4.54	3.55	3.51	7.69	4.30	2.86	4.51	3.33	6.45	3.27	5.12
July	1.94	6.61	3.58	3.10	5.77	7.26	2.77	5.36	1.46	4.23	3.87	3.96	3.64	3.96
August	2.36	1.57	3.67	3.41	2.48	1.22	1.38	2.48	2.58	2.89	3.34	2.08	4.12	2.12
September	1.27	3.45	2.75	5.58	1.96	3.66	2.41	4.74	1.74	4.32	4.40	4.25	4.40	4.11
Totals	12.95	17.31	16.45	18.69	15.71	16.65	16.79	19.12	10.65	17.44	18.66	18.48	18.53	16.92

MAINE FORESTRY DISTRICT



TOTAL DISBURSEMENTS $153,041.95

Maine Forestry District

FINANCIAL STATEMENT

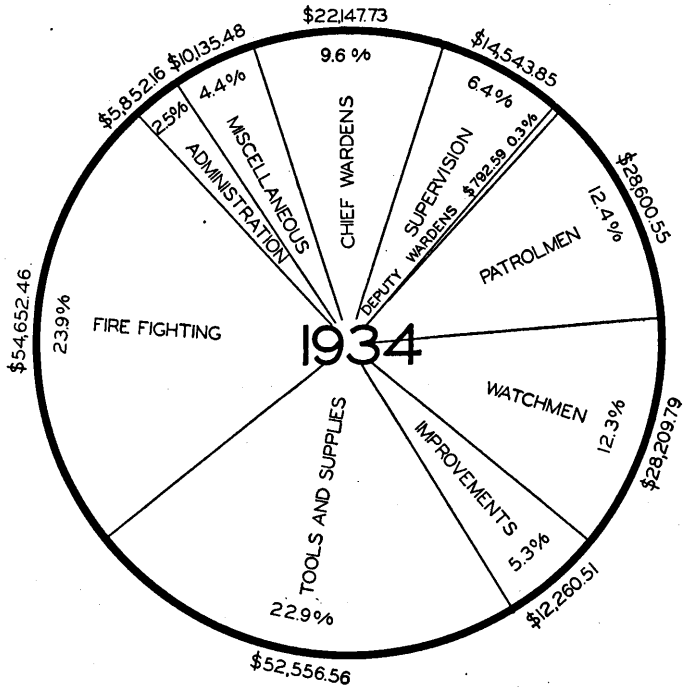
1933

Receipts		
Balance on hand January 1, 1933	$106,129.73	
1933 Assessment	158,878.22	
Interest on Deposits	62.03	
Federal Cooperation	26,719.88	
Miscellaneous	3,196.49	
Total Receipts		$294,986.35
Disbursements		
Chief Wardens	$ 20,910.53	
Deputy Wardens	1,579.75	
Supervision	11,209.55	
Patrolmen	25,888.83	
Watchmen	29,049.40	
Improvements	12,763.42	
Tools and Supplies	29,192.17	
Fire Fighting	10,199.69	
Administration	6,081.22	
Miscellaneous	6,167.39	
		$153,041.95
		$141,944.40
Amount tied up in the closed State Trust Co.		9,743.94
Balance on hand January 1, 1934		$132,200.46

EXPENDITURES BY WATERSHEDS 1933

	St. John	Penobscot	Kennebec	Andros-coggin	Machias	Totals
Chief Warden	$ 6,695.30	$ 7,724.83	$ 4,074.59	$ 1,100.64	$ 1,315.17	$ 20,910.53
Dep'ty Wardens	65.39	624.40	235.00	233.45	421.51	1,579.75
Supervision	2,962.73	3,107.31	1,243.67	1,185.68	2,710.16	11,209.55
Patrolmen	8,448.58	8,980.40	2,373.94	2,488.54	3,597.37	25,888.83
Watchmen	6,891.44	8,823.79	7,710.88	1,255.79	4,367.50	29,049.40
Improvements	2,857.44	2,948.66	3,284.09	2,506.27	1,166.96	12,763.42
T'ls and Sup's	6,016.19	8,030.69	6,989.32	3,558.44	4,597.53	29,192.17
Fire Fighting	3,605.60	4,135.17	1,342.38		1,116.54	10,199.69
Administration	1,326.93	1,295.88	1,156.11	1,146.00	1,156.30	6,081.22
Miscellaneous	1,897.48	1,674.92	1,127.15	552.90	914.94	6,167.39
TOTALS	$40,767.08	$47,346.05	$29,537.13	$14,027.71	$21,363.98	$153,041.95

MAINE FORESTRY DISTRICT



TOTAL DISBURSEMENTS $229,751.68

Maine Forestry District

FINANCIAL STATEMENT
1934

Receipts		
Balance on hand January 1, 1934	$141,944.40	
1934 Assessment	158,878.22	
Federal Cooperation	49,014.65	
Miscellaneous	4,195.04	
Total Receipts	$354,032.31	
Forestry District tax charged off as uncollectible	438.69	
	$353,593.62	
Refund to Land Owners	31,775.64	
		$321,817.98
Disbursements		
Chief Wardens	$ 22,147.73	
Deputy Wardens	792.59	
Supervision	14,543.85	
Patrolmen	28,600.55	
Watchmen	28,209.79	
Improvements	12,260.51	
Tools and supplies	52,556.56	
Fire Fighting	54,652.46	
Administration	5,852.16	
Miscellaneous	10,135.48	
		$229,751.68
		$ 92,066.30
Amount tied up in the closed State Trust Co.		9,135.04
Balance on hand January 1, 1935		$ 82,931.26

EXPENDITURES BY WATERSHEDS 1934

	St. John	Penobscot	Kennebec	Andros-coggin	Machias	Totals
Chief Wardens	$ 7,037.37	$ 7,900.91	$ 4,258.14	$ 1,482.58	$ 1,468.73	$ 22,147.73
Dep'ty Wardens	61.35	369.89		169.98	191.37	792.59
Supervision	4,530.97	4,251.05	1,503.55	1,412.94	2,845.34	14,543.85
Patrolmen	8,665.34	9,656.36	3,406.20	3,055.40	3,817.25	28,600.55
Watchmen	7,452.57	8,816.54	5,954.70	2,174.98	3,811.00	28,209.79
Improvements	2,500.83	3,886.43	2,005.43	3,023.64	844.18	12,260.51
T'ls and Sup's	12,100.72	13,607.64	9,735.55	8,066.21	9,046.44	52,556.56
Fire Fighting	12,460.38	26,944.56	1,402.02	2,300.00	11,545.50	54,652.46
Administration	1,205.97	1,266.60	1,126.53	1,126.53	1,126.53	5,852.16
Miscellaneous	2,453.03	2,456.65	2,139.82	1,282.04	1,803.94	10,135.48
TOTALS	$58,468.53	$79,156.63	$31,531.94	$24,094.30	$36,500.28	$229,751.68

LOOKOUT STATIONS

Stations	Opened		Closed		No. Fires	
	1933	1934	1933	1934	1933	1934
Allagash Mt.	May 21	May 26	Sept. 23	Sept. 20	2	4
Aziscoos Mt.	May 20	May 22	Sept. 12	Sept. 27	1	16
Beetle Mt.	May 23	May 18	Sept. 25	Sept. 29	27	14
Bigelow Mt.	May 12	May 14	Oct. 8	Oct. 5	14	11
Boarstone Mt.	May 13	May 13	Oct. 7	Sept. 30	9	10
Boundary Bald	May 12	May 9	Oct. 7	Sept. 30	13	7
Burnt Mt.	May 13	May 13	Sept. 28	Sept. 16	5	6
Carr Pond Mt.	May 21	May 26	Sept. 30	Sept. 29	10	6
Clear Lake Mt.	June 5	June 1	Sept. 16	Sept. 22	25	11
Cooper Mt.	May 5	May 6	Oct. 7	Oct. 6	27	21
DeBoulie Mt.	May 27	May 20	Sept. 30	Sept. 29	22	9
*Deer Mt.	June 3	May 27	Sept. 9	Sept. 30	8	1
Depot Mt.	May 17	May 26	Sept. 23	Sept. 21	3	8
Daicey Mt.	May 15	May 20	Sept. 14	Sept. 18	73	41
Dill Ridge	May 3	May 8	Sept. 23	Sept. 23	....	....
**Doubletop Mt.	....	....	....	....	....	....
**Flagstaff Mt.	....	....	....	....	....	....
Green Mt.	June 21	June 25	Aug. 25	Sept. 14	3	1
Hardwood Mt.	May 17	May 26	Sept. 30	Sept. 16	21	10
Hedgehog Mt.	May 10	May 13	Sept. 16	Sept. 15	97	9
**Horse Mt.	....	....	....	....	....	....
Howe Brook Mt.	May 9	June 1	Sept. 20	Sept. 30	18	7
Kibbie Mt.	May 16	May 15	Oct. 9	Oct. 9	6	5
Kineo Mt.	May 8	May 6	Oct. 7	Sept. 30	7	8
Lawler Hill	May 8	May 2	Sept. 17	Sept. 16	37	19
Lead Mt.	May 7	May 2	Sept. 16	Sept. 30	32	20
Little Russell Mt.	May 20	May 29	Sept. 27	Sept. 29	....	3
Mattamiscontis Mt.	May 16	May 14	Oct. 10	Sept. 28	9	6
Mt. Abram	May 17	May 26	Sept. 30	Oct. 8	10	15
Mt. Chase	May 8	May 2	Sept. 29	Sept. 16	27	40
Mt. Coburn	May 19	May 15	Oct. 7	Oct. 8	30	17
Mitchell Mt.	May 7	May 10	Sept. 28	Sept. 28	6	2
Moxie Bald	May 10	May 20	Sept. 23	Oct. 8	11	10
Musquacook Mt.	May 26	May 29	Sept. 23	Sept. 7	8	12
Musquash Mt.	May 8	May 17	Sept. 30	Sept. 21	10	2
No. 4 Mt.	May 19	May 13	Sept. 9	Sept. 19	5	12
No. 5 Mt.	June 6	May 16	Oct. 7	Sept. 28	19	9
No. 9 Mt.	May 8	May 10	Sept. 23	Sept. 17	25	3
Norway Bluff	May 13	May 17	Sept. 28	Sept. 28	57	18
**Nulhedus Mt.	....	....	....	....	....	....

Stations	Opened		Closed		No. Fires	
	1933	1934	1933	1934	1933	1934
Oak Hill	May 9	May 12	Sept. 22	Sept. 19	16	8
Old Spec Mt.	May 26	May 29	Sept. 9	Sept. 22	....	2
**Otter Lake Mt.	....	....	....	....	....	....
Passadumkeag Mt.	May 4	May 9	Sept. 30	Sept. 29	5	13
Peaked Mt.	May 1	May 6	Sept. 30	Sept. 30	15	7
Pirate Hill	May 8	May 17	Sept. 30	Sept. 21	2	1
**Pleasant Pond Mt.	....	June 17	....	Sept. 18	....	9
Pocomoonshine Mt.	May 6	May 12	Sept. 16	Sept. 30	35	25
Priestly Mt.	May 21	May 15	Sept. 20	Sept. 19	100	59
Ragged Mt.	May 8	May 5	Sept. 16	Sept. 30	65	39
Rocky Mt.	May 22	May 21	Sept. 28	Oct. 10	95	69
Round Mt.	May 9	May 14	Oct. 7	Sept. 18	128	63
Saddleback Mt.	May 18	June 2	Sept. 10	Sept. 22	....	7
Schoodic Mt.	May 4	May 12	Sept. 28	Sept. 28	37	42
Snow Mt.	May 24	May 16	Oct. 7	Sept. 19	4	8
Soper Mt.	June 11	June 3	Sept. 30	Sept. 20	2	4
Soubunge Mt.	May 28	May 22	Sept. 19	Sept. 18	14	38
Spencer Mt.	May 9	May 8	Sept. 16	Oct. 8	32	21
Spoon Mt.	May 11	May 16	Sept. 28	Sept. 30	9	12
Squa Pan Mt.	May 8	May 3	Sept. 23	Sept. 18	35	14
Squaw Mt.	May 15	May 13	Aug. 19	Sept. 18	10	11
*Stockholm Mt.	May 27	....	July 22	....	....	....
Three Brooks Mt.	May 15	May 12	Sept. 21	Oct. 8	19	17
Trout Mt.	May 9	May 13	Sept. 17	Sept. 16	22	28
**Tumbledown Mt.	....	....	....	....	....	....
Wadleigh Mt.	May 24	May 18	Sept. 18	Sept. 19	11	14
Washington Bald	May 5	May 19	Oct. 7	Sept. 22	16	25
*Wesley Mt.	May 8	May 28	Aug. 25	Aug. 31	19	18
Whitney Hill	May 8	May 10	Sept. 18	Sept. 17	46	24
West Kennebago Mt.	June 3	May 22	Sept. 2	Sept. 19	9	23
White Cap Mt.	May 28	May 15	Sept. 23	Sept. 20	13	25
Williams Mt.	May 11	May 5	Oct. 6	Sept. 18	51	18
					1,487	1,037
Fires discovered by patrolmen					75	93
					1,562	1,130

* Emergency stations opened for a few days.

** Emergency stations not opened.

FIRE RECORD 1933

Location	Date	Acreage	Cause	Damage
Aroostook County				
T. 4, R. 3, WELS	May 7	20	Brush burning	$20.00
T. 1, R. 4, WELS	May 7	50	Smokers	50.00
T. C, R. 2, WELS	May 8	2½	Campers	....
Glenwood Pl.	May 9	2	Brush burning	....
T. D, R. 2, WELS	May 12	5	Incendiary	10.00
T. 1, R. 5, WELS	May 12	40	Smokers	40.00
Macwahoc Pl.	May 12	½	Smokers	....
Silver Ridge Pl.	May 15	½	Smokers	10.00
Westmanland Pl.	May 16	50	Brush burning	50.00
T. 14, R. 6, WELS	May 16	¼	Lumbermen	10.00
Macwahoc Pl.	May 17	2	Incendiary	5.00
T. A, R. 5, WELS	May 18	....	Miscellaneous	....
Letter E. Pl.	May 18	15	Campers	30.00
T. 7, R. 4, WELS	May 21	400	Incendiary	20.00
T. 7, R. 4, WELS	May 22	1,200	Campers	50.00
T. C, R. 2, WELS	May 23	2	Smokers	5.00
T. 17, R. 4, WELS	May 25	200	Incendiary	200.00
T. 17, R. 4, WELS	May 25	3	Incendiary	5.00
T. 8, R. 5, WELS	May 25	50	Smokers	50.00
T. D, R. 2, WELS	May 26	2	Incendiary	10.00
T. D, R. 2, WELS	May 26	5	Incendiary	5.00
T. D, R. 2, WELS	May 26	30	Incendiary	35.00
T. 17, R. 3, WELS	May 26	10	Brush burning	20.00
T. 14, R. 5, WELS	June 4	3	Campers	10.00
Silver Ridge Pl.	June 8	....	Brush burning	....
T. 10, R. 6, WELS	June 9	6	Smokers	10.00
T. D & E, R. 2, WELS	June 9	....	Incendiary	....
T. 10, R. 3, WELS	June 10	½	Smokers	....
T. 3, R. 3, WELS	June 16	⅛	Campers	....
T. 8, R. 4, WELS	July 5	....	Brush burning	....
T. 14, R. 5, WELS	July 15	5	Lumbermen	100.00
Garfield Pl.	July 15	½	Incendiary	....
Winterville Pl.	July 22	(Bridge & Shack)	Incendiary	50.00
Reed Pl.	July 27	¼	Lumbermen	5.00
T. 4, R. 3, WELS	July 28	40′ x 50′	Campers	....
Garfield Pl.	July 29	20′ x 15′	Campers	....
T. 8, R. 5, WELS	July 31	35′ x 16′	Miscellaneous	....
Garfield Pl.	July 31	30′ x 30′	Incendiary	....
T. 7, R. 3, WELS	July 31	2	Campers	....
T. 4, R. 3, WELS	Aug. 4	¼	Campers	2.00
Reed Pl.	Aug. 6	½	Smokers	5.00
T. 10, R. 3, WELS	Aug. 7	10 sq. ft.	Brush burning	....
T. 13, R. 16, WELS	Aug. 9	⅛	Smokers	....
T. 1, R. 4, WELS	Aug. 10	50′ x 50′	Lumbermen	2.00
Allagash Pl.	Aug. 11	2	Brush burning	5.00
T. 8, R. 4, WELS	Aug. 11	....	Campers	....
T. 17, R. 5, WELS	Aug. 11	1	Smokers	....
Garfield Pl.	Aug. 15	100′ x 50′	Smokers	....
Garfield Pl.	Aug. 16	54′	Smokers	....
T. 10, R. 4, WELS	Aug. 18	8	Campers	325.00
Reed Pl.	Aug. 18	300	Campers	300.00

Location	Date	Acreage	Cause	Damage
Aroostook County Cont.				
T. 10, R. 4, WELS ..	Aug. 18	20	Campers	50.00
Hammond Pl.	Aug. 19	1	Unknown	20.00
T. 1, R. 4, WELS ...	Aug. 19	10' x 20'	Campers	....
T. 8, R. 5, WELS ...	Aug. 19	⅛	Lumbermen	10.00
Glenwood Pl.	Aug. 22	⅛	Smokers	....
T. 15, R. 9, WELS ..	Aug. 23	⅛	Campers	....
T. 13, R. 16, WELS .	Aug. 29	½	Campers	....
T. 1, R. 5, WELS ...	Sept. 7	¼	Campers	10.00
T. 13, R. 5, WELS ..	Sept. 13	¼	Hunters	20.00
T. A, R. 5, WELS ..	Sept. 14	....	Campers	....
T. 13, R. 7, WELS ..	Oct. 2	(Old Camps)	Incendiary	....
Franklin County				
T. 1, R. 7, WBKP ..	May 15	1	Railroad	5.00
Dallas Pl.	May 17	1	Smokers	5.00
T. 1, R. 8, WBKP ..	Sept.	....	Lightning	....
Hancock County				
T. No. 28, M.D.	May 6	50	Smokers	50.00
T. No. 33, M.D.	May 7	15	Smokers	15.00
T. No. 7, S.D.	May 17	17	Incendiary	50.00
T. No. 10, S.D.	May 18	20	Campers	20.00
T. No. 33, M.D.	June 9	10	Smokers	10.00
T. No. 28, M.D.	July 23	¾	Campers	20.00
T. No. 9, S.D.	July 26	1½	Smokers	5.00
Penobscot County				
Stacyville Pl.	May 7	2	Brush burning ..	10.00
Indian No. 3	May 7	5	Smokers	25.00
Indian No. 3	May 7	8	Smokers	20.00
T. A, R. 7, WELS ..	May 12	½	Smokers	5.00
Drew Pl.	May 15	8	Brush burning ..	60.00
Indian No. 3	May 15	¼	Smokers	....
Indian No. 3	May 16	30	Smokers	30.00
Indian No. 4	May 16	1½	Railroad	....
T. 1, R. 6, WELS ...	May 18	25	Lightning	25.00
T. 1, R. 7 & 8, WELS	May 18	960	Incendiary	1,200.00
T. 1, R. 7, WELS ...	May 19	⅛	Smokers	....
Indian No. 3	May 23	50 sq. ft.	Railroad	....
T. 4, R. 7, WELS ...	May 23	(Camp grounds)	Brush burning ..	....
Stacyville Pl.	June 8	3	Smokers	10.00
Indian No. 3	June 10	½	Smokers	....
T. 2, R. 8, WELS ...	June 11	80	Campers	280.00
Indian No. 3	July 2	20' x 40'	Smokers	2.00
T. 3, R. 7, WELS ...	July 14	⅛	Lightning	....
T. 7, R. 6, WELS ...	July 30	....	Smokers	....
T. 1, R. 6, WELS ...	July 31	¼	Smokers	1.00
T. 3, R. 7, WELS ...	Aug. 6	¼	Lumbermen	6.00
T. 1, R. 8, WELS ...	Aug. 6	1½	Smokers	5.00
T. 4, R. 7, WELS ...	Aug. 7	....	Smokers	....
Indian No. 4	Aug. 10	⅛	Campers	1.00
T. 4, R. 7, WELS ...	Aug. 12	....	Miscellaneous ...	....
T. No. 1, N.D.	Aug. 12	½	Smokers	....
T. 2, R. 7, WELS ...	Aug. 15	¼	Brush burning ..	2.00

Location	Date	Acreage	Cause	Damage
Penobscot County Cont.				
T. A, R. 7, WELS	Aug. 16	8' x 10'	Campers	....
Indian No. 3	Aug. 17	½	Smokers	1.00
T. 1, R. 8, WELS	Aug. 20	2	Incendiary	5.00
Indian No. 4	Aug. 21	1½	Smokers	6.00
T. 2, R. 8, WELS	Aug. 23	¼	Smokers	2.00
T. 1, R. 8, WELS	Sept. 14	(Camps) ⅛	Campers	400.00
Piscataquis County				
T. 6, R. 9, WELS	Apr.	4	Unknown	10.00
T. 3, R. 15, WELS	Apr. 29	1	Miscellaneous	5.00
T. A, R. 10, WELS	May 23	¼	Lightning	....
T. A, R. 12, WELS	June 9	2	Lightning	4.00
T. A, R. 12, WELS	June 11	....	Lightning	....
T. 6, R. 10, WELS	June 26	....	Lightning	....
T. 5, R. 10, WELS	July 24	....	Lightning	....
T. 7, R. 9, WELS	Aug. 1	....	Lightning	....
T. 3, R. 10, WELS	Aug. 11	5	Smokers	25.00
T. 2, R. 9, WELS	Aug. 12	⅛	Smokers	....
T. 1, R. 11, WELS	Aug. 27	½	Lightning	....
T. A. R. 11, WELS	Aug. 29	1	Campers	3.00
T. 2, R. 11, WELS	Sept. 13	....	Campers	....
Somerset County				
T. 1, R. 6, BKP, WKR	May 8	5	Smokers	10.00
Moose River Pl.	May 12	4	Brush burning	5.00
T. 5, R. 3, NBKP	May 18	10	Smokers	50.00
Mayfield Pl.	May 19	2	Campers	50.00
Holeb	May 23	½	Railroad	....
T. 1, R. 6, BKP, WKR	May 25	1½	Miscellaneous	45.00
Long Pond Pl.	June 5	....	Brush burning	....
Attean	June 5	¼	Smokers	5.00
T. 6, R. 19, WELS	June 7	500	Brush burning	500.00
Long Pond Pl.	June 8	¼	Smokers	5.00
T. 5, R. 3, NBKP	June 10	¼	Brush burning	5.00
T. 8, R. 19, WELS	June 13	250	Brush burning	250.00
Dennistown Pl.	July 23	(Old c'mp grou'd)	Miscellaneous	....
T. 2, R. 5, BKP, EKR	July 26	4	Smokers	20.00
Bigelow Pl.	July 28	1	Smokers	5.00
Forsythe	Aug. 5	(Old c'mp grou'd)	Smokers	....
Flagstaff Pl.	Aug. 7	3	Smokers	20.00
T. 3, R. 7, BKP, WKR	Aug. 11	4	Smokers	20.00
West Forks Pl.	Aug. 12	3	Smokers	172.00
East Moxie	Aug. 20	1/10	Smokers	....
T. 4, R. 4, NBKP	Aug. 23	....	Smokers	....
T. 4, R. 4, NBKP	Aug. 23	....	Smokers	....
Long Pond Pl.	Aug. 24	....	Campers	....
Washington County				
Whiting	Apr. 23	100	Incendiary	150.00
Grand Lake Stream Pl.	May 6	1½	Smokers	8.00
T. No. 19, E.D.	May 7	65	Smokers	200.00
Edmunds	May 7	50	Incendiary	150.00
Whiting	May 7	50	Incendiary	75.00

Location	Date	Acreage	Cause	Damage
Washington County Cont.				
Northfield	May 7	10	Incendiary	10.00
Cooper	May 7	2½	Incendiary	....
Beddington	May 7	250	Brush burning	1,000.00
Whiting	May 9	100	Incendiary	150.00
Brookton	May 10	1	Miscellaneous	5.00
T. 7, R. 2, NBPP	May 10	4	Smokers	10.00
Whiting	May 15	....	Incendiary	....
T. 8, R. 4, NBPP	May 22	....	Unknown	....
T. No. 43, M.D.	May 23	....	Lightning	....
T. 7, R. 2, & T. 6, R. 1, NBPP	May 29	125	Campers	250.00
Northfield	June 9	30	Smokers	95.00
T. 6, R. 1, NBPP	June 10	½	Smokers	....
T. No. 29, M.D.	July 16	¼	Campers	....
T. 7, R. 2, NBPP	July 17	½	Lightning	5.00
T. No. 43, M.D.	July 18	3	Lightning	45.00
Edmunds	July 19	4	Incendiary	20.00
T. 8, R. 3, NBPP	Sept. 7	¾	Smokers	....
Grand Lake Stream Pl.	Sept. 14	1/20	Campers	2.00
T. No. 6, N.D.	Nov. 2	10	Smokers	50.00

FIRE RECORD 1934

Location	Date	Acreage	Cause	Damage
Aroostook County				
T. 9, R. 5, WELS	May 1	250	Railroad	$ 2.00
T. 16, R. 8, WELS	May 21	½	Lumbermen	....
Garfield Pl.	May 27	800	Incendiary	325.00
T. E, R. 2, WELS	May 27	2	Incendiary	....
T. 13, R. 5, WELS	May 28	....	Lumbermen	....
T. 17, R. 4, WELS	May 29	1½	Smokers	5.00
T. 10, R. 14; T. 11, R. 14, 15, 16 & 17; T. 12, R. 15, 16 & 17; T. 13, R. 15 & 16, WELS	May 29	59,290	Brush burning	203,860.00
T. 20, R. 11 & 12, WELS	May 30	250	Brush burning	250.00
T. 14, R. 6, WELS	May 31	1	Lumbermen	....
T. 17, R. 4, WELS	May 31	1	Smokers	5.00
Westmanland Pl.	May 31	25	Brush burning	80.00
T. 13, R. 5, WELS	May 31	600	Lumbermen	1,770.00
T. D, R. 2, WELS	June 1	150	Incendiary	400.00
T. 14, R. 5, WELS	June 1	3	Lumbermen	30.00
Winterville Pl.	June 1	900	Fishermen	3,660.00
T. 17, R. 5, WELS	June 3	10	Fishermen	10.00
Glenwood Pl.	June 4	....	Burning truck	....
T. 12, R. 8, WELS	July 12	....	Lightning	...
T. E, R. 2, WELS	July 14	¼	Brush burning	....
T. 11, R. 9, WELS	July 15	....	Lightning	....
T. 2, R. 4, WELS	July 21	¾	Lumbermen	10.00
T. 2, R. 4, WELS	Aug. 15	2¼	Lumbermen	1.25
T. D, R. 2, WELS	Aug. 15	¼	Brush burning	....
T. 1, R. 5, WELS	Aug. 17	1	Brush burning	....
T. 11, R. 13, WELS	Aug. 17	....	Lumbermen	....
T. 16, R. 6, WELS	Aug. 18	1	Lumbermen	3.00
T. 3, R. 4, WELS	Aug. 19	2	Fishermen	5.00
T. 16, R. 5, WELS	Aug. 20	½	Fishermen	....
T. 10, R. 6, WELS	Aug. 21	¼	Berry pickers	....
T. 10, R. 6, WELS	Aug. 21	¼	Incendiary	2.50
T. 1, R. 4, WELS	Aug. 27	¼	Fishermen	....
T. 20, R. 11 & 12, WELS	Sept. 1	30	Lumbermen	1,052.00
Franklin County				
Twp. D	May 30	2½	Lumbermen	10.00
T. 3, R. 4, WBKP	May 31	20	Smokers	50.00
T. 3, R. 3, WBKP	June 6	¼	Lightning	....
T. 3, R. 3, WBKP	July 13	10 sq. ft.	Lightning	....
T. 3, R. 3, WBKP	July 13	¼	Lightning	....
T. 3, R. 4, WBKP	July 17	8⅛	Lumbermen	372.00
T. Letter E	July 26	9½	Lumbermen	105.00
T. No. 6 North of Weld	Aug. 20	⅛	Berry pickers	....
T. No. 6 North of Weld	Aug. 25	4	Berry pickers	....
Jerusalem	Aug. 26	3	Lumbermen	90.00

Location	Date	Acreage	Cause	Damage
Hancock County				
T. No. 10, S.D.	May 15	5	Fishermen	10.00
T. No. 10, S.D.	May 18	2	Smokers	....
T. No. 32, M.D.	May 26	600	Fishermen	450.00
T. No. 41, M. D. & 4, N.D.	May 30	15,000	Fishermen	50,000.00
T. No. 7, S.D.	June 1	15	Fishermen	60.00
T. No. 7, S.D.	June 6	2	Railroad	....
T. No. 8, S.D.	June 8	Building	Incendiary	400.00
T. No. 33, M.D.	Aug. 14	⅛	Smokers	2.25
T. No. 39, M.D.	Aug. 15	....	Campers	....
T. No. 8, S. D.	Aug. 26	¼	Brush burning	5.00
Oxford County				
T. C.	June 27	½	Smokers	....
T. C.	July 12	¼	Fishermen	....
T. 4, R. 3, WBKP	Aug. 9	⅛	Berry pickers	....
Penobscot County				
Indian No. 3	April 30	1½	Smokers	10.00
T. A. R. 7, WELS	May 8	⅛	Smokers	....
Indian No. 4	May 8	8	Railroad	16.00
Drew Pl.	May 8	2	Buildings burning	....
T. A, R. 5, WELS	May 9	....	Campers	....
T. 6, R. 7, WELS	May 10	24 sq. ft.	Fishermen	....
T. 4, R. 7, WELS	May 13	....	Fishermen	....
T. A, R. 7, WELS	May 16	2	Smokers	5.00
T. 2, R. 6, WELS	May 21	½	Railroad	....
Webster Pl.	May 28	75	Fishermen	200.00
Indian No. 3	May 29	400	Lumbermen	1,000.00
T. No. 1, N.D.	May 29	26	Lumbermen	630.00
Indian No. 4	May 30	4	Incendiary	20.00
T. 1, R. 6 & 7, WELS	June 1	325	Smokers	375.00
T. 1, R. 7, WELS	July 3	100 sq. ft.	Lightning	....
T. A, R. 7, WELS	July 11	300 sq. ft.	Railroad	....
Drew Pl.	July 17	2	Fishermen	....
T. 7, R. 8, WELS	July 20	....	Lightning	....
T. 3, R. 7, WELS	July 20	1	Lumbermen	4.00
Indian No. 3	July 21	¼	Railroad	....
T. A, R. 7, WELS	July 21	60 sq. ft.	Berry pickers	....
T. A, R. 7, WELS	July 21	50 sq. ft.	Berry pickers	....
T. A, R. 7, WELS	July 21	1½	Berry pickers	5.00
T. A, R. 7, WELS	July 25	⅜	Berry pickers	....
T. 3, R. 7, WELS	July 25	¼	Lumbermen	4.00
Indian No. 3	July 27	⅛	Berry pickers	.
T. A, R. 7, WELS	Aug. 20	1	Berry pickers	....
T. 3, R. 1, NBPP	Aug. 22	....	Fishermen	....
T. 1, R. 6, WELS	Aug. 24	¼	Fishermen	1.00
T. 6, R. 6, WELS	Aug. 27	70 sq. ft.	Fishermen	....
T. 7, R. 6, WELS	Aug. 29	....	Lumbermen	....
Piscataquis County				
T. 1, R. 9, WELS	May 12	8	Incendiary	30.00
Elliottsville Pl.	May 16	3	Miscellaneous	30.00

Location	Date	Acreage	Cause	Damage
Piscataquis County Cont.				
T. 2, R. 11, WELS	May 18	20	Fishermen	20.00
T. 4, R. 9, WELS	May 19	2	Miscellaneous	10.00
T. 1, R. 10, WELS	May 20	1	Fishermen	....
T. A, 2, WELS	May 21	4	Campers	85.00
T. 2, R. 11, WELS	May 29	⅛	Fishermen	....
T. 3, R. 8 & 9; 2, R. 8, 9, & 10; 1, R. 8 & 9, WELS	May 29	35,440	Lumbermen	105,000.00
T. 9, R. 14, WELS	June 2	90	Incendiary	....
T. 1, R. 10, WELS	June 3	3	Lumbermen	6.00
T. 7, R. 9, WELS	June 6	....	Lightning	....
T. 7, R. 10, WELS	June 6	....	Lightning	....
T. 2, R. 6, BKP, EKR	June 6	½	Lightning	25.00
T. 7, R. 13, WELS	June 10	150	Lightning	150.00
T. 8, R. 9, WELS	June 24	....	Lightning	....
T. 3, R. 13, WELS	July 2	....	Lightning	....
T. 9, R. 10, WELS	July 3	....	Lightning	....
T. 3, R. 10, WELS	July 6	....	Lightning	....
T. 3, R. 10, WELS	July 6	⅛	Smokers	....
T. 6, R. 13, WELS	July 6	20	Lightning	50.00
T. 3, R. 11, WELS	July 16	⅛	Smokers	....
T. 2, R. 9, WELS	July 18	⅛	Lumbermen	....
T. 3, R. 11, WELS	July 19	¾	Fishermen	....
T. 5, R. 9, WELS	July 20	....	Lightning	....
T. 2, R. 9, WELS	July 22	¼	Lumbermen	....
T. 2, R. 9, WELS	July 23	⅛	Incendiary	....
T. 3, R. 11, WELS	July 23	⅛	Fishermen	....
T. 2, R. 9, WELS	July 24	1/16	Lightning	....
T. 2, R. 10, WELS	Aug. 19	½	Lumbermen	....
T. 4, R. 10, WELS	Aug. 20	1	Lumbermen	25.00
T. 2, R. 9, WELS	Aug. 20	½	Lumbermen	....
Moose Island	Aug. 21	1/16	Smokers	4.00
T. 2, R. 10, WELS	Aug. 25	4	Lumbermen	2.00
T. 4, R. 10, WELS	Aug. 26	6	Lumbermen	137.00
T. 2, R. 10, WELS	Aug. 26	2	Lumbermen	....
T. A, R. 13, WELS	Aug. 27	¼	Smokers	5.00
Somerset County				
Moscow	April 19	4	Smokers	....
The Forks Pl.	May 4	2	Brush burning	....
T. 1, R. 6, BKP, WKR	May 22	Old Dam	Lightning	200.00
T. 1, R. 6, BKP, WKR	May 22	2	Lightning	4.00
T. 3, R. 7, BKP, WKR	May 24	½	Fishermen	2.00
T. 6, R. 19, WELS	May 28	600	Brush burning	1,200.00
Moscow	May 30	½	Lumbermen	2.00
T. 7, R. 19, WELS	May 30	100	Brush burning	380.00
T. 1, R. 7, BKP, WKR	May 30	3	Lightning	50.00
T. 9, R. 18, WELS	May 31	400	Brush burning	1,400.00
Moose River Pl.	July 2	....	Lightning	....
T. 3, R. 1, NBKP	July 11	50' x 10'	Smokers	....
T. 1, R. 7, BKP, WKR	July 18	....	Unknown	....
Caratunk Pl.	July 22	1	Fishermen	10.00
T. 1, R. 6, BKP, WKR	Aug. 8	(Old L'b'er C'ps)	Fishermen	....

Location	Date	Acreage	Cause	Damage
Somerset County Cont.				
The Forks Pl.	Aug. 21	30	Lumbermen	400.00
Caratunk Pl.	Aug. 21	....	Fishermen	....
T. 2, R. 4, BKP, WKR	Aug. 21	300	Fishermen	1,000.00
Caratunk Pl.	Aug. 25	....	Berry pickers	....
Taunton & Raynham	Aug. 26	2	Incendiary	90.00
Taunton & Raynham	Aug. 27	5	Incendiary	120.00
Washington County				
Whiting	May 13	½	Incendiary	....
Marion	May 19	5	Fishermen	15.00
Whiting	May 19	100	Incendiary	300.00
Whiting	May 19	½	Incendiary	....
Whiting	May 27	25	Incendiary	160.00
T. No. 24, M.D.	May 29	1½	Fishermen	....
T. No. 6, N.D.	May 30	¼	Fishermen	5.00
Topsfield	May 30	6,400	Fishermen	6,400.00
T. No. 29, M.D.	May 30	2,500	Fishermen	1,400.00
T. 1, R. 1, T.S.	May 31	1½	Lumbermen	75.00
Whiting	June 1	¼	Incendiary	....
Northfield	June 2	1	Lumbermen	4.00
T. No. 42, M.D.	July 5	¼	Lightning	5.00
T. No. 42 & 36, M.D.	July 8	5,200	Lightning	1,000.00
Lambert Lake Pl.	July 9	¼	Campers	....
T. No. 18, M.D.	July 24	½	Lumbermen	....
Marion	Aug. 19	....	Berry pickers	....
Whiting	Aug. 21	½	Fishermen	....
T. No. 27, E.D.	Aug. 22	⅛	Fishermen	5.00
Wesley	Aug. 24	2	Lumbermen	10.00
T. No. 30, M.D.	Aug. 26	1½	Fishermen	10.00
T. 6, R. 1, NBPP	Sept. 6	½	Campers	5.00

Summary of Forest Fires for 1933-1934 by Months, Counties and Causes

	No. Fires		Acreage		Damage	
	1933	1934	1933	1934	1933	1934
By Months:						
April	3	2	105.00	5.50	$ 165.00	$ 10.00
May	63	57	3,916.39	122,988.50	4,163.00	375,456.00
June	21	20	886.40	1,650.50	1,184.00	5,120.00
July	24	42	23.14	5,247.57	278.00	1,572.25
August	44	42	357.19	370.06	987.00	1,910.75
September	8	2	1.31	30.50	432.00	1,057.00
October	1	..	....	....	....	....
November	1	..	10.00	....	50.00	....
	165	165	5,299.43	130,293.13	$ 7,259.00	$385,126.00
By Counties:						
Aroostook	62	32	2,441.35	62,320.75	$ 1,549.00	$211,470.75
Franklin	3	10	2.00	38.25	10.00	627.00
Hancock	7	10	114.25	15,624.63	170.00	50,927.25
Oxford	..	3	....	10.37	....	....
Penobscot	33	31	1,131.25	850.63	2,096.00	2,270.00
Piscataquis	13	36	13.78	35,757.62	47.00	105,579.00
Somerset	23	21	788.75	1,450.00	1,162.00	4,858.00
Washington	24	22	808.00	14,240.88	2,225.00	9,394.00
	165	165	5,299.43	130,293.13	$ 7,259.00	$385,126.00
By Causes:						
Berry pickers	..	12	....	7.25	$	$ 5.00
Brush burning	18	11	1,098.50	60,669.00	1,927.00	207,175.00
Campers	31	5	1,780.96	4.75	1,803.00	90.00
Fishermen	..	35	....	25,840.38	....	63,263.00
Hunters	1	..	.25	....	20.00	....
Incendiary	24	16	1,943.00	1,187.63	2,150.00	1,847.50
Lightning	15	24	31.38	5,376.31	79.00	1,484.00
Lumbermen	5	35	5.88	36,581.75	133.00	110,742.25
Miscellaneous	7	4	3.50	7.00	55.00	40.00
Railroad	4	6	3.00	260.75	5.00	18.00
Smokers	57	16	427.96	358.31	1,057.00	461.25
Unknown	3	1	5.00	....	30.00	....
	165	165	5,299.43	130,293.13	$ 7,259.00	$385,126.00

MAINE FORESTRY DISTRICT INVENTORY FOR SEASON OF 1934

Section	District	Deputies	Watchmen	Patrolmen - Linemen	Power Pumps	No. Feet Hose	Telephone Lines, Miles	Camps	Towers	Trucks	Boats	Canoes	Motor Boats	Outboard Motors	Hand Pumps	Axes	Forestry Axes	Mattocks	Pails	Shovels	Tents	Boat Houses	Garages	Store Houses	Camp Sites	Telephones	Townships, Number of
Northern	Allagash	5	2	5	2	1800	119	5	2	2	..	6	..	3	52	5	52	5	93	85	..	..	..	2	7	15	31
	Madawaska	6	2	2	1	650	51	2	2	1	1	1	1	2	33	13	39	5	53	60	3	..	..	1	3	7	9
	Fish River	9	3	1	2	1050	87	4	3	1	1	4	2	2	28	9	38	50	81	54	3	1	1	1	5	10	15
	Aroostook Waters	22	4	4	2	1500	127	7	4	2	1	4	..	3	44	19	48	95	136	110	1	1	1	1	7	22	28½
	Number Nine	13	2	2	1	1000	47	1	2	1	1	1	..	..	32	25	56	43	58	95	..	..	..	1	3	8	9½
	Mattawamkeag	9	3	2	1	1750	90	4	4	2	1	2	..	1	32	23	115	13	130	116	3	..	2	2	10	13	15
	East Branch	12	4	4	1	1450	97½	9	5	1	3	6	..	3	49	200	35	226	286	238	2	4	..	..	6	20	18½
	Davidson	3	2	1	1	1750	51	2	2	1	..	3	..	1	27	3	35	2	51	31	2	1	1	1	3	10	4
	Katahdin	11	2	2	2	3400	74	3	3	2	2	2	2	1	96	9	25	7	55	37	3	2	1	1	3	11	13
		90	24	23	13	14350	743½	37	27	13	10	29	5	16	393	306	443	446	943	826	17	9	6	10	47	116	143½
Eastern	Pleasant River	5	3	3	2	3000	74	4	3	1	..	..	..	..	36	14	35	8	83	50	1	..	..	..	1	15	15
	Passadumkeag	14	2	1	2	4000	83	3	2	1	1	2	..	2	40	25	40	148	118	164	2	1	1	1	4	12	13½
	Musquash-St. Croix	22	3	2	4	4800	113	5	4	3	2	4	1	2	50	30	37	31	77	98	4	2	1	2	8	28	14
	East Machias	17	1	1	2	3300	12	1	2	1	..	11	..	..	33	12	10	106	108	245	1	..	..	1	5	4	9
	Machias	17	4	4	2	3500	101	10	4	1	1	3	1	1	51	27	24	36	35	88	2	1	1	2	3	18	15½
	Narraguagus-Union River	15	1	1	3	4500	85	1	1	1	..	1	..	1	50	43	26	52	61	128	1	..	1	1	3	13	11
		90	14	12	15	23100	468	24	16	8	4	11	2	6	260	151	172	381	482	773	11	4	4	7	24	90	78
Southern	Carrabassett	3	1	.	2	2750	30	1	1	1	..	..	..	..	33	22	29	65	144	97	..	..	..	..	4	7	4
	Rangeley	16	5	8	4	4500	146	10	5	2	5	..	..	4	53	167	43	55	695	182	..	..	..	2	8	18	27½
	Dead River	27	2	1	2	3250	75	1	3	1	..	..	..	..	12	28	..	83	116	105	..	..	..	..	5	7	17½
	Moose River	14	4	1	3	2700	136	5	5	2	..	1	..	1	30	104	12	136	286	282	1	..	..	1	3	23	25
	Parlin Pond	18	3	1	3	2850	125	7	3	1	1	1	..	..	26	46	9	85	131	160	..	..	..	..	4	40	25
		78	15	11	14	16050	512	24	17	7	6	2	0	5	154	367	93	424	1372	826	1	0	0	3	24	95	99
Western	Seven Islands	3	1	2	1	1650	78	4	1	1	..	4	..	2	61	10	10	22	67	72	2	..	..	..	..	8	13
	Upper St. John	1	1	2	2	3000	80	5	1	1	..	6	..	3	55	25	24	21	103	182	4	..	1	1	..	18	18
	Musquacook	1	2	2	1	1500	48	4	2	1	1	4	..	4	33	8	35	6	47	50	1	..	1	1	1	9	14½
	Seboomook	3	2	1	1	2000	30	3	3	2	..	1	..	..	30	30	16	5	29	30	..	..	1	1	4	9	32
	Moosehead	17	4	.	1	1500	45	4	4	1	..	.	.	1	36	125	42	125	104	100	..	..	..	..	..	11	14
	Chesuncook	3	2	2	1	750	34	3	2	2	1	1	1	1	27	2	57	11	43	55	1	..	1	1	..	10	16
	Chamberlain	4	2	3	1	1500	40	4	2	..	1	7	.	5	28	39	23	34	80	85	2	..	..	1	..	8	15
		32	14	12	8	11900	355	27	15	8	3	23	1	16	270	239	207	224	473	574	10	0	4	5	5	73	122½
	Grand Total	290	67	58	50	65400	2078½	112	75	36	23	65	8	43	1077	1063	915	1475	3270	2999	39	13	14	25	100	374	442½

ORGANIZED TOWNS

A review of the past forest fire seasons of 1933-34 shows many unusual situations and accomplishments in the organized towns. The continued good spirit of cooperation between the State Forestry Department and the local boards of selectmen, assessors, and fire department chiefs, has done much to build up and strengthen an efficient organization for forest fire protection and suppression work. It is estimated that there are approximately 5,000,000 acres of forested lands in the incorporated towns, out of which 90% is receiving some form of fire protection under the State-Town cooperative plan.

County Forest Fire Districts

In 1930 the trial experiment of establishing county forest fire districts under the supervision of State fire wardens proved highly successful. As a result, this plan of forest fire protection for the organized towns was extended to include other counties. To date there are ten of these county forest fire districts which make up an aggregate of 300 towns and plantations. If funds permit, the Department in 1935 plans to establish another district which would include a portion of Somerset County.

Each district does not necessarily include a whole county, but is determined largely by the number of towns overlooked by a fire tower and the ability of a State fire warden to reach any place in it without too much loss of time.

County Fire Wardens

With the inauguration of county forest fire districts for the organized towns, it was only natural that there should be some kind of supervision. In cooperation with local boards of selectmen and assessors, the State Forestry Department appointed county fire wardens to handle these newly formed areas. The selection of these men was based on their knowledge of the territory, ability to organize and handle crews

of men on forest fires, and competence to take care of general forestry problems. The duties of these county wardens in no way interfered or took away any authority from the local town officials, excepting that which they wished to grant them.

The State Forestry Department during the years this organized system of forest fire prevention and suppression has been in force has done much to ease the cost burden for the organized towns. The services of the county fire wardens were at no expense to the towns. In addition these men had fully completed outfits of State-owned one-half ton trucks and fire fighting equipment to form a unit for a crew of twenty-five. The salaries of the wardens and watchmen, together with expenses on towers, telephone lines, trucks and equipment, were borne by the State and Federal Government. Aside from these expenditures, all other costs of fighting forest fires were taken care of by the towns. It is misunderstood by many that the State helps pay the costs of organized town forest fires. From time to time appeals have been made to the State for aid, and petitions filed before legislative committee hearings, but the records do not show where any such financial help was ever made to a town. However, should any fire amount to a cost in excess of 2% of the valuation of any one town, it is then possible that the legislature might grant financial aid.

Since the inauguration of these county forest fire districts, it is gratifying to learn that more authority and confidence than ever has been placed upon the county fire wardens by the local town officials. That this confidence is well placed is shown by their efficiency in handling fires and confining them to small acreages. Each town had the assurance that their county warden was on the job and remained on duty on a fire until it was completely extinguished.

The work of county fire wardens is not wholly confined to fire fighting, but includes posting of metal fire warnings on wooded roads, investigating slash areas, checking up on portable sawmill licenses, assisting in brush and slash disposal, inspection of boys' and girls' summer camps, and helping in other general forestry problems.

Lookout Stations

Due to a curtailment of appropriations, it was not possible to maintain full time paid watchmen on all the towers for the seasons of 1933-34. It therefore became necessary to double the work of some of the wardens, whereby they served as part time watchman and warden. While this was somewhat of a handicap, it was the best procedure under the circumstances. There were several periods of extreme drought in 1934, and temporary watchmen were hired to relieve the pressure of work from the county fire wardens.

The new lookouts which were erected in 1931-32 more than paid for themselves in point of service and educational value during the years of 1933-34. Each lookout register showed a big increase in the number of visitors. As a whole, the watchmen were very successful in quickly detecting fires and promptly reporting them to the proper authorities. Many selectmen and fire chiefs have sent in to this office letters of praise on the accuracy with which fires were reported to them.

As in former years, the policy of submitting to each watchman a complete list of people and their telephone numbers to be notified in case of fire was continued. An agreement has been reached with each board of town officials not to grant burning permits without first notifying the watchmen. There can be no question but what many needless calls for fires were prevented, and yet a watchful eye is kept on them to guard against any possible outbreak.

In the fall of 1934 two changes were made. The old original steel tower on Agamenticus Mountain, erected in 1918, was dismantled and a fifteen foot extension added, raising the height to forty feet. This tower was then moved to and erected on Bear Mt. in the town of Hartford, Oxford County. A new 47-foot steel tower with stairways was then erected on Agamenticus Mt. to replace the old one. Timberland owners in Androscoggin and Oxford Counties will welcome the new tower on Bear Mt., as it commands a wonderful view of extensive forested areas heretofore unprotected by a lookout.

One emergency wooden lookout tower was erected on Millinocket Hill in Millinocket during the dry season of 1934.

Fire Districts and Lookout Stations in Organized Towns

County Warden Districts	Town	Lookout Stations
(1) York	York	Agamenticus Mt.
	Waterboro	Ossipee Mt.
(2) Cumberland	Falmouth	Blackstrap Hill
(3) Sagadahoc	Topsham	Mt. Ararat
(4) Knox and Lincoln	Jefferson	Mountain Hill
(5) Waldo	Montville	Frye Mt.
(6) Hancock	Dedham	Dedham Bald Mt.
(7) So. Washington*		
(8) E. Washington*		
(9) Somerset	Brighton Pl.	Kelley Mt.†
(10) So. Oxford	Denmark	Pleasant Mt.
(11) No. Oxford	Milton Pl.	Zircon Mt.
	Avon	Mt. Blue
	Canaan	Chase Hill
	Island Falls	May Hill
	Hartford	Bear Mt.
	Effingham, N. H.	Green Mt.‡

*These districts have lookouts which are located in the Maine Forestry District, but are not included in the organized town list of towers.

† Privately owned station.

†† Cooperating lookout station between Maine and New Hampshire.

Fire Fighting Equipment

An interesting inventory was taken in the fall of 1934 to determine what the organized towns making up the various county forest fire districts had in the way of forest fire equipment. It was gratifying to see what tools and equipment was available in the event of a serious woods fire. In addition to the list below there are on hand many light tools in the forms of axes, rakes, brooms, shovels, and pails. Since the inauguration of the C. C. C. camps, there are also available hundreds of knapsack pumps, and trained crews of men.

Forest Fire Fighting Equipment Available in the Incorporated Towns

County or District	No. of Towns Listed	Portable Knapsack Pumps	Portable Gasoline Pumps	Special Forest Fire Trucks	No. of 1½" hose-feet
Sagadahoc	16	99	3	3	10,000
Knox & Lincoln	20	90	2	4	5,000
Southern Washington	8	71	2	1	3,500
Hancock & Penobscot	29	187	3	6	8,000
Cumberland	23	122	11	11	25,000
Waldo	15	53	1	4	2,500
Southern Oxford	6	35	..	3	.....
York	23	185	12	6	20,000
Northern Washington	8	82	1	3	1,500
Totals	148	924	35	41	75,500

Many of the town officials realizing the seriousness of past fires in their respective areas have in many cases built special light forest fire trucks fully outfitted and ready for any emergency. Many of the trucks are old discarded cars built over and most useful for travel over rough roads.

The State continues to cooperate with the towns by selling them forest fire equipment at cost. From time to time portable gasoline pumps and hose have been loaned to towns battling stubborn fires. There will be available beginning in the spring of 1935 a portable pump and one thousand feet of hose to be used exclusively for fires in the organized towns. Added to all this equipment are the fully outfitted county fire warden trucks and the qualified leadership of the wardens.

Review of Fires

During the past two years the organized towns have experienced several bad forest fires, some of which should be mentioned in this report. In the late spring of 1933 serious fires broke out in the towns of Vinalhaven, Tremont, Cape Elizabeth, and Denmark. At that particular time forest conditions were very dry, and the fires got a tremendous start before any human effort could prevent or check them. The losses suffered were not in timber alone, but included several dwellings.

A similar dry spell occurred in 1934 and several bad fires claimed some good timber land and caused considerable property damage. The Fryeburg, Westport, and Georgetown fires were particularly serious and cost the towns considerable expense before they were brought under control. Space does not permit much of a detailed account of these fires, but needless to say every human agency was mustered into action to check them. At one time the entire community of Georgetown was threatened, and only by the combined efforts of the men from the Jefferson C. C. C. Camp, National Guard, State Forestry Department, and private individuals, was it saved.

It is unfortunate that some of the organized town fires occurred in woods located close to summer colonies along the seacoast and on the shores of populated lakes. The losses sustained from them will not be so much in the market value of the timber as in the aesthetic appeal and recreational opportunities. There can be no doubt but what the green forested hills of Maine are an attraction to many summer out-of-state visitors. Communities within close distance to these burned over areas will feel the loss of the summer tourist trade for many years to come. However, in considering the season of 1933-34 as a whole, most of the fires were confined to small areas and caused little damage.

Camp Sites

There has been a need for a long time to have locations along our principal highways and on lookout trails where travelers and tourists could stop and enjoy picnic lunches and build fires safely, as they have been established in the Maine Forestry District. This opportunity presented itself with the establishment of the C. C. C. camps in Maine. The construction of these camp sites was a little more elaborate than those built up in the northern part of the State, because of the greater number of people patronizing them.

It is firmly believed that the fire hazard resulting from careless campers will be greatly reduced by urging motoring parties to build their fires in these safe and designated places.

CAMP SITES IN ORGANIZED TOWNS OUTSIDE THE MAINE FORESTRY DISTRICT

Androscoggin County

*Mechanic Falls, on Route 121.

Aroostook County

Castle Hill, Near Haystack Mt., on Route 163.
Hersey, Hale Brook, on Route 11.
New Limerick, Drew's Lake, on county road, off Route 2, 4 miles west of Houlton.
Island Falls, Cold Brook, on Route 2.
*Island Falls, Mattawamkeag Lake, on gravel road, off Route 2.
*Dyer Brook, Forks, on Route 2, Junction of Pleasant Pond Road.
*Dyer Brook, Walker Camp Site, 1 mile on Pleasant Pond Road, off Route 2.
*Dyer Brook, Lane Camp Site, 2 miles on Pleasant Pond Road, off Route 2.

Franklin County

*Avon, The Spring, on Mt. Blue Trail.

Hancock County

Aurora, Bog Dam, on Route 9.
Castine, near north town line, on Route 175.
Mariaville, Jones Bridge, on Route 179.

Kennebec County

*Readfield, Dead Stream Bridge, on Route 134.
*Readfield, Torsey Pond, on Route 17.

Lincoln County

*Jefferson, Mountain Hill.
*Somerville, Allard Brook, on Route 17.
*Waldoboro, on Route 1.

Oxford County

Denmark, Pleasant Mt., on lookout trail.
*Milton Pl., Mt. Zircon, on lookout trail.

Penobscot County

Burlington, at Saponac Lake, Route 188.
Lincoln, on Lee road, Route 16.
Lowell, on Nicatous road, Route 188.
Millinocket, on Route 157 within village limits.

Piscataquis County

Greenville, on G. N. P. road, just out of Greenville.
Monson, Spectacle Pond, on Route 15.
Monson, Doughty Pond, on Route 15.

Sagadahoc County

*Topsham, Mt. Ararat lookout trail.

Somerset County

Harmony, on Route 150.
Jackman Pl., Pierce Farm, on Route 201.
Jackman Pl., Owl's Head, on Route 201.
Canaan, Chase Hill lookout trail.

Waldo County

*Palermo, Sheepscot Lake, on Route 3.

Washington County

Baileyville, on Route 192, west of Calais.
Calais, at Big Spring, on Route 1, south of Calais.
Crawford, at East Machias River, on Route 191.
Perry, near Frost Cove, on East Shore road, near Perry.
Trescott, at East Stream, on road to Lubec, Route 11.

York County

*Dayton, Salmon Falls, on side road from Bar Mills.
*Waterboro, Ossipee Hill lookout trail. (3)
*York, Agamenticus Hill lookout trail. (2)

*Constructed by the C. C. C.

Accomplishments

As a result of thousands of acres of forested lands annually destroyed by careless brush and slash burning, it became necessary in 1933 for the State Forestry Department to give special attention to this one cause of forest fires. In 1932 over 50% of the total area burned over was attributed to this cause. It was decided to launch a strong educational drive, with a similar action carried out by the other New England States. The Governor of the State gave his hearty endorsement to this campaign. The press cooperated by printing articles in the various weekly and daily newspapers. Lectures were given before various service clubs, schools, societies, and organizations. Radio broadcasts were also given from the Portland station. A special circular was printed containing interesting cuts of the right and wrong way to burn brush and slash, and suggestions of What to Do and What Not to Do. From such a campaign very satisfactory results were obtained.

It is essential each spring for this office to send out questionnaires to the various boards of selectmen and assessors relative to a list of local appointed fire wardens, addresses, and telephone numbers. Questionnaires are for the most part torn up or remain unanswered, but the organized town officials have cooperated almost 100% with the State Forestry Department in making their returns.

Special mention should be given here to the services rendered by the various Maine C. C. C. camps in fighting forest fires. The timely arrival of crews from these camps has in many instances saved serious situations. Thousands of man-days have been spent by C. C. C. men on forest fire prevention and suppression work.

Other agencies cooperating with the State Forestry Department during the past two seasons were the National Guard, Coast Guard, Fish and Game Department, Transient Camps, and Highway Police.

The annual conference of the New England Fire Chiefs Association in 1933 was held in Lewiston. One day was set

aside for forest fires and this presented a fine opportunity for the county fire wardens to meet with fire chiefs and discuss fire problems. Such a meeting resulted in the exchange of ideas, experiences, and suggestions. Papers were read and pictures shown. It is suggested that similar meetings be held each year in this State.

An interesting program was started last year in the forming of several schools of instruction to study and discuss forest fire situations and problems. These group meetings have already proved to be very valuable and particularly educational. It is hoped that additional schools will be formed in other sections of the state. Several towns have already formed good organized volunteer forest fire units.

Improvements are made each year towards a better regulation of brush and slash burning. The local boards of selectmen and assessors have been more careful in roadside clearing. Greater precaution has been taken on all State and town road construction in the proper and safe disposal of inflammable material left by the side of the road.

ORGANIZED TOWNS

Financial Statement

1933

Receipts		
Balance on hand January 1, 1933....	$ 11,423.65	
1933-34 Appropriation.....	3,350.00	
Federal Cooperation.....	11,019.63	
Miscellaneous	12.00	
Total Receipts.....	$ 25,805.28	
Reduction of Salaries.....	3,000.00	
(Ch. 81 P. & S. Laws 1933)		$ 22,805.28
Disbursements		
County Wardens.....	$ 5,454.31	
Supervision	3,033.81	
Watchmen	4,401.74	
Equipment	372.60	
Improvement	54.82	
Miscellaneous	140.64	
		$ 13,457.92
Balance January 1, 1934.....		$ 9,347.36

ORGANIZED TOWNS

Financial Statement

1934

Receipts		
Balance on hand January 1, 1934....	$ 9,347.36	
1934-35 Appropriation.....	3,350.00	
Federal Cooperation.....	14,985.35	
Total Receipts		$ 27,682.71
Disbursements		
County Wardens.....	$ 6,215.55	
Supervision	3,326.54	
Watchmen	4,284.66	
Equipment	1,570.99	
Improvement	1,622.82	
		$ 17,020.56
Balance January 1, 1935.....		$ 10,662.15

LOOKOUT STATIONS IN THE ORGANIZED TOWNS

Stations	Opened		Closed		No. Fires	
	1933	1934	1933	1934	1933	1934
Agamenticus Mt.	May 3	May 1	Sept. 23	Sept. 30	29	53
Blackstrap Mt.	May 6	May 1	Sept. 19	Sept. 30	28	19
Chase Hill	May 9	May 16	Sept. 23	Oct. 13	57	25
Dedham Bald	May 3	May 13	Sept. 16	Oct. 13	30	42
Frye Mt.	May 8	May 15	Sept. 18	Sept. 29	76	50
*Green Mt.	May 1	Apr. 21	Oct. 16	Oct. 14	14	17
**Kelly Mt.	May 8	May 6	Oct. 7	Oct. 8	27	35
May Mt.	May 7	May 22	Sept. 9	Sept. 1	18	5
Mt. Ararat	May 2	May 14	Sept. 23	Sept. 30	118	84
Mt. Blue	May 11	May 22	Sept. 26	Oct. 9	26	21
Mountain Hill	May 6	May 6	Sept. 16	Sept. 30	31	23
Ossipee Mt.	May 1	May 1	Sept. 23	Sept. 30	34	37
Pleasant Mt.	May 2	May 1	Sept. 23	Oct. 6	24	19
Zircon Mt.	May 5	May 2	Sept. 27	Oct. 13	4	9
					516	439

* In New Hampshire.
** Privately owned.

FIRE RECORD 1933

Location	Date	Acreage	Cause	Damage
Androscoggin County				
Lewiston	April 25	20	Brush burning	$ 30.00
Greene	May 15	225	Brush burning	100.00
Cumberland County				
North Scarboro	May 1	20	Incendiary	....
North Yarmouth	May 5	30	Brush burning	50.00
Cumberland	May 8	3	Brush burning	20.00
Cape Elizabeth	May 14	175	Incendiary	300.00
Cumberland	May 15	1 (Wharf & coal shed)	Railroad	....
Cumberland	May 23	2	Miscellaneous	150.00
Cumberland	May 24	10	Smokers	5.00
Cumberland	May 25	½	Smokers	5.00
Cumberland	June 8	10	Smokers	....
New Gloucester	June 14		Smokers	10.00
Franklin County				
Carthage	May 9	8	Smokers	30.00
Salem	May 16	100	Brush burning	300.00
Hancock County				
Amherst	May 7	50	Unknown	25.00
Bluehill	May 7	6	Brush burning	15.00
Franklin	May 15	300	Smokers	900.00
Tremont	May 15	1,000	Unknown	5,600.00
Clifton	May 18	60	Incendiary	60.00
Mariaville	May 20	10	Incendiary	10.00
Bluehill	May 21	1	Unknown	2.00
Dedham	July 26	½	Smokers	1.00
Kennebec County				
Readfield	April 22	16	Smokers	250.00
Mount Vernon	May 7	25	Campers	120.00
Sidney	May 7	200	Smokers	200.00
Vassalboro	May 7	20	Unknown	40.00
Vassalboro	May 7	10	Railroad	200.00
East Vassalboro	May 25	(Buildings) 40	Smokers	3,585.00
Knox County				
Friendship	May 5	30	Miscellaneous	35.00
Warren	May 10	37	Unknown	85.00
Warren	May 10	4	Railroad	30.00
Lincoln County				
Waldoboro	May 6	4	Brush burning	10.00
Jefferson	May 7	7	Smokers	15.00
Boothbay Harbor	May 8	6	Smokers	25.00
Newcastle	May 8	5	Brush burning	15.00
Waldoboro	May 15	3	Miscellaneous	40.00
Boothbay Harbor	May 16	90	Smokers	300.00
Waldoboro	May 23	60	Smokers	500.00
Dresden	May 23	4	Smokers	10.00
South Bristol	June 8	6	Brush burning	12.00
Edgecomb	July 27	40	Miscellaneous	200.00

Location	Date	Acreage	Cause	Damage
Oxford County				
Hiram	May 6	35	Unknown	....
Fryeburg	May 15	½	Railroad	....
Brownfield	May 16	10	Brush burning	10.00
Sweden	May 17	....	Smokers	....
Denmark	May 18	1,200	Lumbermen	12,000.00
Fryeburg	July 2	....	Unknown	....
Fryeburg	Aug. 16	4	Brush burning	100.00
Brownfield	Aug. 21	....	Unknown	....
Penobscot County				
Milford	May 7	5	Unknown	10.00
Holden	May 15	1,800	Miscellaneous	9,195.00
Burlington	May 16	40	Unknown	40.00
Milford	May 19	70	Smokers	250.00
Eddington	July 19	2	Lightning	4.00
Millinocket	July 19	1½	Smokers	....
Mount Chase	July 25	....	Brush burning	....
Millinocket	Aug. 13	....	Campers	....
Piscataquis County				
Blanchard	May —	20	Smokers	40.00
Abbott	May 8	5	Railroad	40.00
Monson	Aug. 10	5	Incendiary	30.00
Monson	Oct. 8	2	Hunters	....
Sagadahoc County				
Bowdoinham	May 16	200	Railroad	220.00
Georgetown	May 17	1	Unknown	25.00
Bowdoin	May 20	20	Miscellaneous	20.00
Bowdoinham	May 24	1½	Miscellaneous	5.00
Phippsburg	July 1	1	Incendiary	5.00
West Bath	July 1	½	Miscellaneous	3.00
Waldo County				
Belmont	May 7	30	Smokers	75.00
Searsport	May 7	150	Smokers	600.00
Stockton	May 15	1	Unknown	....
Swanville	May 16	5	Fishermen	....
Brooks	May 18	5	Brush burning	75.00
Brooks	May 22	5	Unknown	5.00
Northport	June 29	1	Smokers	16.00
Palermo	July 26	7	Campers	215.00
Washington County				
Centerville	May 7	2	Unknown	....
Jonesboro	May 7	100	Unknown	150.00
Alexander	May 7	10	Incendiary	20.00
Milbridge	May 9	3	Unknown	....
Columbia	May 9	7	Incendiary	4.00
Milbridge	May 9	15	Unknown	25.00
Trescott	May 12	30	Incendiary	32.00
Cherryfield	May 15	5	Unknown	3.00
Baileyville	May 15	14	Incendiary	82.00
Cutler	May 16	10	Incendiary	10.00

Location	Date	Acreage	Cause	Damage
Washington County Cont.				
Cutler	May 16	187	Incendiary	187.00
Calais	May 18	6	Incendiary	24.00
Addison	May 19	20	Unknown	15.00
Machias & Northfield	May 19	75	Unknown	70.00
Jonesboro	May 19	1,500	Unknown	2,700.00
Trescott	May 21	100	Incendiary	140.00
Jonesboro	June 7	1	Unknown	2.00
Calais	June 10	2	Brush burning	....
Crawford	June 11	100	Fishermen	365.00
Princeton	July 15	½	Fishermen	5.00
Princeton	July 21	¼	Lightning	12.00
Princeton	July 31	¼	Fishermen	....
Steuben	Aug. 9	2	Berry pickers	4.00
Alexander	Aug. 17	...	Smokers	3.00
Crawford	Sept. 6	¼	Fishermen	2.00
Bancroft	Sept. 15	....	Unknown	....
York County				
Hollis	April 26	1½	Smokers	8.00
Lyman	April 30	5	Brush burning	10.00
Lyman	May 4	8	Campers	30.00
Kennebunkport	May 5	10	Brush burning	165.00
Sanford	May 5	500	Unknown	500.00
Sanford	May 7	200	Unknown	200.00
Shapleigh	May 9	14	Smokers	55.00
Shapleigh	May 11	5	Campers	10.00
Wells	May 12	1½	Smokers	15.00
Waterboro	May 17	95	Incendiary	....
Saco	May 18	610	Fishermen	50.00
Waterboro	May 23	¾	Smokers	2.00
York	May 23	80	Miscellaneous	375.00
Waterboro	June 24	1	Fishermen	5.00
Buxton	July 12	6	Miscellaneous	30.00

FIRE RECORD—1934

Location	Date	Acreage	Cause	Damage
Androscoggin County				
Webster	May 17	15	Smokers	$ 20.00
Aroostook County				
Westfield	May 29	500	Brush burning	300.00
Cumberland County				
Cumberland	April 29	3	Smokers	10.00
New Gloucester	May 2	1,100	Fishermen	1,000.00
Standish	May 20	1	Fishermen	....
Yarmouth	May 30	2	Unknown	....
Freeport	July 10	1	Berry pickers	12.00
Scarboro	July 11	30	Berry pickers	....
Falmouth	July 12	1	Berry pickers	....
Standish	July 12	5	Picnic party	....
Windham	July 17	½	Smokers	....
Falmouth	July 18	½	Berry pickers	....
Westbrook	July 18	10	Berry pickers	....
Cumberland	July 19	1	Unknown	20.00
Scarboro	July 22	1	Berry pickers	....
Scarboro	July 23	1	Railroad	....
Cumberland	Aug. 17	¼	Sparks from incinerator	....
Cumberland	Aug. 17	1	Incinerator	....
Windham	Aug. 20	50	Sparks from barn	175.00
Scarboro	Aug. 21	50	Smokers	....
Freeport	Aug. 22	7	Railroad	....
Yarmouth	Aug. 27	2	Smokers	....
Franklin County				
Temple	June 1	5	Lightning	12.50
Carthage	July 1	1	Smokers	5.00
Temple	July 18	½	Chimney fire	2.00
Hancock County				
Eastbrook	May 3	15	Unknown	50.00
Ellsworth	May 30	200	Lumbermen	2,925.00
Dedham	May 31	20	Fishermen	100.00
Dedham	June 1	¼	Fishermen	....
Dedham	June 8	½	Fishermen	....
Bar Harbor	July 17	¾	Smokers	....
Knox County				
Warren	May 1	4	Railroad	10.00
Warren	May 30	15	Brush burning	50.00
St. George	July 17	15	Berry pickers	100.00
Lincoln County				
Damariscotta	May 12	2	Sparks from chimney	20.00
Wiscasset	May 18	4	Smokers	25.00
South Bristol	May 18	3	Smokers	10.00
Bristol	May 19	75	Smokers	736.00

Location	Date	Acreage	Cause	Damage
Lincoln County Cont.				
Waldoboro	May 27	3	Smokers	7.00
Somerville	June 26	2	Smokers	....
Bremen	July 18	1	Berry pickers	10.00
Whitefield	July 18	6	Berry pickers	....
Westport	Aug. 20	50	Smokers	200.00
Newcastle	Aug. 23	1	Clam bake	25.00
Monhegan Pl.	Aug. 23	3	Smokers	250.00
Oxford County				
Oxford	May 2	30	Smokers	30.00
Buckfield	May 2	2	Brush burning	10.00
Hiram	May 2	1,900	Dynamite blast	25,000.00
Gilead	May 2	20	Lumbermen	50.00
Mt. Pleasant	Aug. 5	5	Picnic party	10.00
Penobscot County				
Medway	May 21	½	Smokers	2.00
Orrington	May 29	1½	Unknown	50.00
Hudson	June 1	2	Unknown	40.00
Eddington	July 17	1	Lumbermen	....
Millinocket	July 23	¼	Berry pickers	....
Holden	July 23	¼	Berry pickers	....
Eddington	Aug. 14	½	Unknown	....
Verona	Aug. 23	5	Unknown	....
Enfield	Aug. 26	5	Unknown	50.00
Piscataquis County				
Monson	June 1	30	Campers	150.00
Sagadahoc County				
Georgetown	April 18	(House & barn) 27 (50 cds.)	Incendiary	730.00
Topsham	April 28	6	Smokers	10.00
West Bath	May 24	3	Brush burning	2.00
Georgetown	May 28	800	Smokers	3,000.00
Phippsburg	July 9	10	Incendiary	....
West Bath	July 18	½	Smokers	....
Topsham	July 26	1	Berry pickers	....
Topsham	Aug. 19	1	Smokers	2.00
Somerset County				
Jackman	May 28	50	Smokers	300.00
Waldo County				
Montville	May 1	50	Fishermen	50.00
Lincolnville	May 2	55	Brush burning	75.00
Searsport & Belfast	May 20	25	Brush burning	50.00
Frankfort	July 17	10	Farmers	....
Swanville	July 17	30	Berry pickers	15.00
Waldo	June 19	1½ (4 cds.)	Smokers	20.00
Searsport	Aug. 18	1	Smokers	....

Location	Date	Acreage	Cause	Damage
Washington County				
Baileyville	April 19	5	Unknown	5.00
Baileyville	May 2	3	Brush burning	....
Calais	May 28	2	Railroad	10.00
Alexander	May 29	70	Fishermen	375.00
Charlotte	May 30	1	Railroad	5.00
Pembroke	July 23	¾	Berry pickers	....
Baileyville	July 25	4½	Lumbermen	87.00
Princeton	Aug. 18	⅛	Campers	....
Crawford	Aug. 21	⅛	Unknown	....
Baileyville	Aug. 26	¼ (Camp)	Campers	4.00
York County				
Sanford	April 24	23	Unknown	10.00
Limington & Hollis	May 5	110	Smokers	50.00
Buxton	May 19	2	Brush burning	....
Sanford	May 23	3	Smokers	....
Kennebunk	May 24	175	Railroad	85.00
Cape Neddick	July 3	6	Burning camp	....
Buxton	July 8	1½	Smokers	50.00
Cornish	July 10	75	Lumbermen	125.00
Saco	July 17	1¼	Berry pickers	....
Sanford	July 18	2	Smokers	6.50
Wells	July 18	300	Berry pickers	....
Wells	July 18	3	Berry pickers	....
Biddeford	July 19	2	Brush burning	....
Hollis	July 20	2½	Smokers	....

Summary of Forest Fires for 1933-1934 by Months, Counties and Causes

	No. Fires		Acreage		Damage	
	1933	1934	1933	1934	1933	1934
By Months:						
April	4	5	42.50	64.00	$ 298.00	$ 765.00
May	82	36	9,758.25	5,263.00	40,246.00	34,402.00
June	8	7	121.50	41.25	410.00	222.50
July	13	35	59.50	526.25	475.00	432.50
August	6	18	11.00	182.25	137.00	716.00
September	2	..	.25	....	2.00	....
October	1	..	2.00	....	....	....
	116	101	9,995.00	6,076.75	$41,568.00	$36,538.00
By Counties:						
Androscoggin	2	1	245.00	15.00	$ 130.00	$ 20.00
Aroostook	..	1	....	500.00	....	300.00
Cumberland	10	20	251.50	1,267.25	540.00	1,217.00
Franklin	2	3	108.00	6.50	330.00	19.50
Hancock	8	6	1,427.50	236.50	6,613.00	3,075.00
Kennebec	6	..	311.00	....	4,395.00	....
Knox	3	3	71.00	34.00	140.00	160.00
Lincoln	10	11	225.00	150.00	1,127.00	1,283.00
Oxford	8	6	1,249.50	1,958.00	12,110.00	25,105.00
Penobscot	8	9	1,918.50	16.00	9,499.00	142.00
Piscataquis	4	1	32.00	30.00	110.00	150.00
Sagadahoc	6	8	224.00	848.50	278.00	3,744.00
Somerset	..	1	....	50.00	....	300.00
Waldo	8	7	204.00	172.50	986.00	210.00
Washington	26	10	2,190.25	86.25	3,855.00	486.00
York	15	14	1,537.75	706.25	1,455.00	326.50
	116	101	9,995.00	6,076.75	$41,568.00	$36,538.00
By Causes:						
Berry pickers	1	17	2.00	401.50	$ 4.00	$ 137.00
Brush burning	16	10	435.00	608.00	912.00	492.00
Campers	5	3	45.00	30.38	375.00	154.00
Farmers	..	1	....	10.00	....	....
Fishermen	7	7	717.00	1,241.75	427.00	1,525.00
Hunters	1	..	2.00	....	....	....
Incendiary	15	2	730.00	37.00	904.00	730.00
Lightning	2	1	2.25	5.00	16.00	12.50
Lumbering	1	5	1,200.00	300.50	12,000.00	3,187.00
Miscellaneous	10	10	1,981.00	1,970.75	10,043.00	25,232.00
Railroad	6	6	220.50	190.00	490.00	110.00
Smokers	27	28	1,044.25	1,221.75	6,900.00	4,733.50
Unknown	25	11	3,616.00	60.12	9,497.00	225.00
	116	101	9,995.00	6,076.75	$41,568.00	$36,538.00

ENTOMOLOGY

ENTOMOLOGY

The years 1933-34 have seen a considerable increase in the number of destructive insect pests. The deep snow of the past winter and the favorable climatic conditions prevailing during the past two springs and summers have done much to increase the native insect population. Several very serious pests have worked into Maine from New Brunswick, two others have come in from the south. There are now approximately forty foreign insect pests working in Maine in addition to our native species. The number of inquiries in regards to insect pests increases each year.

Splendid cooperation is received from the timberland owners whenever outbreaks on their lands are reported. In southern Maine the C. C. C. camps have been of tremendous help in combatting forest insect pests. In the northern part of the State we have depended upon the State Fire Protective Organization to report the presence of forest insects. Unfortunately during the past two years, time has not permitted the visiting of all the wardens and lookout men to instruct them in what to be on the lookout for. Several very severe outbreaks got underway without having been reported to us by wardens or woods workers. These will result in the killing of large amounts of timber. Such outbreaks could have been largely prevented if they had been spotted in time.

Too much emphasis cannot be placed upon the benefits arriving from the Field Laboratory at Bar Harbor. Large numbers of parasites have been reared and put in forest areas where they were needed. Life history and control studies are being made on new forest and shade tree insects, without which studies we would be unable to advise people as to methods of control. New commercial sprays are continually being tried out under Maine conditions. A fine collection of economic insects essential for identification work is being

built up. Laboratory and office space are furnished by the Jackson Memorial Laboratory and the town of Bar Harbor. The work here is carried on by Dr. A. E. Brower and Mr. Arthur Gillespie.

It has been possible to place a trained entomologist in four of the C. C. C. camps which has proved of great help in those localities. Licensed tree surgeons have been very active in reporting shade tree insect and disease troubles. These men will prove of particular help in watching for possible outbreaks of the Dutch Elm Disease. The basis of all insect control lies in the immediate location of outbreaks and the knowledge of proper methods of control. These two essentials the Department is continually working for.

TREE SURGERY

Interest for a tree surgery law requiring State examination and certification of men practicing tree work has been shown for a number of years. The nearby States of New Hampshire, Rhode Island, Connecticut, and New Jersey have such a law, while Massachusetts is considering one at present.

Public interest in shade and ornamental trees has increased greatly in the past decade. Unscrupulous men have taken advantage of this interest and have become quite adept at convincing tree owners to have work done whether needed or not. The result has been in many cases a total waste of money. The average tree owner knows little about the controlling of insect pests and diseases, pruning, general care, or cavity work on trees. Before passage of the law many cases were brought to our attention where spraying for tree pests had been done at absolutely the wrong time or with the wrong spray, or where cavity work had been done merely for the sake of work by tree men.

Care of trees is indeed needed and of value if done by men of ability. The work is a specialized profession in itself and cannot be learned over night. There are organized companies in Maine as well as private individuals who are well trained in the field, conscientious, and interested in helping trees. These men are interested in protecting the public and their own profession. With their assistance and that of prominent

private people a law was prepared concerning shade trees. This was passed by the Eighty-Sixth Legislature and went into effect July 1, 1933.

COPY OF LAW

AN ACT Concerning the Improvement, Protection or Preservation of Shade, Forest or Ornamental Trees

Chap. 211, Public Laws of 1933

Be it enacted by the People of the State of Maine, as follows:

Sec. 1. Qualification to work on trees. No person, firm or corporation shall advertise, solicit or contract to improve the condition of shade, forest or ornamental trees, by pruning, trimming, or filling cavities, or to protect such trees from damage by insects or disease, either by spraying or any other method, without having secured a certificate as specified in section 2 of this act; provided any person may improve or protect any trees on his own premises or on the property of his employer without securing such a certificate.

Sec. 2. Certificate may be issued. The forest commissioner, state entomologist, and a botanist to be appointed by the forest commissioner, shall constitute a board which shall, upon application from any person, firm, or corporation, determine the qualifications of the applicant to improve, protect or preserve shade, ornamental, or forest trees, and if satisfied that the applicant is qualified may issue a certificate so stating; which certificate shall be valid for 1 year from the date of its issue, unless sooner revoked as provided in section 3 of this act, and may be renewed by the board for succeeding years without further examination, upon payment of the fee hereinafter required, provided any person, firm, or corporation receiving such certificate shall be responsible for the acts of all employees in the performance of such work.

Sec. 3. Examination and forms. Said board shall prepare all necessary forms and prescribe all rules and regulations governing examinations, and any certificate issued under the provisions of this act may be revoked by it upon proof that improper methods have been used or for other sufficient cause.

Sec. 4. Fees. Each applicant for an examination shall pay a fee of $5 in advance, and a fee of $2 for each certificate of renewal issued; which fees shall be credited to the appropriation for general forestry purposes, and which may be expended by the board for any expense incurred by it in making examinations or issuing certificates.

Sec. 5. Rates. For all work to be performed a fixed hourly rate must be stated, and if involving a sum in excess of $50 must be done under a written contract form describing the work and fixing the maximum cost.

Sec. 6. Application. This act shall not apply to state, county, or municipal employees while engaged in their regular line of duty.

Sec. 7. Penalty. Any person, firm or corporation failing to comply with the terms of this act shall be punished by a fine of not more than $100.

Purposes of the Law

The primary purpose of the law is to protect tree owners from fraud on the part of those who may claim to be proficient in the various operations necessary to properly care for trees but who lack the necessary qualifications to determine what work is needed or how to do it. It is believed that the system of examinations with subsequent checks will raise the standard of work being done and establish public confidence in tree workers. Certificates will be issued with care only to those whom the Board thinks have the necessary qualifications and when conditions warrant, will be issued for limited types of work.

Members of Board

The Board consists of Neil L. Violette, Forest Commissioner, Augusta, Maine; Henry B. Peirson, State Entomologist, Augusta, Maine; and F. H. Steinmetz, Professor of Botany, University of Maine, Orono, Maine. Correspondence should be addressed to State Entomologist, State House, Augusta, Maine.

Regulations

1. Each person, firm or corporation required to secure a certificate to practice tree surgery under Chapter 211, Public Laws of 1933, shall be examined as follows: When a firm is under control of one person who is solely responsible for the contracts, methods and oversight of each piece of work, this person alone may be required to pass the examination, but when more than one person is responsible for the methods of work and oversight of same, each shall be required to take the examination. When foreman or others are given complete charge of recommending and applying treatments, they shall also be required to take the examination, in so far as it relates to their work. The Examining Board shall decide who shall be required to take the examination.

2. Examinations for those desiring to practice tree surgery shall be held at least once a year. Other examinations may be held at the discretion of the Examining Board. The place of examination shall be set by the Board and notice thereof given to the newspapers at least two weeks in advance.

3. Examinations may be oral, written or both, as shall be determined by the Examining Board, and, in general, shall cover identification of trees, tree growth, diseases and insect pests of trees with treatment for same, pruning, and tree surgery.

4. Prior to examination applicants must furnish information as set forth on an application blank.

5. If satisfied with the qualifications of the applicant, the Board will issue a certificate good for the succeeding 12 months (unless revoked for cause), then to be renewed upon application under such conditions as the Examining Board may require in each case.

6. Upon evidence of unfitness in training or improper business methods, the Examining Board may refuse to issue a certificate or cancel one that has been issued. Complaints may be made to the Board on these points, and if deemed desirable by the Board, private hearings of the interested parties shall be held.

Certificates

Certificates shall be of two kinds, standard and limited.

1. **Standard** certificates shall be issued to those authorized to do all types of work as mentioned in the tree surgery act (Chap. 211, Public Laws of 1933), namely: pruning, trimming, filling cavities, and protecting trees from damage by insects and plant diseases, by spraying or other methods.

2. **Limited** certificates (indicated by the word "Limited" printed across the face) shall be issued to those authorized to do only such types of work as are specified in the certificates.

Renewals

1. The provision regarding renewal of certificates shall be construed by this Board as meaning a continuous possession of a certificate.

2. An invalid certificate may be revalidated at the discretion of the board for the full renewal period or the unexpired portion thereof, if request for such action is received within two years from expiration date and if all renewal fees for the intervening period, as well as the renewal period, are paid in full.

3. If application is made within one month following expiration date of certificate a demit covering a period of two years may be issued without charge entitling the holder to obtain a renewal certificate for one year on payment of the regular $2.00 fee.

4. If after two years with or without a demit a certificate has not been renewed, a new application with a fee of $5.00 shall be necessary and another examination may be required by the Board.

Applicants for certificates are first required to fill out an application blank on which they are given portional credit for their final grade. Credit here has to do with the applicant's schooling, experience, general equipment for the work, and coverage by insurance. The written examinations given are divided into three parts (1) Spraying; (2) Pruning, bracing, and general care of trees; (3) Cavity work. Each part is an examination by itself; hence, an applicant may take any or all parts as he chooses, and accordingly is issued a certificate for work covered by those parts of the complete examination which he has passed; 60% is the passing grade. Examinations are given in March and in September of each year at Augusta.

The examination on spraying contains questions on the control of common insects and plant diseases affecting trees including chemicals and dilutions used and time of application; on the precautions necessary in spraying; on spray

mixtures; and on underlying principles of pest control. The second part of the examination has questions on the pruning of trees, principles and methods of pruning, transplanting, bracing, feeding, treatment of pruning wounds, and general care for trees injured by any agency. The examination on cavity work takes up in detail decay within a tree, excavation of decayed areas, treatment and filling of cavities, and agencies bringing about abnormal conditions in wood.

Since July 1, 1933 when the law went into effect we have seen a gratifying reduction in the number of poorly trained tree workers and in the amount of poor work on trees. The tree surgery board has suspended the licenses of two men and has had one court case.

Maine Arborists Association

As a direct result of this law there has grown among the licensed tree men of the State an association known as the Maine Arborists Association. This group has as its purposes the getting together of the workers to increase their knowledge, to keep up with the latest methods of work, and to increase service to tree owners. In certain cases the group considers unethical practices by any tree man and aids the State board in deciding the action to be taken against such a person.

There is one phase of work not covered by this law, namely, that of removing or taking down trees. The latest racket by unlicensed men unable to legitimately practice beneficial work on trees is to convince tree owners that a tree is beyond help and needs to be removed. Unless a tree is absolutely dead, owners should have judgment passed by some State official or other competent tree man before allowing a tree to be removed.

To date sixty-three men have passed the examination either in whole or in part. The list below gives the men, the kind of work each is licensed to practice, and the date of expiration of their licenses.

Name	Address	License No.	Licensed to do			License Expires
			Spraying	Pruning	Cavity Work	
Adams, Lawrence	Anson	57		x		Apr. 17, 1935
Benson, Orrin	Brunswick	1		x	x	July 1, 1935
Bernard, George E.	Augusta	31		x	x	July 18, 1934
Billings, Ralph E.	Falmouth Foreside	2	x	x	x	July 1, 1935
Brann, Robert	East Auburn	61		x		June 16, 1935
Brown, Clyde	Palermo	62			x	Oct. 6, 1935
Bush, Cecil	Dover-Foxcroft	37			x	July 18, 1934
Churchill, Murray	Crouseville	3	x	x	x	July 1, 1935
Conard, W. Kay	Ellsworth	4	x	x	x	July 1, 1935
Dodge, A. W.	Boston, Mass.	5	x	x	x	July 1, 1935
Dow, Horace L.	Bar Harbor	6	x	x		July 1, 1935
Edney, Louis C.	Searsport	7		x	x	July 1, 1935
Ekholm, Conrad	Hampden Highlands	64		x	x	Oct. 18, 1935
Goodall, George W.	Portland	32	x	x	x	July 1, 1935
Goodwin, John B.	Waldoboro	8		x		July 1, 1935
Grass, Samuel C.	Lincoln	38		x	x	July 18, 1934
Gray, Clarence L.	Pownal	60		x		May 22, 1935
Gross, Elroy H.	Waldoboro	9	x	x	x	July 1, 1934
Guilmette, George	Waterville	39		x	x	July 18, 1935
Hamel, Lewis	Westbrook	33	x	x	x	July 1, 1935
Harmon, Walter L.	Bangor	40	x	x	x	July 18, 1934
Hearns, Fred R.	Calais	10		x	x	July 1, 1935
Hicks, Robert M.	South Paris	41	x	x	x	July 18, 1935
Hudson, Ira	Bangor	42	x	x	x	July 18, 1934
Irons, Maynard A.	Portland	43		x	x	July 18, 1935
Jackson, Robert D.	Portland	11	x	x	x	July 1, 1935
Jameson, John H.	Bangor	12	x	x	x	July 1, 1935
Jose, Thomas H.	Gorham	34	x	x	x	July 1, 1934
Keene, Roy D.	Arlington, Mass.	56	x	x	x	Apr. 17, 1935
Kezar, Thomas F.	Sanford	13	x	x	x	July 1, 1935
King, Roland L.	Waterville	14		x	x	July 1, 1934
LeClair, Leon	Skowhegan	15		x	x	July 1, 1934
Leighton, Phillip	Portland	16	x	x	x	July 1, 1935
Lindsey, Maurice E.	Thomaston	17	x	x	x	July 1, 1935
Lovely, Harry	Gardiner	18	x	x	x	July 1, 1935
MacPherson, C. W.	Brewer	21		x	x	July 1, 1934
Maddocks, Royden K.	Portland	46	x	x	x	July 18, 1935
Maddox, Elmer L.	East Monmouth	19		x	x	July 1, 1935
Marsh, Earl M.	Auburn	45		x	x	July 18, 1935
McCarthy, Charles	Brunswick	20		x		July 1, 1934
McIsaac, Hugh	Bar Harbor	54	x	x		Oct. 28, 1935
McSherry, Thomas F.	Lewiston	52	x	x	x	Oct. 2, 1934
Messer, Albert R.	Bangor	47		x	x	July 18, 1935
Miller, William	Bar Harbor	55	x	x		Apr. 17, 1935
Mores, Carl D.	Portland	48	x	x		July 18, 1935
Nickerson, Robert	Blue Hill	22		x	x	July 1, 1935
Nolan, Charles J.	Fryeburg	23	x	x	x	July 1, 1934
O'Shea, Robert S.	Boston, Mass.	24	x	x	x	July 1, 1935
Peterson, Earl W.	Lewiston	59	x	x	x	May 15, 1935
Quigley, John E.	Houlton	49		x	x	July 18, 1935
Robarts, Myron F.	Camden	50	x	x	x	Aug. 10, 1935
Robbins, Lester	Auburn	25	x	x	x	July 1, 1935
Robinson, Chas. L.	Palermo	36	x	x	x	Apr. 17, 1935
Rodick, Kenneth	Ellsworth	26	x	x	x	July 1, 1935
Safstrom, A. J.	Augusta	44		x	x	Apr. 30, 1935
Shand, Charles L.	Bar Harbor	58		x	x	Apr. 17, 1935
Sherman, Robert C.	Brunswick	27		x	x	July 1, 1935
Skillin, Alexander	Falmouth Foreside	28	x	x	x	July 1, 1935
Smoot, Raymond L.	Camden	35		x	x	July 1, 1935
White, Howard M.	Auburn	29	x	x	x	July 1, 1935
White, J. Cooke	Brookline, Mass.	53	x	x	x	Oct. 10, 1935
Wood, R. M.	Rochester, N. H.	51		x	x	Aug. 10, 1934
Woodrow, Gerald F.	Portland	63		x	x	Oct. 9, 1935

FOREST INSECTS

Several insects have occurred in outbreak form during the past two years. Some of the recently introduced forms have been found over much larger territories than they were at first believed to occupy and new control measures have had to be started.

(1) **Alder Flea Beetle (Haltica bimarginata)** has caused severe browning of alder over the State in general, especially in 1934. Although alder is of little value, many people have inquired as to the cause of this browning for fear it might spread to other forest trees which it will not do.

(2) **Arborvitae Leaf Miners (Argyresthia thuiella, Recurvaria thujaella,** and **Argyresthia freyella)** have been abundant in central Maine, especially during the past two years. The first two species named are the most numerous. Work is being done on these insects to determine their seriousness to forest and ornamental trees and the control measures which can be applied. The insects mine out and cause a browning of the foliage. This should not be confused with the very abundant browning in September and October caused by the natural dying and shedding of the previous years' foliage. It has been found that the insects can be controlled very well by spraying with nicotine sulphate 1 part to 400 parts of soapy water in the first part of August.

(3) **Bag Worm (Thyridopteryx ephemeraeformis)** was found on white pine in Sidney in 1933. This is believed to be the first record of this insect in Maine.

(4) **Beech Scale.** This European insect known as the Felted Beech Scale **(Cryptococcus fagi)** was first found in Maine in 1931 in Liberty. Previous to this, heavy damage had resulted from this insect in Nova Scotia and New Brunswick. The insect is followed by a fungus disease **(Nectria sp.)** which probably does the actual killing. Scouting of 1933 and 1934 showed the insect to be more widespread than at first thought. It is now present in Maine in areas about Millinocket, in areas from Topsfield and Vanceboro to Whiting, in the vicinity of Waltham, from Belfast to Palermo, and in York and Eliot.

Owners of infested timber have been advised as to the seriousness of the insect and fungus, and cooperation has been asked in cutting infested trees and hauling them out for fire wood. A large amount of this beech has been cut. The severe winter of 1933-1934 caused considerable winter kill of this insect. The insect appears as white flocculent masses on the bark of the trees; while the disease which follows shows as small, red, fruiting-bodies on the bark.

There are two other insects which appear much like the felted beech scale. One, the Beech Blight Aphis **(Prociphilus imbricator)** appears as bluish-white cottony masses on the underside of limbs. The other insect known as **(Xylococcus betulae)**, found on beech, maple, yellow and white birch, in addition to being of a white cottony appearance, has a glass-like hair often an inch in length on the end of which is a glassy bead protruding from the bark.

(5) **Birch Leaf Miner. (Phyllotoma nemorata).** Work at the Bar Harbor Laboratory has been concentrated largely on rearing parasites for distribution in regions where this insect is abundant. Detailed inspections of permanent sample plots throughout the white birch belt have kept us well informed as to local conditions. Parasites and predators are definitely beginning to gain the upper hand. A detailed study of the leaf miner, its habits, damage, and control has been made and a report is being prepared for publication. The mining of the foliage has greatly slowed up the growth of the trees. In addition to white and gray birch the following species have been found infested: (1) Blue Birch **(Betula coerulea grandis)**; (2) Dwarf Birch **(B. glandulosa)**; (3) Bog Birch **(B. pumila)**; and (4) rarely Green Alder **(Alnus crispa)**. The heaviest infestations at the present time are in the western part of the State. A nicotine sulphate spray diluted 1 to 800 applied late in July when the mines are about the size of a cross section of a lead pencil gives effective control on ornamentals.

(6) **Birch Leaf Mining Sawfly (Fenusa pumila)** is still abundant in the State. In woodland growth the insect is not of primary importance as gray birch, a poor wood, is mostly

attacked and little damage occurs to white birch. Ornamental birches, however, are rendered unsightly. Control measures for such trees have been worked out.

(7) **Birch Case Bearer (Coleophora salmani)** has been abundant in Bar Harbor, Gouldsboro, Sullivan, and Winter Harbor; heavy in Hancock; and light in Blue Hill, Cherryfield, Harrington, Surry, and Township 10. Checking of nursery stock before leaving Mt. Desert Island has been done to prevent spread of the insect by this means. The dormant and summer sprays recommended for control have been used extensively and very successfully on both small and large scales on the extensive estates about Bar Harbor. Summer sprays are recommended over dormant sprays for this insect when evergreens are mixed in with the birch as dormant sprays tend to injure the conifers. It has been found that some contact sprays previously recommended in Maine Forest Service, Bulletin No. 7 can be weakened considerably and still give good control. Nicotine sulphate 1 to 1000 and 1 to 1600 parts of water respectively plus Penetrol (.5%) have given 94.6% and 91.9% control respectively. Overwintering mortality of this insect for the winter of 1933-1934 at Bar Harbor was 25.2% while for the winter of 1931-1932 such mortality was 8%.

(8) **Birch Leaf Skeletonizer (Bucculatrix canadensisella),** which in the few years previous to 1933 damaged birch foliage greatly, shows in surveys made that its parasites have a good hold on it and are reducing it to uninjurious numbers. The infestation decreased rapidly in the past two years, especially in 1934 and is low except along the western border where the infestation is moderate.

(9) **Chestnut Blight (Endothia parasitica)** although a fungus disease is well mentioned here because it has practically wiped out our native American chestnut in northeastern United States. Chestnut is a valuable wood. Furthermore, the nuts are prized as food. As far as known at present there is little hope of the chestnut trees' coming back. For this reason we have placed in our State Park and on two private estates next to dead or dying chestnut trees, two species of

Japanese chestnuts to determine the resistance or immunity of these species to the disease. Several of each species were planted in May, 1932 and at present all are living and showing no signs of this dread disease. The species planted are **Castanea Japonica,** and **C. mollissima.**

(10) **False Mistletoe (Razoumofskya pusilla),** a parasitic plant, has been found very prevalent on spruce on Monhegan Island where it has killed and stunted many trees. Conditions are evidently very favorable for this plant. It was also found close to Pemaquid Beach and at Christmas Cove. Complaints and requests for help by natives and summer residents were numerous. Inspection of the Monhegan Island outbreak showed it to be feasible to carry on eradication work. Federal Emergency Relief funds have been appropriated for eradication work this winter. From experience shown in other parts of the country, results should be very effective.

(11) **Balsam Woolly Aphid (Dreyfusia picea).** Outbreaks of this European insect were found in Maine in 1931. It is heavy along the coast and has been found inland at such points as Milford, Springfield, Brighton, Corinna, New Portland, Strong, Lexington, Weld, West Bethel, and Readfield. Twigs swell on infested trees and enclose the buds, tops become stunted and umbrella shaped, and there is a quick tapering of the trunk. Oftentimes trees die quickly from attack without exhibiting the above characteristics. The insect shows up as small, white, flocculent masses on the bark and buds. In heavy infestations the bark of the trees is almost white with these masses. Owners of infested timber have been advised as to the presence of the insect and it is hoped that such timber will be cut to check the spread of the insect. Studies and scouting are being carried on. Examination of hundreds of the insects in April, 1934 at Bar Harbor showed that 90% of the insects above the snowline were killed by the severe winter of 1933-34, below the snowline 65% were killed. Evidence of winter kill and effective checking of the insect were apparent in some of the infested stands inspected in 1934. Experiments conducted to obtain control of the insect on ornamental trees showed that anyone of the following sprays

will give excellent control: Liquid lime-sulphur 1 to 12 applied about April 28; nicotine sulphate 1 to 400 parts of water plus Penetrol .5% applied in mid-June; and nicotine sulphate 1 to 800 parts of water plus a summer spray oil 1% applied the middle of August. Work to determine a forest control practice was started in the fall of 1934 when large infested fir trees were felled to see if the insects would be able to survive on felled trees and go to nearby green ones in the following spring and summer. Results of this work will be obtained next summer. Studies show that the insects are spread by wind.

(12) **Forest Tent Caterpillar. (Malacosoma disstria.)** Heavy outbreaks of this insect occurred in widely scattered areas in 1933 and more especially in 1934. Poplar and birch were badly stripped by millions of caterpillars in Indian No. 3, Twp. 1, R. 8 and R. 9, Augusta, Damariscotta, Harpswell, Kezar Falls, Limerick, Lincoln, Macwahoc, Medway, Topsfield, Waite, Waltham, West Enfield, Woodland, and Woodville. In places, such as Twp. No. 8, Hancock County, these caterpillars were found to be heavily parasitized as is usually the case with this insect after being in outbreak form for two years or so for it is a native insect and is usually brought under control through natural agencies. Since the outbreaks have been so heavy and harmful, we have helped in speeding up the establishment of parasites in the different outbreaks. Parasites have been collected in areas where they have been abundant, and then released in areas of outbreaks where parasites were at the time absent or present in but very small numbers.

(13) **Hemlock Looper (Ellopia fiscellaria)** a pest especially of fir and hemlock, although not now in outbreak form, has been found about Mount Katahdin and on Mount Desert Island where it seems to be increasing. Particular efforts will have to be made to see that it does not get out of hand. At present there is an outbreak in Nova Scotia.

(14) **Larch Case Bearer. (Coleophora laricella).** Severe outbreaks of this insect have occurred through almost all of the State in the last few years. Close records of this insect

show that it dropped to a considerable degree in 1934 and that the infected trees did not suffer so greatly. The insect is of European origin. No native parasites have as yet been found. Parasites of this case bearer have been brought in from Europe and released in the field in both 1933 and 1934. It is hoped that these parasites will become well established here and cause a receding of these outbreaks as well as to bring about checks on any future outbreaks.

The severe winter of 1933-34 killed but 30% of the over-wintering larvae. In one sample plot in West Sidney birds were seen in abundance feeding on these insects, thus showing the importance of the presence of birds. The Song Sparrow and Redstart were the most common of the birds seen feeding. Other birds seen were the Chipping Sparrow, Eastern Yellow Warbler, and Magnolia Warbler.

(15) **Poplar Tortrix (Tortrix conflictana)** which was mentioned in the previous report as defoliating thousands of acres of poplar in areas around Skinner, Tarratine, and Kokadjo is now present in but very small numbers and evidently subsided beyond any chance of arising again immediately. Parasitic insects and birds evidently had much to do with the overcoming of this pest.

(16) **Spruce Bark Beetle. (Dendroctonus piceaperda).** Severe outbreaks of this primary enemy of spruce are present in large areas of mature and virgin spruce in west central parts of the State. These areas have been gone over and recommendations made and explained to the landowners. Information gained from first-hand inspection and from woodsmen in the vicinities show that the outbreaks have been going on for several years without having been reported. It brings out strongly the need of more insistent instructions that all woods workers report the dying of trees no matter how few in number to landowners or to this Department. Outbreaks start in small areas and trees start dying in small numbers at first. Apprehension of the first stages of these outbreaks would give ample chance to get in and stop the insects before such vast damage, as has been caused in these cases, has come about. Fine spruce on approximately 25,000 acres of land is

dead or dying from these insects. The nature of the growth surrounding these outbreaks and the size of the outbreaks together make it necessary to salvage the infested timber immediately. One area was operated last winter for long lumber and will be continued under operation this winter. An operation was started on the largest of the involved areas in the fall of 1934.

Blowdown areas are favored places for these beetles to get established and it was in such areas that these outbreaks apparently started. Spruce of 9" and over D. B. H. are the only trees attacked. Red-top spruce, small pitch-tubes protruding from the bark of the trunk, green needles falling abundantly, and extensive galleries just beneath the bark indicate attack by these beetles. Outbreaks can and have been stopped when they were over small areas by cutting, peeling, floating in water, or removing the trees from the woods any time in the fall or winter before the spring season has opened up.

(17) **Spruce Web Worm (Epinotia nanana)** and **Spruce Gall Aphid (Adelges abietis)** are two insects which have been common in the past along the coast. The former has dropped down considerably lately and is of but little concern compared to what it was. Sprays recommended for summer estates and hotel areas worked very well and kept trees on these places in fine appearance during the worst of the outbreak. The latter insect was of its usual abundance but with the value of spruces adjacent to summer estates in mind it is possible to spray such trees and protect them fully from injury at a comparatively small cost.

(18) **Squirrel Work.** In many places in the winters of 1933 and 1934 the snow beneath fir trees was found to be covered with the past season's twig growth. Hundreds of such twigs were found. Investigation of this interesting work showed that it had been done by squirrels. Flower buds in every case along the lower sides of the twigs had been chewed off. The ultimate result was of course a lowering in seed production. In some localities it was reported that the tops of many fir and pine trees had been cut off.

(19) **White Pine Weevil. (Pissodes strobi).** This insect is our worst enemy of white pine. It gets into and kills the leading or terminal shoot of the tree causing a consequent crook in the tree and a poor grade of lumber. Serious attack is also found on Norway and red spruce. It has lately been found in Scotch pine **(Pinus silvestris)** and in a Korean pine **(Pinus koraiensis)** at Bar Harbor this past summer. Large areas in the southern part of the State are devoted to pine and spruce plantations while in addition small pine reproduction in abandoned fields and pastures is abundant. It is in such places where food is so readily found by the insect that the greatest damage takes place. There is great need for a practical control measure that can be applied over large areas of pine. For a number of years past the Department has been carrying on extensive experiments. The past two years' work was done on the large plantations of the Augusta Water District at Readfield. Thorough tests were made with each of eleven different materials applied to the leaders of the trees. The following materials were applied either with a brush or with a knapsack sprayer: Bordeaux - water, Bordeaux - linseed oil, Sulphur - linseed oil, creosote oil, carbolic acid paste, tan shoe polish, molasses - lead arsenate, Dendrol - Bordeaux - water, Dendrol - sulphur - water, and light engine grease. The other material tried was naphthalene balls attached to the tops of the leaders. Of these materials none gave any indication of being effective toward preventing the adult weevils from laying their eggs in the terminal shoots. The insect has proven to be a hard one to control. Mixed plantations and growing of susceptible trees under a protective covering of hardwoods still show up as effective means of preventing attack by this insect. A large amount of cutting and burning of infested leaders was done in July, 1934 under our direction by the Jefferson V. C. C., Alfred and Lewiston C. C. C. camps. Nearly a thousand acres of plantations were gone over and fifty-seven thousand weeviled tops cut and burned.

(20) **White Pine Tip Moth. (Eucosma gloriola)** has been found abundantly in white pine plantations in Readfield during the past two years. The young or caterpillars tunnel out and kill the lateral and terminal tips. Fortunately it works mostly in the lateral tips and it is not so harmful as the white pine weevil.

(21) **White Spruce Sawfly (Diprion polytomum)** is a recently introduced insect to North America. First found in the Gaspe Peninsula country it has caused vast damage there. All species of spruce are defoliated. The old foliage is preferred but when that is gone they feed on the new foliage after it has become mature. The insect is established in the Gaspe region and the whole of New Brunswick. Four thousand square miles were defoliated in 1934 in the Gaspe region. It is spreading westward and is the cause of concern to Maine interests. As yet defoliation by this insect has not been reported in Maine. A few specimens of adults flying have been taken on Mount Katahdin and in Bar Harbor. Any defoliation of spruce should be reported immediately.

(22) **Continuing Projects.** The artificial defoliation experiments, started in 1927, are still being carried on. Some additional experiments were started in 1929. Different sets of trees are defoliated a certain percentage at the same time each year; some being defoliated in the spring, some in the summer, and some in the fall. In this way we will be able to get information on the length of time trees can stand different degrees of defoliation and on the effect to the tree as related to the season of year it was defoliated. The following years of complete successive defoliation have been found to result in the death of these trees:

Tree	Years Defoliation		
	Spring June 20	Summer July 28	Fall August 27
White birch	3	3	A
Trembling aspen	4	3	L
Red maple	4	5	A
Arborvitae	L	L	L
Balsam fir		5	4
White pine	6	3	2
Spruce	L	6	A

A—Living after 5 years of complete successive defoliation.
L—Living after 7 years of complete successive defoliation.

(23) **The Spruce Bud Worm Control Project** started in 1924 is still being studied and followed each year to note the succession of insects and fungi which attack dead trees and to find the length of time trees that have been girdled at different seasons of the year will remain worth salvaging. These trees were girdled to bring about their death; some being girdled in the spring, some in the summer, and some in the fall. Very worthwhile information is being found which will be published when the project is complete.

SHADE TREE INSECTS

Interest in shade and ornamental trees is steadily increasing as evidenced by the increase in inquiries received. Furthermore, in talking with tree owners, it is plainly apparent that they are deeply concerned over everything, no matter how small, which troubles their trees. Each year usually sees several insects which are of prime importance as enemies of shade trees. These are numerous over general areas of the State. Numerous other enemies augment these although doing

damage but locally. Requests for help include not only questions on insects but also inquiries on tree diseases and tree surgery.

The Rose Chafer **(Macrodactylus subspinosus),** usually regarded as only a pest of grapes and garden plants, was very abundant in central and southern Maine on such shade trees as American and Chinese elms, birches, sugar and ash-leaf maples, and willows. These long-legged, fawn-colored beetles are voracious feeders and are difficult to control. The young grubs feed on roots in the soil. Where possible, cultivation of areas to keep them free from roots helps greatly by keeping the adults from laying eggs in such areas. Lead arsenate sprays to be effective must have molasses added at the rate of 5 pounds arsenate of lead, 2 gallons molasses, and 100 gallons water. This spray should be applied when the beetles appear and at intervals of one week until the beetles are controlled. Usually two or three applications are enough. The Woolly Elm Aphid **(Eriosoma americana)** was very abundant on elms causing curled and twisted leaves. These insects give off a secretion which in dropping causes streets and sidewalks to be damp appearing and cars parked beneath elms to become spotted. The Satin Moth **(Stilpnotia salicis)** was still abundant in central Maine. The Ash Sawfly **(Tomostethus bardus)** was defoliating brown ash in Augusta, 1934. Arborvitae Leaf Miners by mining the foliage caused arborvitae to be browned considerably. Control measures have been worked out for these leaf miners. The Mountain Ash Sawfly **(Pristiphora banksi)** was frequently reported as severely defoliating mountain ash. The Bronze Birch Borer **(Agrilus anxius)** is a serious insect on ornamental birches. This insect bores beneath the bark killing the top first and then working down the branches and trunk to kill the whole tree. Such birches should be kept in good condition by feeding and watering. The Elm Leaf Miner **(Kaliofenusa ulmi)** was prevalent on English and Camperdown elms. Foliage is mined out and left browned. A nicotine - soap spray in early June controls this insect very well. The Maple and Oak Twig Pruner **(Hypermallus villosus)** was unusually abundant over central and Southern Maine. Large twigs are chewed off and

fall to the ground. The grubs can be found in these fallen twigs which should be raked and burned before spring for control. The Maple Bladder Gall **(Phyllocoptes quadripes)** causing numerous bladder-like green to red swellings on maple foliage was prevalent. Control was found out to consist of spraying trees and especially the twigs in the dormant spring season with a miscible oil. Psocids or bark lice, although doing no harm, were frequently reported from central Maine by anxious tree owners on seeing literally thousands of these insects swarming together on the trunks of trees, especially pine. These insects feed on lichens and are soft-bodied insects with four membranous wings, which are slightly longer than the body, held roof-like when at rest. The Willow Flea Weevil **(Orchestes rufipes)** is extremely harmful to willows from Kennebunk to Yarmouth. The laurel-leaf willow **(Salix pentandra)** is especially attacked by the small, jet-black weevils which pepper the underside of the foliage with small holes. The young grubs make blotchy-brown mines in the foliage which becomes generally distorted and browned. Complete life history work and control measures which were worked out are available in a publication on this insect put out by the Department.

Winter kill was a thing of which we heard a lot as we had expected in the winter of 1933 and 1934. The severe cold did untold damage to trees and shrubs killing many of such species as American beech, European purple-leaf beech, cut-leaf birch and privet; and injuring many other trees by causing frost cracks and by killing tops and branches especially of conifers.

The Dutch Elm Disease **(Graphium ulmi)**, a dangerous foreign fungus enemy of elms, is just as dangerous as all the reports put out concerning it state. Although it has not been found in Maine, it is relatively near to us, being present in Connecticut, New York, and New Jersey. We are on the look out for all sickly elms and in the past two years have sent many suspicious specimens to specialists on this disease. The disease shows up as dying limbs with brown streaks in the sap wood. There are two other diseases of elms with the same symptoms as this; hence, it is necessary to culture specimens in laboratories before knowing definitely of the presence

of this foreign enemy. Nearly six thousand infected elms have been found in the three states previously named. The disease is spread by small bark beetles which inhabit sickly elms. A gigantic attempt is being made to eradicate this disease in the infected states before it can spread and duplicate the history of the Chestnut blight. Reports of sickly elms along with specimens of diseased twigs the size of a lead pencil should be sent immediately to this office.

HOUSEHOLD INSECTS

Yearly there are many calls for help in eliminating bed bugs, cockroaches, crickets, drugstore beetles, boring insects in woodwork and furniture, cat and dog fleas, flour moths, meal moths, larder beetles, carpet beetles, clothes moths, ants, and silver fish. Cockroaches and the European Brown House Crickets **(Gryllus domesticus)** were very common in houses about dumps from which they migrated. The house cricket besides being obnoxious in over-running houses caused much damage by feeding on clothing, lace curtains, and food. Cat and dog fleas were the cause of an unusual number of calls. Houses and cellars were over-run with them in one city. Naphthalene flakes scattered on floors of rooms kept closed for 24 hours give good control. Flakes should be used at the rate of 5 pounds for an ordinary sized room. After treating one room, these flakes can be gathered, made up to a weight of 5 pounds again and used in another room. Larder Beetles **(Dermestes lardarius)** were abundantly reported feeding on such foods as hams, bacon, and cheese. A closely related species **(Dermestes caninus)** was found feeding on woolen clothing. Powder-post beetles were commonly found in hard-wood flooring and furniture. Two summer camps reported rustic hickory chairs and tables crumbling apart from the work of these beetles.

ORCHARD AND MARKET GARDEN INSECTS

The destructive, introduced, insect pest known as the Mexican Bean Beetle **(Epilachna corrupta)** which was found in the State in 1932 is apparently here to stay as far as natural factors are concerned since it survived the severe winter of

1933 and 1934. The beetles were found by 1934 to be well into Kennebec County being severe in Gardiner and quite heavy in East Vassalboro. Reports of the insect from the southern part of the State were common. The beetles are shaped like a lady-beetle and are of a yellow color with sixteen black spots on the two wing-covers. Magnesium arsenate at the rate of two pounds to a hundred gallons of water is the recommended spray. Thin spacing of bean plants helps considerably in reducing the injury by the insects and also in increasing the yield. The Rose Chafer (mentioned under Shade Tree Insects) raised havoc with certain corn fields, bush beans and pole beans, roses, and were found feeding abundantly on cucumber, blackberry, grape, potato, strawberry, squash, lilac, and peony.

The Tomato Horn Worm **(Phlegethontius sexta)** was the cause of daily correspondence regarding it for a considerable time in each of the past two summers. White grubs, the young of June beetles and closely related beetles, did considerable damage to roots of grass and plants over the State in general. The Striped Cucumber Beetle **(Diabrotica vittata)** was heavy in central Maine and the short-winged form of the Chinch Bug **(Blissus leucopterus)** was found swarming over houses near Old Orchard as they were evidently migrating from a recently mown field. Chain-Dotted Geometer **(Cingilia catenaria)** and the Blueberry Spanworm **(Itame inceptaria)** stripped many blueberry plants of their foliage around Patten and North Whitefield respectively. The Raspberry Cane Borer **(Oberea bimaculata)** was abundant in raspberry plants and roses. What appears to be a new scale insect on apple trees was first noticed in Jefferson in 1930. It has not been definitely determined as yet but is very closely related to the Maple Phenacoccus **(Phenacoccus acericola)**. Preliminary work has been carried on by Alonzo Jones, a foreman at the Veterans Conservation Corps Camp at Jefferson. The insect has been found in only four orchards, all in the above town. The apple tree hosts in order of preference shown are Baldwin, Gravenstein, Wolf River, McIntosh, Northern Spy, and Delicious. On the trunk and limbs the insects appear as white-scale like masses. The nymphs and eggs are yellow. These insects are sap-suckers and cause yellowing of foliage and

general weakening of the tree. Twigs, limbs, and fruit become blackened by Sooty Mold, a fungus which grows on the secretion called honeydew given off and dropped from the insects. A 70% loss of crop was estimated by one orchardist in 1932. Two hundred to three hundred eggs are laid by each female on the trunk in late May and early June. The young hatch the first of July and then migrate to the underside of the leaves. The insects are mature by mid-August. They probably over winter as adults on the trunks. No males were found. Dormant sprays against the adults and sprays timed to kill the eggs gave little success. Nicotine sulphate 1 part to 400 parts of soapy water sprayed on the trunk just as the young were starting to migrate gave the best control. The same spray at a dilution of 1 to 600 directed on the underside of the leaves about the second week in July gave good control.

The Eastern Tent Caterpillar **(Malacosoma americana)** was generally heavy in the State in the past two years. It was very heavy in Hancock County, and around Rockland, Boothbay Harbor, and Kennebec County.

FLOWER AND GREENHOUSE INSECTS

Just as inquiries relating to Shade Tree Insects have been increasing, so too have calls concerning these insects. Gladiolus Thrips **(Taeniothrips gladioli)** led the list for quantity. In one place 1,500 bulbs were lost from effects of this insect. Naphthalene flakes used in the late winter is the best control although a spray of 1 ounce Paris Green, 2 pounds brown sugar and 3 gallons water applied on the field plants gives good control. The Lilac Leaf Miner **(Gracilaria syringella),** a native of Europe, continues to be a major pest of lilac in the vicinity of Bar Harbor. The curled Rose Sawfly **(Emphytus cinctipes)** defoliating roses completely, the Rose Curculio **(Rhynchites bicolor)** destroying rose blossoms, and the Violet Sawfly **(Emphytina canadensis)** feeding on violets were commonly reported. A serious case of gas injury was brought to light in 1933 by the appeal of a large greenhouse owner who asked help in determining the cause of extensive injury to his greenhouse stock. After much time and effort in conducting different tests for the presence of gas, it was definitely

proven by the use of tomato seedlings, which wilt in the presence of minute quantities of gas, that all injury was due to illuminating gas seeping into the greenhouse from a nearby, large, broken gas main. This proof of the cause was of great value to the greenhouse owner.

PUBLICATIONS

From time to time articles concerning insects and their depredations have been put in the newspapers in an effort to keep the public informed of the latest methods of control. Numerous talks have been given before organizations and clubs. An interesting exhibit has been made up of the different kinds of beneficial and injurious insects. The injurious insects are grouped as to the hosts upon which they feed e. g., Forest Insects, Market Garden Insects, Flower and Greenhouse Insects, etc. All insects are in Riker (Glass-covered) Mounts inserted into plate-like cases. The whole exhibit is set up on a standard and properly labeled so that it is easily examined by interested people. This exhibit has been shown at Bar Harbor, Lewiston, Portland, Rangeley, and the University of Maine Forestry Camp, Princeton.

A third edition of the "Field Book of Destructive Forest Insects" by H. B. Peirson was published early in 1934. Previous editions were those of 1929 and 1932. This handbook is published in cooperation with the Kennebec Valley Protective Association. Descriptions and pictures of the general types of forest insects and methods of control under both forest and shade tree conditions are given. Specific descriptions and control for twenty-five of the more important forest insects are given along with tables of spray dilutions.

A short note entitled, "Control of the Birch Leaf-mining Sawfly" by A. E. Brower was printed in the Journal of Economic Entomology, June, 1933. Nicotine sulphate 1 to 800 plus soap or Penetrol was recommended for control if applied July 20 to 30. Results of spraying with much weaker solutions of nicotine sulphate on a small scale were given.

Three publications appeared in the Journal of Economic Entomology, April, 1934. Reprints of these publications were

obtained for distribution to people interested in the particular insects. These are:

(1) "Predatory Checks, Especially Birds, on the Birch Leaf-mining Sawfly **(Phyllotoma nemorata)** Fallen" by A. E. Brower, giving results of surveys to determine the percentage of grubs of this insect destroyed by birds. The species of birds involved are listed; other predatory enemies are given.

(2) "Some Observations on the Balsam Woolly Aphid in Maine" by H. B. Peirson and A. M. Gillespie, describing the insect and type of injury to balsam, and giving notes on the life history and control measures.

(3) "The Willow Flea Weevil **(Orchestes rufipes)** Lec. and its Control in Maine" by R. W. Nash, summarizing the results of the work done on the life history and habits of these small black weevils and their leaf-mining grubs. Control measures are given.

A spray schedule for conifers and a mimeographed "Outline of Forest Entomology" for forestry school students were again prepared for distribution . Each winter, as in the past, two weeks have been spent by one of the men at the University of Maine forestry camp instructing students in forest entomology and pathology.

WORK IN CONNECTION WITH FEDERAL RELIEF PROJECTS

A mosquito control project was carried on from December 7, 1933 to February 1, 1934 at Old Orchard under C. W. A. funds. A swampy area adjacent to this resort was ditched to drain water which constantly remained there in a stagnant state serving as a breeding place for mosquitoes. Fifty men were employed. D. L. Moody was superintendent of the field work. Two miles of ditches were dug. Inspection in the summer of 1934 showed very satisfactory results obtained in draining this area.

A shade tree pruning and feeding project was carried on for about six months starting December 1, 1933 on the State Grounds in Augusta under C. W. A. funds. Four men for

climbing and pruning the trees, one man for working on shrubs, and three ground men with a truck for helping the climbers and clearing away the resulting debris were employed. Many trees were fertilized and some had cavity work done in them. These trees were in much need of pruning and feeding, making the project a very worthwhile one.

A Veterans Conservation Corps camp located at Jefferson and Civilian Conservation Corps camps located at Lewiston and Alfred have been under our supervision. A large amount of forest insect and disease control work has been carried on by these camps with very effective results. A summary of the work on gipsy and brown tail moths, white pine weevil, and tent caterpillar is shown in another section of the report.

In addition to this type of work other projects, such as trail building, forest stand improvement and planting, construction of lunch grounds, telephone line construction, and the building of two lookout cabins were accomplished.

The Jefferson camp has taken two old ravines in front of the Capitol, which were formerly used as dumps, and have made a very attractive park and arboretum. Over 2,000 native trees and shrubs have been planted. Eighty species of trees, 85 species of shrubs, and 30 species of ferns have been set out. These have been labeled with small metal signs. Trails, rustic bridges, benches, and an artificial pond have been made. The work of the camps has been highly satisfactory and seems to meet with strong public approval.

At the Princeton C. C. C. camp work in controlling the Beech Scale and Balsam Woolly Aphid was carried on.

WHITE PINE BLISTER RUST

WHITE PINE BLISTER RUST

Importance of White Pine and Control of the Blister Rust

†"White Pine is justifiably described as 'The king of soft-woods'. It is estimated that originally 750 billion board feet of white pine dominated the forest stands on four hundred thousand square miles of the United States and Canada. To the physical and economic development of North America this royal tree has immensely contributed. Today it is faced with a disease as fatal in its effect as the chestnut blight, yet the disease which menaces the white pine—the white pine blister rust—can be controlled."

The above statement is applicable to Maine in every particular. White pine has been, and still is, our principal timber tree. For three centuries—since the erection of the first sawmill in the United States at South Berwick in 1634—our mills have been sawing white pine, contributing an important part in the physical and economic development of the state. White pine is the greatest natural asset in Southern Maine, its range including the entire coastal region and extending well into the center of the state, with an acreage of around three million and an estimated value of one hundred million dollars. It is used for more purposes and brings a far larger return than any other tree in that part of the state. Its management as a permanent crop is essential to maintain the prosperity of the region. The virgin crop is gone, but it is being replaced by hundreds of thousands of acres of reproduction, which, if protected from fire, insects, and diseases, will be of tremendous importance in the future. The greater part of this reproduction is now at an age most susceptible to damage from blister rust. Strip lines and sample plots show that the disease is firmly established and rapidly increasing in unprotected areas.

†Excerpt from "White Pine Blister Rust—A Half Billion Dollar Menace" by Charles Lathrop Pack, President American Tree Association, Washington, D. C.

One of Maine's foremost consulting foresters makes the following statement concerning our present blister rust situation: "As you know, the white pine in Maine was and is one of the most important trees we have. It occurs in many pure stands and very often of second growth size throughout the southern part of the state. Many of these stands are still small and will be utterly wrecked if blister rust is not controlled. With proper control of the disease and the encouragement which will flow therefrom to the private owner, further silvicultural measures can be adopted which in time will improve rates of growth and quality of lumber, and allow the pines to be of great public benefit to the State as a whole. Where blister rust control has been carried out, considerable encouragement is even now felt—as I know from the experiences in my own business. Where it has not been carried out, owners do not have confidence in the future. There is no need of my stating the need of the work to protect the pine—blister rust is well established here and widely spread."

White pine blister rust is a two host disease and cannot go directly from one pine tree to another, but is carried to healthy pines from infected currant and gooseberry bushes (Ribes sp.). An infected pine tree may infect all varieties of the currant and gooseberry family within 100 miles, which, once infected, spread the disease to other currant and gooseberry bushes over a large acreage during the summer months. From July until defoliation these infected plants spread the rust to white pine within infection range, usually 900 feet. Hence, the control of the disease is effected by the removal of all currant and gooseberry plants within 900 feet of the pines. The longevity of the spores of the disease is so short that beyond this distance very little pine infection occurs. There is one exception, however—the English black currant (Ribes nigrum) is dangerous up to one mile—spores of the rust from this plant being viable within this distance.

Blister rust attacks white pines by entering through the needles, whence it works through the bark of the branches, eventually reaching and girdling the trunk. Young white pines usually die from the disease in a few years, but large trees are killed more slowly.

Elimination of currant and gooseberry plants checks the spread of blister rust, but does not prevent pine trees already infected from dying. Once infected, the tree will eventually die if the disease is allowed to enter and remain for several years in the trunk. Trunk cankers may be prevented by removing the infected branch before the disease reaches the tree trunk. Pines with trunk cankers may be saved by removing all of the diseased bark for a distance not exceeding half way around the tree. Hundreds of thousands of ornamental and planted pines have been saved by a little jackknife work at the proper time, but yearly examinations are necessary—watch for "flags" on the branches, remembering that it is practically impossible to guarantee finding every young infection at the first examination; the insidious nature of the disease making this impossible. The cost of this work is money well spent, but first of all, it is necessary to eradicate the currant and gooseberry bushes and keep them out within a radius of 900 feet.

As stated in previous reports, blister rust is increasing rapidly in unprotected areas, which fact is demonstrated by the recent examination of the pines on many sample plots and on a 23½ miles by a rod wide strip line. The following sample plots show pine infection conditions on unprotected areas:

SAMPLE PLOTS SHOWING BLISTER RUST DAMAGE IN UNPROTECTED AREAS.

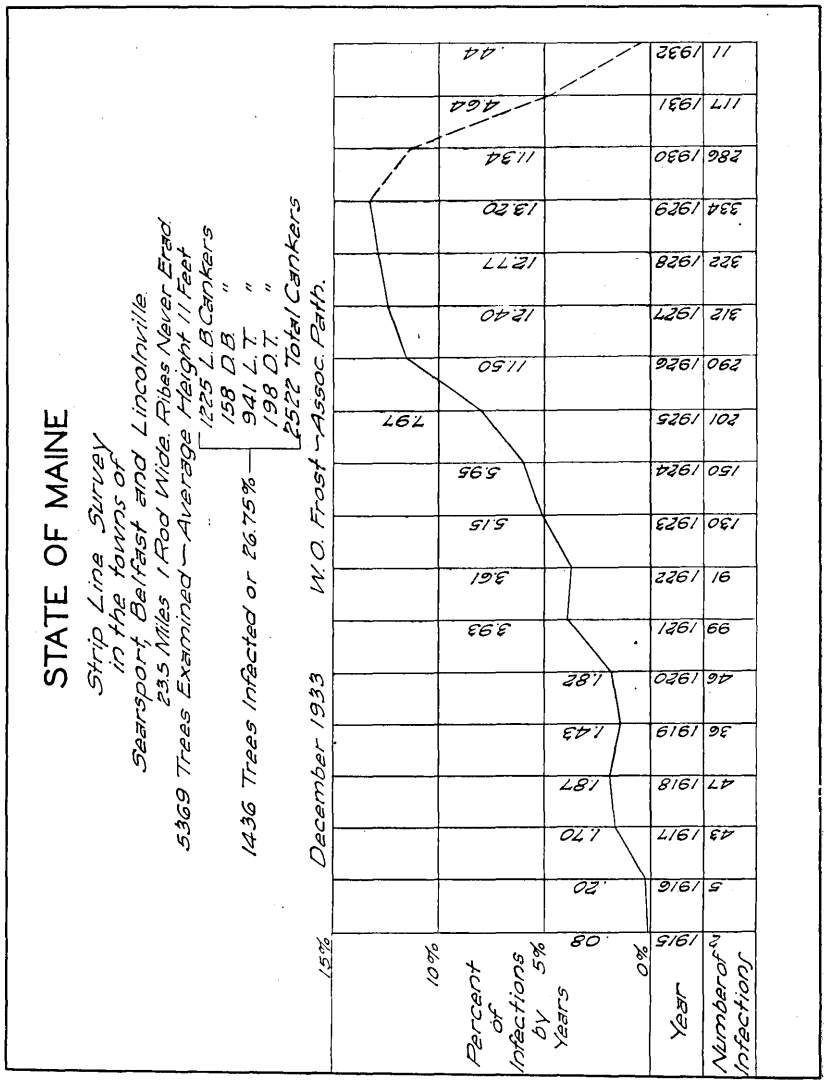
Town	Data date	Size Plot	No. Trees	Aver. Ht.	No. of Trees Infected	Per Cent Infected	Type
Bingham	Nov. 1934	¼A.	185	6 ft.	124	*67	Wild
Solon	Nov. 1934	1 A.	453	6 ft.	276	**61	Wild
Minot	Oct. 1933	9¾A.	5,262	15 ft.	2,586	49	Wild
Belfast	Nov. 1934	1 A.	618	10 ft.	391	63	Planted
Searsport	Oct. 1934	1 A.	729	9 ft.	447	***61	Planted

*In 1931 this plot was 55% infected, or an increase of 12% in 3 years.
**In 1931 this plot was 44% infected, or an increase of 17% in 3 years.
***This plot has been examined three times, showing 21% infection in 1930; 52% in 1932; and 61% in 1934, an increase of 200% in the number of infected trees in four years. No control work has been done. Already over 300 trees have trunk cankers and will die. Many smaller trees have been killed and decayed. The remaining 147 infected trees have branch infections which should be removed, but as long as the currant and gooseberry bushes are allowed to remain, the disease will take a steadily increasing toll.

The strip line ran in a southwesterly direction through the towns of Searsport, Belfast, and Lincolnville, keeping within young pine as much as possible. A total of 5,369 pines averaging 11 feet in height were examined, of which 1,436 or 26.75 per cent were found to be infected. Of the 2,522 cankers found, 1,225 were live branch, 158 dead branch, 941 live trunk, and 198 dead trunk. The oldest infection was on 1915 wood, and the youngest on 1932 wood. In 1915 the per cent of infection was .08 per cent, and less than 2 per cent in 1920, but from that year on until 1929 the per cent of yearly infections increased rapidly, reaching 13.20 per cent in that year. From 1929 on, the number of infections tapered off rapidly, owing to the impracticability of finding young infections, due to the three year incubation period of the disease on pines. This study shows what is actually taking place over large unprotected areas, and the urgent need for applying control measures.

Blister rust is not confined to small trees—it kills trees of all sizes once it reaches the trunk. For example, a sample acre of pines in the town of Warren was examined recently, including only pines of stump height diameters of seven inches and up with trunk infections. It was found that fifty-one trees ranging from seven to eighteen inches in diameter were fatally infected as follows:

Diam. at Stump ht.	7″	8″	9″	10″	11″	12″	13″	14″	15″	16″	17″	18″
Number of Trees in each Diam. Class	1	2	5	10	11	7	2	7	1	3	1	1



Blister rust control in Maine is conducted under a cooperative agreement with the United States Department of Agriculture, signed in 1917, but not until 1922 was it conducted on an extensive scale. In this year an agreement was made, whereby the two parties would cooperate with towns and pine owners, the

State and Federal Government furnishing the educational, service, scouting, and supervisory work, and the towns and pine owners the eradication labor.

This policy was pursued to the end of the 1930 eradication season, when a change was deemed necessary. Town appropriations had been used for the hire of one man per town to assist pine owners' labor, the State and Federal Government furnishing men for advance scouting and supervision. During this period over 11,000 pine owners and their laborers received a rough working knowledge of the control work. However, many pine owners, including non-residents, objected to this method since they were not always in a position to give their personal service or hire labor during the control season, which is from May to September. They realized that better control work would be done by using the standard sized eradication crew of six men, and a crew that would not change with every job, and above all else, that all pine lands would receive control measures irrespective of ownership. Hence, a change in the control policy, effective in 1931.

As blister rust control work is now conducted, the State adds fifty per cent to town appropriations, the funds being expended for eradication crews of four to six local men, and for scouting and supervision. The Federal Government furnishes the Federal agent in charge, four permanent county agents, and several temporary men for scouting and supervision of eradication crews during the summer months.

APPROPRIATIONS AND EXPENDITURES FOR FISCAL YEARS 1933-1934-1935

	STATE		FEDERAL	
Year	Appropriations	Expenditures	Appropriations	Expenditures
1933	$6,250.00	$5,855.84	$ 16,800.00	$ 15,214.13
1934	5,000.00	3,981.54	5,900.00* (30,725.00**)	5,900.00* (30,725.00**)
1935	5,000.00	***	38,500.00	***

* Regular appropriation.
** N. I. R. A. funds.
*** Fiscal year ends June 30, 1935.

Progress in Control Work in 1933

Blister rust control work was conducted under three major projects; that is, Regular Cooperative Control Work (with towns and owners), Emergency Conservation Work (C. C. C.), and National Industrial Recovery Act Work (N. I. R. A.)

(1) Regular Cooperative Control Work

The Regular Control Work was conducted in 25 towns in 13 Counties, as follows—towns of Carthage and Farmington, Franklin County; Mexico and Rumford, Oxford County; Bridgton, Falmouth, and South Portland, Cumberland County; Sanford and Old Orchard, York County; Turner and Lisbon, Androscoggin County; Bath, Sagadahoc County; Gardiner, Winslow, and Oakland, Kennebec County; Westport, Lincoln County; Sorrento, Hancock County; Camden and Hope, Knox County; Bangor and Orono, Penobscot County; Belfast and Lincolnville, Waldo County; Anson and Fairfield, Somerset County.

The following is the summary of the 1933 Regular Control Work, which includes town, State, private, and Federal Government eradication costs:

Total acreage worked,	26,035
Total number wild ribes destroyed,	613,906
Total number cultivated ribes destroyed,	709
Total cost to all cooperating parties,	$7,248.58
Per acre cost,	$0.28
Number ribes per acre of crew work,	77
Number ribes per acre by crews and scouts,	24

Re-eradication played an important part—the above summary includes 246,612 wild and 15 cultivated ribes, removed from 15,966 acres of land in 14 towns in 8 counties.

(2) Emergency Conservation Work (C. C. C.)

The regular control work ended abruptly June 24, in order for this Division of the Maine Forest Service to assume supervision of the C. C. C. Camps at Alfred, Lewiston, and Jefferson, blister rust control being the only project during the summer months. In addition, the Federal C. C. C. Camp at Stow in-

cluded a blister rust control project, also under our supervision. This program called for quick action, and, being blister rust camps, required a supervisory personnel of experienced men. We therefore discontinued our regular cooperative work in three districts, and placed thirty-eight men in the camps to act as foremen and superintendents.

Control work was conducted in seven towns,—Dayton and Newfield from the Alfred Camp; Greene, Bowdoin, and Minot from the Lewiston Camp; Jefferson from the Jefferson Camp; and Stow from the Stow Camp. A total of 58,135 acres were worked—1,358,992 wild and 3,833 cultivated currant and gooseberry plants destroyed. (This includes 4,995 acres of re-eradication from which 113,189 wild and 83 cultivated ribes were destroyed). The following table shows the work by camps, the man hours worked by the enlisted personnel, etc.

1933 BLISTER RUST CONTROL WORK BY C. C. C. CAMPS

	Alfred C.C.C.	Stow C.C.C.	Lewiston C.C.C.	Jefferson C.C.C.	Total
Number of towns worked	2	1	3	1	7
Average number men per day	108	21	88	93	310
Number Foremen and checkers	12	2	12	12	38
Initial Eradication:					
Acres eradication	24,730		11,973	16,437	53,140
Wild ribes *	361,943		330,812	550,682	1,243,437
Cult. ribes	700		2,415	670	3,785
Man hours	52,192		36,252	36,896	125,340
Re-eradication:					
Acres eradication		4,440	555		4,995
Wild ribes		103,652	9,537		113,189
Cult. ribes		53			53
Man hours		8,440	236		8,676
Total Init. and Re-erad.:					
Acres eradication	24,730	4,440	12,528	16,437	58,135
Wild ribes	361,943	103,652	340,349	553,048**	1,358,992
Cult. ribes	700	53	2,415	670	3,838
Man hours	52,192	8,440	36,488	36,896	134,016

* Ribes, i.e., currant and gooseberry plants.

** Includes 2,366 by advance scouting.

(3) National Industrial Recovery Act Work (N. I. R. A.)

In August we were notified of National Industrial Recovery Act funds allocated to the United States Department of Agriculture, Bureau of Plant Industry, for the use of the Division of Blister Rust Control, with the request that the Forest Commissioner place in the field as many unemployed men as could be supervised. Within a short time after receiving final instructions from Washington, 118 men were put to work—95 laborers at fifty cents per hour for a 30-hour week, furnished through the Rockland and Bangor National Reemployment Agencies, and 4 supervisors and 19 foremen, under Federal appointment, at a monthly wage rate of $130.00 and $110.00 per month, for a 44-hour week.

Control work began September 5 and ended September 23, being conducted in the towns of Belfast, Swanville, Camden, Lincolnville, Rockport, Union, Winterport, and Bangor—all initial work, as follows:

Number men employed,	118
Number towns worked,	8
Number acres worked,	5,185
Number wild ribes destroyed,	146,392
Number cult. ribes destroyed,	228
Number man hours labor,	8,406
Number 8 hr. days supervision,	215

1933 SUMMARY

The summary of the 1933 blister rust control work by all parties shows that 2,118,284 wild and 4,775 cultivated ribes were removed from 89,355 acres of pine lands plus protective strip, divided as follows:

	No. Towns	Acres	No. wild ribes	No. cult. ribes	Cost	Per acre cost	Ribes per acre
Regular Work	25	26,035	613,906	709	$ 7,248.58	$0.28	24
C.C.C. Work	7	58,135	1,358,992	3,838	134,016 Man hrs.*		23
N.I.R.A. Work	8	5,185	146,392	228	$ 5,260.70**	1.01	28
Total	40	89,355	2,119,290	4,775			Av'age 24

* Enlisted personnel (85,335½ man hrs. eradicating ribes).

** Includes cost of laborers, foremen, and transportation.

BLISTER RUST CONTROL PINE MAPPING

Previous to the winter of 1933-34 very little blister rust control pine mapping was done in the Pine Tree State, due to lack of funds and men, our permanent agents finding it necessary to devote their full time during the winter months to securing town and private cooperative funds for the next eradication season.

With the advent of the C. C. C. camps and N. I. R. A. funds, which would require the entire time of our permanent force for supervising the eradication work, no attempt was made this past winter to secure private and town funds. This allowed us to use our entire force on a pine mapping project. Black and white prints of 2x enlargements of United States Geological Survey maps were used, a scale of approximately 160 acres to the square inch. All pine lands having 50 or more trees to the acre were mapped. Compass bearings were taken and distances paced, the men using a protractor and scale rule for plotting areas. These maps have proved their worth this past field season—they speeded up the work to a marked degree. More mapping is being done during the winter of 1934-35, especially by the six checkers at the Alfred, Lewiston, and Jefferson C. C. C. Camps. Fifteen mappers were employed last winter: 7 C. C. C. camp checkers, the 4 permanent Federal county agents, and 4 temporary State agents, resulting in that 387,234 acres of eradication work were mapped for future work, the greater part initial, in 58 towns in 11 counties, as follows:

Mapping Personnel	No. 8-hr. Man Days	No. Counties Worked In	No. Towns Mapped	Acres Exam. & Not Mapped	Acres Mapped (Pine & Prot. Strip)
4 P. Agents	325¾	9	20	186,351	99,384
4 T. N.I.R.A. Agents	432¾	7	18	182,173	111,210
4 T. State Agents	80½	4	8	32,423	17,711
7 Checkers	1,046	6	18	78,344	158,929
Total 15	1,885	*11	*58	479,291	387,234

* Actual number of Counties and towns where work was conducted.

SUMMARY OF MAPPING BY COUNTIES AND TOWNS

Counties	Towns	Acres Exam. But Not Mapped	Acres Mapped (Pine & Prot. Strip)
Androscoggin	Livermore	7,123	16,144
	Durham	2,790	13,703
Franklin	New Vineyard	19,150	1,970
	New Sharon	17,337	8,638
	Industry	18,910	450
	Jay	5,501	5,291
	Weld	27,057	2,121
	Wilton	6,416	2,016
	Chesterville	4,927	5,920
Oxford	Bethel	8,225	10,624
	Gilead	1,165	925
	Hebron	2,249	6,272
	Oxford	1,032	7,926
	Lovell	5,267	10,132
	Sweden	3,828	8,873
	Rumford	23,663	10,501
Cumberland	Bridgton	234	2,340
	Pownal	1,912	12,131
	Harrison	1,286	2,779
Somerset	Solon	12,827	6,350
	Smithfield	3,435	8,550
	Fairfield	14,952	2,498
	Starks	13,296	4,144
	Cornville	18,805	5,035
	Canaan	13,184	5,736
	Embden	20,479	3,841
	Norridgewock	9,609	13,525
	Mercer	8,521	5,194
Kennebec	China	20,589	8,146
	Augusta	16,487	8,502
	Vassalboro	1,040	625
	Sidney	1,285	2,501

Counties	Towns	Acres Exam. But Not Mapped	Acres Mapped (Pine & Prot. Strip)
Kennebec-continued.			
	Litchfield	11,567	6,470
	Monmouth	5,972	3,819
	Windsor	6,095.2	7,288.8
	Mt. Vernon	10,502	12,058
	Vienna	7,193	6,087
Waldo	Belfast	8,362	8,047
	Lincolnville	3,171	2,989
	Waldo	4,924	6,756
	Winterport	6,565	2,341
	Swanville	5,066	671
Penobscot	Bangor	9,246	3,116
	Hampden	15,302	4,592
	Orono	9,633	1,407
	Veazie	1,863	697
Knox	Rockport	6,712	2,941
	Union	9,269	8,964
	Warren	7,163	21,797
York	Acton	136	10,675
	Eliot	617	11,296
	Wells	5,653	15,352
	Parsonsfield	130	3,150
	Newfield	0	2,110
Lincoln	Somerville	8,346.4	6,053.6
	Waldoboro	10,083.6	3,372.4
	Whitefield	7,737.0	20,743.0
	Jefferson	4,928.5	9,562.5

Progress in Control Work in 1934

With the advent of the C. C. C. Camps and N. I. R. A. funds, which would require the entire time of our permanent force for supervising the control work during the 1934 eradication season, no attempt was made to solicit town and private funds. However, we later learned that three towns had raised funds and two

private pine owners had several hundred acres they wished worked. In addition, Federal Emergency Relief Administration funds were made available in one town. Hence, blister rust control was conducted under four separate units—Regular Cooperative work with towns and pine owners; C. C. C.; N. I. R. A.; and F. E. R. A.

(1) Regular Cooperative Control Work

The Regular Control Work was conducted in the towns of Turner, Falmouth, and Old Orchard, and with two owners in the towns of Harpswell and Dixfield.

The following is the summary of the 1934 Regular Control Work, which includes town, State, private, and Federal Government costs:

Total acreage worked,	13,575
Total number wild ribes destroyed,	36,315
Total number cult. ribes destroyed,	28
Total cost to all parties,	$991.39
Per acre cost,	$0.07
Number ribes per acre,	3

This work was done in sandy land towns, the ribes being chiefly confined to scattered runs and wet areas. Hence, the low per acre cost and small number of ribes per acre. Included in these totals are 10,367 acres of re-eradication from which 18,617 ribes were destroyed.

(2) Emergency Conservation Work (C. C. C.)

Control Work was conducted in eleven towns,—Sanford from the Alfred Camp; Litchfield, Pownal, Brunswick, and Lewiston from the Lewiston Camp; Jefferson, Newcastle, Whitefield, and Windsor from the Jefferson Camp; Stow and Lovell from the Stow Camp. A total of 42,140 acres were worked—1,966,211 wild and 799 cultivated ribes being destroyed. Of this 10,308 acres and 130,978 ribes was re-eradication work. The following table shows the work by camps, the man hours worked by enlisted personnel, etc.

1934 BLISTER RUST CONTROL WORK BY C. C. C. CAMPS

	Alfred C.C.C.	Stow C.C.C.	Lewiston C.C.C.	Jefferson C.C.C.	Total
Number of towns worked	1	2	4	3	10
Average number men per day	84	12	86	57	239
Number Foremen and checkers	10	1	10	10	31
Initial Eradication:					
Acres eradication			13,309	18,523	31,832
Wild ribes*			814,074	1,021,159	1,835,233
Cult. ribes				799	799
Man hours			58,440	38,775	97,215
Re-eradication:					
Acres eradication	3,859	5,844	390	215	10,308
Wild ribes	62,815	55,571	2,380	10,212	130,978
Cult. ribes					
Man hours	8,070	5,217	792	1,016	15,095
Total Init. and Re-erad.:					
Acres eradication	3,859	5,844	13,699	18,738	42,140
Wild ribes	62,815	55,571	816,454	1,031,371	1,966,211
Cult. ribes				799	799
Man hours	8,070	5,217	59,232	39,791	112,310

* Ribes, i.e., currant and gooseberry plants.

(3) National Industrial Recovery Act Work (N. I. R. A.)

All regular Federal cooperative work was with N. I. R. A. funds this season, and undoubtedly will continue until June 30, 1935.

Control work began May 21 and ended September 5, employing 241 men in the 26 following towns:

Town of Livermore	Androscoggin County
Town of New Vineyard	Franklin County
Town of New Sharon	Franklin County
Town of Jay	Franklin County
Town of Chesterville	Franklin County
Town of China	Kennebec County
Town of Mt. Vernon	Kennebec County
Town of Vassalboro	Kennebec County
Town of Winslow	Kennebec County
Town of Camden	Knox County
Town of Union	Knox County

Town of Warren	Knox County
Town of Rumford	Oxford County
Town of Bethel	Oxford County
Town of Hampden	Penobscot County
Town of Orono	Penobscot County
City of Bangor	Penobscot County
Town of Bingham	Somerset County
Town of Concord	Somerset County
Town of Embden	Somerset County
Town of Madison	Somerset County
Town of Norridgewock	Somerset County
Town of Solon	Somerset County
Town of Belfast	Waldo County
Town of Lincolnville	Waldo County
Town of Waldo	Waldo County

The following is a summary of the 1934 N. I. R. A. control work, initial and re-eradication:

Number men employed,	241
Number towns worked,	26
Number acres eradicated,	55,127
Number wild ribes,	1,976,208
Number cult. ribes,	1,689
Number man hours,	62,100
N. I. R. A. costs,	$31,850.80
State costs,	$2,153.81
Total cost,	$34,004.61
Per acre cost,	$0.62

Included in these totals are 5,658 acres of re-eradication from which 75,194 ribes were destroyed, at a total cost of $2,860.31—a per acre cost of $0.59.

(4) Federal Emergency Relief Administration Control Work (F. E. R. A.)

One more relief agency entered the field of blister rust control this year—the F. E. R. A.—conducted in the town of Bridgton, where 12 unemployed men were furnished work from May 13 to August 31, reworking pine areas where ribes had staged a come-back since initial work was practiced. The following is a summary of the 1934 F. E. R. A. control work:

Number men employed,	12
Number towns worked,	1
Number acres worked,	2,549
Number wild ribes destroyed,	66,688
Number man hours,	3,208
Cost to F. E. R. A.,	$1,426.80
Cost to State,	$70.10
Per acre cost,	$0.59

1934 SUMMARY

The summary of blister rust control work by all parties shows that 4,045,422 wild and 2,516 cultivated ribes were removed from 113,391 acres of pine lands plus protective strip, divided as follows:

	No. Towns	Acres	No. wild ribes	No. cult. ribes	Cost	Per acre cost	Ribes per acre
Regular Work	5	13,575	36,315	28	$ 991.39	$ .07*	3
C.C.C. Work	11	42,140	1,966,211	799	112,310** Man hrs.		47
N.I.R.A. Work	26	55,127	1,976,208	1,689	$34,004.61	.62	36
F.E.R.A. Work	1	2,549	66,688		1,496.90	.59	22
Totals	43	113,391	4,045,422	2,516			Av'age 36

* 10,367 acres and 18,589 ribes were re-eradication (greater part scout work) Crew work $0.37 per A. and 9 ribes per A.

** Enlisted personnel eradicating ribes.

SUMMARY OF SEASONS 1933-34

	No. Towns	Acres	No. wild ribes	No. cult. ribes	Cost	Per acre cost	Ribes per acre
Regular Work	27	39,610	650,221	737	$ 8,239.97	$ .21	16
C.C.C. Work	16	100,275	3,325,203	4,637	246,326 Man hours	2.5 Man hours	33
N.I.R.A. Work	29	60,312	2,122,600	1,917	$39,265.31	$ .65	35
F.E.R.A. Work	1	2,549	66,688		1,496.90	.59	22
Totals	*63	202,746	6,164,712	7,291			Av'age 30

* 10 towns were worked by two or more agencies.

GENERAL FORESTRY

GENERAL FORESTRY

Publicity

The first step in fire protection is prevention. Among all the possible listed or classified causes of fires, lightning is the only one which is beyond the control of man. This accounts for very small acreage and damage. All other fires are the result of some human agency. Therefore, if we can, through a campaign of education and publicity persuade even a part of the people in the woods to be careful with fire, it will reduce proportionately the acreage burned, the damage done, and save the expense of controlling those fires which might have been started.

The oldest method of approach to the public is to post cautionary signs and notices requesting the public to be careful with fire in the woods. Each year about 10,000 fire notices have been purchased and distributed throughout the State. District county wardens, town wardens, and private individuals have cooperated in posting these notices.

The Department has distributed through its wardens about 20,000 celluloid rulers and calendar cards during each of the two seasons of 1933 and 1934. Upon these are printed warnings about care with fire in the woods.

During the dry periods, the Department inserted advertisements in the newspapers throughout the State in which the public was requested to use care with fire while in the woods. The Great Northern Paper Company has also continued to cooperate in this regard by placing large, conspicuous fire warnings in the papers every week during the fire season. The Press has loyally supported the Department by reporting its activities and giving wide circulation to the warnings and appeals of the Forest Commissioner and making editorial comment.

In order to keep the people more informed about its activities and the work of the Civilian Conservation Corps, and in a general way about the forest resources of the State, the

Department has engaged the help of Kenneth F. Lee, who has had many years' experience as a fire warden, and spent most of his life in the woods of Maine, and who is now a popular sports writer, lecturer, photographer, and naturalist. He is now writing and lecturing for the Department throughout the State.

The Department has for distribution its bulletin entitled "The Forests of Maine", which contains information about the extent, the ownership, and products of the forests of Maine from early days down to the present time.

Another popular pamphlet is entitled "Forest Trees of Maine", which describes the more common forest trees that grow in the State. This is a popular book with schools, summer camps and nature classes.

Biennially the Department publishes a small booklet containing the general Forest laws which are applicable to the entire State, the Forest Fire laws dealing with the Maine Forestry District, and those that deal with the organized towns. This is of small size and handy to carry around.

Regularly the Department publishes in booklet form a list of all appointed wardens and deputies for the ensuing year.

For the coming fire season of 1935, the Department plans to extend this publicity program by having one man who will devote all his time to traveling about gathering publicity material and lecturing before schools, camps, and clubs.

State Forest Nursery

The Maine Forest Nursery comprises an area of 1½ acres adjacent to the campus of the University of Maine. It is run in cooperation with the Forestry Department of the University, the students doing much of the work of seeding, transplanting, weeding, packing and shipping, as part of their training in Forestry.

The primary purpose of the Nursery is to supply forest planting stock at cost to the people of the State interested in planting sub-marginal farm land, to forest landowners desiring to restore burnt or other non-productive forest lands to productivity, and to water companies establishing plantations for watershed protection.

The Federal Government cooperates financially with the State under the terms of the Clarke-McNary Act, thus permitting the employment of one full-time man at the Nursery from April until early October, and, at the same time keeping the cost of stock to the planter low. The usual price for stock kept in the seed beds for two years and in the transplant beds for one or two years is $5.00 per thousand; older stock is usually sold for $7.50 per thousand. Occasional lots of seedling stock are sold for from $2.50 to $4.00 per thousand, but the use of such stock for planting in Maine is not generally recommended.

List of Trees Sold	1933	1934
White Pine	11,000	7,300
Red Pine	15,050	12,100
Scotch Pine	5,850	4,600
White Spruce	21,075	15,000
Norway Spruce	6,250	12,750
White Cedar	500	.....
	59,725	51,750

Forest Nurseries in the State

Name	Location	Acreage	Approximate Output 1933	1934
S. D. Warren Co.	Bingham	2	27,000	52,000
J. L. Dean	Winslow	3	89,000	17,000
Bates College Forest	Alfred	3	115,000	....
Francis H. Friend	Skowhegan	2	44,150	15,000
Western Maine Forest Nursery	Fryeburg	22	1,500,000	1,500,000
Brown Co.	Oquossoc	15	2,500,000	850,000
State Forest Nursery	Orono	2	64,950	61,500
	Total		4,340,100	2,495,500

The above figures show that the estimated output from the seven nurseries in the State has fallen off by one-half. With the disposal of the Bates College Forest in Alfred, the Nursery has been discontinued there.

Trees Planted in the State of Maine	1933	1934
White Pine	96,325	8,800
Red Pine	11,150	33,600
White Spruce	58,575	103,750
Norway Spruce	14,750	26,250
Scotch Pine	9,450	5,600
White Cedar	1,500	1,000
Balsam Fir	.....	20,000
Miscellaneous	19,690	6,900
	211,440	205,900

STATE CAMPS OF THE CIVILIAN CONSERVATION CORPS IN MAINE

The Act of Congress (Public, No. 5, 73rd Congress, S.598) which established Emergency Conservation work was approved by the President on April 5, 1933. The act was passed to relieve distress, unemployment, restore depleted natural resources, and advance an orderly program of public works. The President is authorized to provide for employing citizens who are unemployed in works of a public nature in connection with forestation of lands belonging to the United States or to the states which are suitable for timber production; the prevention of forest fires, floods and soil erosion, plant pest and disease control, the construction, maintenance or repair of paths, trails and fire lanes; and such other work on National or State lands incidental to or necessary in connection with the above as he may determine desirable. The President also may extend the provisions of the act to county, municipal, and private land, but only for the purpose of doing work in preventing and controlling forest fires, insect attacks, tree diseases, and flood control. The President is authorized to provide for housing, subsistence, clothing, medical attendance and hospitalization, cash allowances, and transportation. No person serving sentence for crime shall be employed. The

President is authorized to allocate funds for forest research, and to enter into contracts or agreements with states, utilizing existing State administrative agencies.

The Act expires March 31, 1935.

By executive order, the President appointed Mr. Robert Fechner Director of Emergency Conservation Work, and set up an advisory council from the War, Agriculture, Interior, and Labor Departments. These Departments were each designated to fulfill the following functions:

Department of Labor: select men to be enrolled.

Department of War: examine and pass men physically, feed, clothe, house, condition, operate and administer camps, provide education, recreational and religious facilities.

Departments of Agriculture, Interior and War: select and have charge of work projects, furnish supplies, tools and equipment.

Unemployed, unmarried men, between the ages of 18 and 25, having dependents to whom they were willing to assign a substantial part of their pay, formed the basis of the Corps, each state having its proportionate part in accordance with population. A state director of selection was chosen for each state, Mr. George W. Leadbetter acting for Maine. Chance for enrollment was extended to a certain number of experienced local woodsmen. Initial selection of men had been completed June 7, 1933.

Beginning June 12, 1933 a certain number of war veterans were also enrolled.

The War Department immediately undertook enrollment, clothing, conditioning and organizing the men into 200-man companies. Meanwhile camp locations had been picked, and men began moving to them as rapidly as possible. Tools and equipment were purchased, and the multifarious activities of camp life begun.

Work projects were laid out within certain definite classifications. The United States Forest Service had 82% of the camps assigned to its directions, the National Park Service 11%, the Bureau of Indian Affairs 5%, and other Federal organizations 2%.

Maine's initial quota of men was:

Experienced men	275
18-25 years old	1,225
Veterans	150
Total	1,650

The concentration and conditioning point was at Fort Williams. The allotment of camps for the State gave 3 to the National Park Service and 12 to the United States Forest Service. The additional number of men required was obtained by bringing in camps from other states, so that Maine's original quota was exceeded so far as camps went. The camps directly under the supervision of the Forest Commissioner, all on private lands, excepting the Princeton Camp, were located as follows:

Location	Camp Number	Personnel	Natives of
Rangeley	P-55	Young Men	Rhode Island
Flagstaff	P-56	" "	Connecticut
Greenville	P-57	" "	Maine
*Seboomook	P-58	Veterans	U. S. A.
Millinocket	P-61	Young Men	Maine
Patten	P-60	" "	"
Beddington	P-54	Veterans	U. S. A.
Princeton	S-53	Young Men	Maine
**Alfred	P-52	" "	Massachusetts
Lewiston	P-59	" "	"
Jefferson	P-51	Veterans	U. S. A.

* Moved to Grant Farm (P-62) in October 1933, and discontinued April 1934.

** Moved to west side Mt. Katahdin (Baxter Park, SP-2) June 1, 1934, and returned to Alfred October 15, 1934.

The general location of these camps was chosen by the Forest Commissioner, and the exact site inspected and accepted by the War Department.

Supervisory and skilled personnel allotments were made by the United States Forest Service not to be exceeded in these 11 State camps, with a definite money allowance for pay, as follows:

Camp Superintendents	11
Foremen	108
Blister Rust Checkers	7
Machine Operators	16
Blacksmiths and Tool Sharpeners	9
Skilled Workers, Construction	2
Foresters	2
Mechanics	1
Truck Trail Locators	1
Clerks	4

The use of labor and the purchase of material for the following classes of work (by private land camps) was approved by the Federal Government:

Preventing and fighting forest fires.
Reduction of fire hazards (not including slash disposal required by state law)
Telephone line construction (for fire protection)
Erection of look-out towers.
Fire protection structures, such as cabins.
Truck trail construction.
Horse and man trail construction.
Emergency fire control landing fields.
Fire break construction.
Insect control.
Blister rust and tree disease control.
Erosion and flood control.
Maintenance and reconstruction of the above classifications.

By instructions from Washington enrolled men's hours of work were limited to 8 per day including travel and lunch time, for a 5 day week. Supervisory and facilitating personnel

were placed on an 8 hour working day for a 5-½ day week. Shifts may be used to keep heavy machinery occupied for a full working day.

The camps began opening up during the early and middle part of June 1933. Supervisory personnel reported direct to each camp, ready for work, and a general outline of projects to be carried out given each superintendent. The essential tools were also supplied. The actual establishment of the camps, putting up tents and buildings, developing grounds, etc., took a considerable part of the working force for a short while. This gave some time to allow more thorough and definite delineation of the various work projects, starting proper progress records, completing equipment, and in general, solidifying and systematizing the field and office organization.

The work most generally attempted was the construction of fire lanes along various roads in the vicinity of the camps, and blister rust control measures (ribes eradication) from the southern camps. This was partly necessary by reason of scarcity of tools and heavy equipment during the first stages of the work. It soon developed, however, that while the southern camps would continue as their primary activity insect and disease control measures, the northern ones would best be employed on truck trail construction, which would open up the country to quick entry by fire fighters and their equipment. Forest improvement of a silvicultural nature was allowable from only one camp, viz: that at Princeton, for Indian Township, which is State land.

It became increasingly evident that heavy machinery was needed to accomplish worth while results in truck trail work. Therefore with the approbation of the State Highway Commission, on September 12, 1933, the Governor and Council authorized the Highway Commission to loan the Civilian Conservation Corps gasoline shovels, loaders and compressors, not being in use.

This fine cooperation by the State Highway Commission resulting in speeding up the work, and particularly allowed work to be done through the severe winter of 1933-34, which could not otherwise have been attempted.

The 200-man base camps still remain the working unit, but as various projects extend away from them, it has quite generally been necessary to expand into subsidiary or side camps, tents during the summer, but either existent or new frame or log buildings during the cold weather. Such quarters follow army regulations as to sanitation, cubic contents and ventilation. Maine has developed this use of side camps to a greater degree than any other northeastern state, in order to put crews close to their work and avoid long travel. The Federal Government will not furnish funds for renting or building side camps, therefore it has been necessary to raise money and materials from outside sources, in order to put them up. The present status is as follows:

Side Camps

Rangeley:
60 man log camp on Toothaker Brook, Wilson's Mills truck trail.
50 man log camp on Otter Brook, Cupsuptic truck trail.

Flagstaff:
60 man frame camp at Jim Pond, on King and Bartlett truck trail.
50 man log and frame camp at Bog Brook, on Dead River truck trail.
24 man frame camp on Sandy Stream truck trail.

Greenville:
65 man frame camp at Shirley on East Moxie truck trail.
65 man log camp at South Inlet on Katahdin Iron Works truck trail.

Millinocket:
96 man log camp at Togue Pond on Mt. Katahdin truck trail.

Patten:
99 man log camp near Seboeis on Grand Lake truck trail.

Beddington:
50 man frame camp under construction, on Nicatous truck trail.

Princeton:
40 man log camp at Seavey Ridge on Clifford Lake truck trail.

Alfred:
30 man frame house at East Sebago Lake: gypsy moth control.

Under the Federal regulations truck trails on private lands must be for fire protection purposes, with a maximum width of 16 feet unless special permission is obtained. In order to get proper alignment center lines have been run on the more important ones, and, where construction is difficult, grades set. To avoid expensive future maintenance about 1 foot of gravel

base and surface has been put on. The more important truck trail projects and their ultimate objectives are as follows:

Rangeley: from end of present road at head of Cuptuptic Lake toward Wilson's Mills.

Flagstaff: from Chain of Ponds Road down the north side of the Dead River to the Jackman Road.

Greenville: from Shirley to Moxie Pond and the Bingham Road. From Kokadjo to Katahdin Iron Works.

Seboomook and Grant Farm: camps discontinued: from Northeast Carry by Lobster Lake to the Ripogenus Road.

Millinocket: from Spencer's around east side of Mt. Katahdin toward the Sandy Stream depot with possible extension northward to the Sourdnahunk Road.

Patten: from Shin Pond to Grand Lake, with possible extension to Telos and to the Mt. Katahdin system.

Beddington: from the Airline road around east side Nicatous Lake to the Burlington Road, with branch to Myra.

Princeton: the Tomah Road and road system on Indian Township.

Summary of Work Accomplished to November 25, 1934

Woods telephone lines constructed, both pole and tree lines: —	214 miles
Reduction of fire hazard by cleaning up bad slash areas: —	401 acres
Reduction of fire hazard by cleaning up debris along road and trail sides: —	221 miles
Lookout towers: —	2
Actual fighting forest fires: —	14,336 man days
Patrols and other measures guarding against forest fires: —	1,766 man days
General clean up: —	10 acres
Forest stand improvement by thinnings, weedings, and girdling on State land: —	1,141 acres
Truck trails: gravel base and surface: 1 foot in depth: —	73 miles
Tote roads and horse trails: both new and old ones put in shape: —	143 miles
Foot trails: —	36 miles
Buildings: cabins, offices, etc., at permanent locations: —	18
Buildings at temporary locations, side camps, dynamite houses, etc.: —	44
Public camp ground clearing to concentrate tourist travel and reduce fire risk: —	58 acres

Public camp ground improvements: fire places, latrines, shelters, tables, etc.: —	68	
Planted to forest trees: on State land: —	32	acres
Extermination and control of insect pests: —	483,288	acres
Gypsy moth egg masses destroyed: —	5,277,000	
Diseased and infected apple trees cut: —	53,565	
Brown tail moth webs cut and burned: —	185,600	
Roadsides cleaned of tent caterpillar: —	10	miles
White pine weevil tops destroyed: —	57,604	
White Pine Blister Rust control: —	86,991	acres
Ribes destroyed: —	3,168,198	
Area mapped for control work: —	137,820	acres
Landscape work on state arboretum: —	13	acres
Artificial pond: —	1	
Native shrubs and trees planted and labeled: —	2,000	
Bridges to carry motor trucks: —	152	
Bridges for horse drawn vehicles only: —	83	
Foot bridges: —	34	
Airplane landing field: —	12	acres
Searching for missing persons: —	515	man days
Waterholes for fire fighting reservoirs: —	8	

The Civilian Conservation Corps is not only accomplishing needed work for protecting and conserving Maine forests, but is bettering the physical, mental and spiritual status of the enrolled men. It is teaching young men to be good citizens. At the recent meeting of the National Association of Manufacturers in New York, where industrial representatives of the whole country were gathered, and a platform of business suggestions for recovery drawn up, one plank reads: "We commend the C. C. C. as an example of successful relief work combined with citizenship training".

The movement has also given needed employment to superintendents, foremen, foresters and engineers, and is affording reserve army officers excellent training in handling men.

The State organization has received the highest degree of cooperation from the United States Forest Service, the National Park Service, the Army, and the public. Its relations with the officers of these agencies have been both satisfactory and pleasant. Enrolled men have shown interest in work accomplishment. Particular mention should be made of their efforts in fighting forest fires, thereby preventing great damage, and saving the state's most important natural resource.

PUBLIC LANDS

PUBLIC LANDS

School Lots

There are about 50,000 acres of school lands in the State located in fifty-five different plantations which are held in trust for those plantations. The revenues from these lots for 1933 and 1934 are, as follows:

Township	County	1933	1934
Glenwood Plantation	Aroostook	$ 10.00	$ 10.00
Hamlin Plantation	"	....	150.00
Molunkus Plantation	"	25.00	25.00
Nashville Plantation	"	30.00	....
Oxbow Plantation	"	5.00	93.16
St. John Plantation	"	168.48	....
Winterville Plantation	"	....	656.39
T. 3, R. 2, WELS	"	....	25.00
T. 10, R. 4, WELS	"	16.00	15.00
T. 16, R. 10, WELS	"	755.42	36.65
T. 16, R. 11, WELS	"	557.85	....
T. 17, R. 10, WELS	"	2.80	4.06
T. 17, R. 11, WELS	"	261.01	74.81
Lang Plantation	Franklin	....	384.19
T. 3, R. 3, WBKP	"	300.00	304.50
T. 3, R. 4, WBKP	"	450.00	450.00
T. No. 8, SD	Hancock	5.00	5.00
Andover North Surplus	Oxford	....	71.06
T. 4, R. 2, WBKP	"	135.00	110.00
T. 5, R. 4, WBKP	"	100.00	75.00
Lakeville Plantation	Penobscot	21.00	....
Stacyville Plantation	"	411.67	431.93
T. 5, R. 8, WELS	"	10.00	10.00
Elliottsville Plantation	Piscataquis	57.00	50.00
T. 2, R. 11, WELS	"	....	25.00
T. 10, R. 9, WELS	"	12.50	12.50
Bigelow Plantation	Somerset	567.28	....
Caratunk Plantation	"	52.21	45.60
Dead River Plantation	"	3,053.57	....
Highland Plantation	"	....	510.36
The Forks Plantation	"	10.26	....
No. 21 Plantation	Washington	....	1,854.28
		*$7,017.05	$5,429.49

* $603.29 of the revenues for 1933 tied up in the closed Augusta Trust Co. on which the first dividend of 20 per cent was paid December 28, 1933.

Indian Township

After a preliminary survey of the Township in the fall of 1930 by Mr. R. E. Rendall of the Bates Forest, the Forest Commissioner appointed a committee of experts to serve in an advisory capacity and make definite recommendations for its management. This committee, composed of Mr. Rendall, Mr. Austin Cary of the United States Forest Service, Mr. E. F. Jones of the Great Northern Paper Company, and Mr. Earl Spaulding of the Passamaquoddy Land Company, with Mr. R. I. Ashman of the University of Maine, has visited the tract each fall for the past four years, inspected the work done during the year past and recommended measures to guide management during the ensuing year. This fall, in order to better provide for the carrying out of necessary plans, the Forest Commissioner placed Mr. Ashman in direct charge of the Township.

In its report submitted to the Forest Commissioner on October 12, 1934, the committee recommends a curtailment of the cut of saw-timber so that it will more nearly equal the growth. This recommendation was considered necessary because of a large over-cut made last winter to supply a local industry employing local labor. The cut of pulpwood is undoubtedly well within the limits of yearly growth.

It is felt by the committee, by the Maine Forest Service, and by members of the faculty of the University of Maine, that the Township should be managed on a sustained yield basis, not only because the practical value of a large State demonstration area in Maine, but also because a greater financial value to the State and to the Passamaquoddy Tribe will result from a smaller income over a longer period of time than from a larger income over a shorter period.

Twenty Passamaquoddy Indians are at the present time cutting scattered timber in the northwestern part of the Township. This timber will be exchanged for lumber which will be used for the construction of twelve new houses, six in the Indian Village at Peter Dana Point and six at Pleasant Point. This work is being done as a Government project and will do much to better living conditions among the Indians.

Since the establishment of the University of Maine camp on the Township in 1931, the Senior forestry classes during the

eight weeks spent there each winter, have mapped the Township, made an inventory of the timber, blocked the tract up into sections, and otherwise assisted in its management as part of their regular course.

The Civilian Conservation Corps Camp, established on the Township in June 1933, has done a great deal of good work in road construction, fire line construction, and stand improvement. This work will be continued during the present winter.

New revenues from stumpage on Indian Township for the past two years are, as follows:

1933	1934
*$3,734.69	$2,583.33

*$2,388.00 of the revenues for 1933 tied up in the closed Augusta Trust Co., on which the first dividend of 20 per cent was paid December 28, 1933.

State Park

The gift to the State of the area comprising Mt. Katahdin by Hon. Percival P. Baxter, former Governor of Maine, brought to general attention the need of legislation which would provide for the future administration of this park in the interest of the public and in accordance with terms of the gift.

Accordingly, the Eighty-Sixth Legislature in special session in 1933, passed this Act—Creating the Baxter State Park Commission, and Defining Its Powers and Duties:

Section 1. **Baxter State Park Commission established.** There is hereby created a "Baxter State Park Commission" of 5 members. This commission shall consist of the governor, the forest commissioner, and the commissioner of inland fisheries and game, who shall each serve during his term of office, and 2 other members to be appointed by the governor with the advice and consent of the council, one to serve for 2 years and one to serve for 3 years, and thereafter vacancies in the civilian membership shall be filled by appointments for 3 year terms. The governor shall either act as chairman or shall designate one other member to act as such. The members of the commission shall serve without compensation and one of said commissioners shall

be a resident of either the town of Greenville in the County of Piscataquis, or the town of Millinocket in the county of Penobscot.

Sec. 2. **Powers and duties of the commission.** The Baxter State Park Commission shall have the following powers and duties:

1. They shall have the supervision, direction and control of all that portion of Township 3, Range 9, W. E. L. S. in Piscataquis County, containing approximately 5,960 acres of land, donated and conveyed to the State of Maine in trust for state forest, public park and recreational purposes by Percival Proctor Baxter (Governor 1921-1925), by the following deeds: Percival Proctor Baxter to the State of Maine, March 3, 1931, accepted by said State by chapter 23 of the private and special laws of Maine of 1931; Percival Proctor Baxter to the State of Maine, October 7, 1931, accepted by said State, in accordance with the provisions of sections 15 and 16 of chapter 11 of the revised statutes of Maine, 1930; and Percival Proctor Baxter to the State of Maine, February 2, 1933, accepted by said State by chapter 3 of the private and special laws of Maine, 1933, the areas thus conveyed having been designated and named "Baxter State Park" by the State of Maine, in chapter 103 of the resolves of Maine, 1933, and all other lands which may hereafter become a part of the said Baxter State Park.

2. They may receive moneys by gift or legacy and shall hold the same as trustees for the purposes stated in this act. The expenditures of all moneys so received, and of all legislative appropriations, for the maintenance or improvement of said park, or for the erection or preservation of any monument or structures of any description, or for the building or improving of trails, and other ways upon or across said park, shall be under the direction of said commission, whose income and expenditures shall be audited in the manner now provided by law. All equipment of the State in charge of the State Highway Commission which is adapted for use on said park shall, upon order of the governor, be available, free of charge, to said commission, when not otherwise in use.

3. The said commission may, from time to time, establish such rules and regulations as they deem necessary for the protection and preservation of said park, for the protection and safety of the public, for the proper observance of the conditions and restrictions expressed in the deeds of trust of the park to the State, and of the monuments or structures thereon. Before promulgating the same, they shall be submitted to the attorney general, and if he shall certify that in his opinion they are in conformity with law, they shall thereupon, together with paragraphs 4 and 5 of this section, be published once a week for 2 successive weeks in a newspaper published and printed in whole or in part in either Penobscot County or Piscataquis County, and posted in at least 4 places on said park, whereupon they shall take effect. A certificate of such publication and posting shall be executed by 1 of the members of said commission and filed with the secretary of state, who shall record the same.

4. Whoever violates any of the rules and regulations of said commission, promulgated in conformity with the provisions of paragraph 3 of this section, shall be punished by a fine of not more than $50.00 and costs, or by imprisonment for not more than 30 days, or by both said fine and imprisonment.

5. Whoever wilfully mutilates, defaces or destroys any monument or marker lawfully erected within the boundaries of said park, or any notice, rule or regulation of said commission, posted in conformity with the provisions of paragraph 3 of this section, shall be punished by a fine of not more than $50.00 and costs, or by imprisonment for not more than 30 days, or by both said fine and imprisonment.

6. Trial justices and municipal courts within their counties shall have original and concurrent jurisdiction with the superior court in all prosecutions under any provision of this act. Any person arrested as a violator of this act may be taken before any trial justice or any municipal court in the county where the offense was committed, or in any adjoining county. Jurisdiction in such cases is hereby granted to all trial justices and all other courts to be exercised in the same manner as if the offense had been committed in that county.

Sec. 3. **Powers and duties of commission limited.** The powers and duties of the Baxter State Park Commission as set forth in this act shall not be so construed as to interfere or conflict in any way with the powers and duties of the inland fisheries and game commissioner or forest commissioner and their duly appointed wardens, in the enforcement of the inland fish and game and forestry laws in respect to the Baxter State Park or in respect to the state generally.

Sec. 4. **Limitation on interpretation of R. S., c. 11.** The provisions of chapter 11 of the revised statutes of Maine, which are inconsistent with or repugnant to the powers and duties of the said commissioners as set forth in this act, shall not be so construed as to apply to the Baxter State Park.

In accordance with Section 1, Governor Brann appointed as civilian members of said Commission Frederick P. Bonney of Rangeley and John F. Ward of Millinocket.

To provide for easy access to the park area, a project was drawn up for the Millinocket Conservation Camp in 1933, which provided for the construction of a truck trail to follow the old Great Northern tote road from Millinocket. This is now being built. Permanent construction has been completed to a point on the road near Pockwockamus Stream, and the two branches of the road have now been so improved that it is possible to travel over one with an automobile up the Sourdnahunk to the junction with the Ripogenus Road, and on the other up the east side over Windey Pitch to Avalanche Brook.

In 1934, the Commission, through the National Park Service of the United States Department of the Interior, secured the establishment of a Civilian Conservation camp on the western side of the Park at the Foster Storehouse on the Sourdnahunk Stream. This was a summer camp only.

Projects for a very complete system of foot trails and public camp grounds were prepared which would cover the approach to the mountain. The Hunt Trail and the Abol Trail have been completely rebuilt and permanently marked from the road to Monument Peak. At the foot of these trails camp grounds have been cleared, and camping facilities have been provided to care for a large number of visitors.

With the improvement of the roads to the park, and as a result of the publicity given to Mt. Katahdin as the highest mountain in Maine, the number of people to climb it has increased. While there is no way of knowing accurately the number of visitors to the top, the number is known to be considerably over 5,000. This road also provided a means for transporting fire fighters and their equipment to the large fire near here in June, 1934.

For the coming season of 1935, it is hoped that a second Conservation camp can be secured for the east side of the park, to be established on Sandy Stream, at the Depot Camp near the Hersey Dam. From this camp, trail and camp ground projects covering the approaches to the Mountain through the Chimney Basin, over Pomola and onto the North Table Land will be handled.

It is hoped that the legislature will appropriate funds to properly maintain improvements made in the park and to provide for adequate supervision and patrol. This need is becoming more urgent as the number of visitors increase.

The area of the park, according to actual surveys, comprises 5,960 acres. Plans and recommendations have been made for the addition of adjacent areas which surround Mt. Katahdin. It is possible that means may be provided for doing this.

APPENDIX

APPENDIX

NOTES ON TIMBER HISTORY OF THE KENNEBEC RIVER

By Austin Cary, U. S. Forest Service

Record of logs (and pulpwood) driven on Kennebec River and its Branches since 1895. From books of the Log-Driving Companies.

In M Feet—Pulpwood converted from cords at 2 to 1.

Year	Moose River	Dead River	Main River
1896	24,560	27,510	122,402
1897	26,310	37,910	145,607
1898	17,403	26,983	101,675
1899	23,463	28,842	112,552
1900	30,495	47,208	148,899
1901	32,100	39,730	138,463
1902	35,403	44,216	138,073
1903	41,636	45,081	151,203
1904	45,386	38,023	164,094
1905	41,937	25,294	133,025
1906	40,243	38,443	149,726
1907	40,342	29,667	131,155
1908	38,957	30,764	128,966
1909	43,277	30,196	109,186
1910	64,011	24,562	123,007
1911	56,137	24,023	120,258
1912	58,046	18,507	108,995
1913	51,728	19,024	97,623
1914	49,658	31,571	114,211
1915	46,266	25,093	108,589
1916	59,026	55,252	143,327
1917	41,548	39,807	94,717
1918	47,689	27,450	81,019
1919	64,748	36,382	129,484

Year	Moose River	Dead River	Main River
1920	54,429	35,361	110,494
1921	40,408	32,099	134,523
1922	30,699	20,440	63,203
1923	61,522	10,514	94,953
1924	70,056	25,028	150,030
1925	21,321	22,701	73,511
1926	24,121	20,376	77,722
1927	38,619	45,462	104,530
1928	9,294	62,523	101,056
1929	8,483	57,840	100,558
1930	5,726	60,439	114,200
1931	7,662	64,823	130,308
1932		16,996	34,240
1933		12,202	19,653
Totals	1,392,709	1,278,342	4,305,237

The table herewith presented, giving the amount of logs driven down the Kennebec and its main branches for 38 years past, includes some logs that were drawn over from the drainage of the Penobscot; considerable poplar pulpwood is included also. On the other hand, sawmills of considerable size operated within the period, at Bingham, Solon, and on Moose River, their log stock not handled by the company drives, while small local sawmills account for something; then for several years considerable amounts of pulpwood were railed out. With the first and central table in hand, these other matters were traced out with the help of the best sources of information available and the following computation combines all the facts in such a way as to arrive, as accurately as may readily be done, at the total cut of soft woods on this river in the 38 years, 1896 to 1933. This must, however, be noted clearly—the figures relate to the area drained by the river above Bingham. The territory below that point, including the Sandy River and Carrabassett, are not included.

Total of main river drives		4,305,237 M
Deduct—Penobscot logs	25,000 M	
Poplar pulpwood	193,827 M	218,827 M
Leaving		4,086,410 M
Add—Cut by mills on Moose River	706,000 M	
Railed out—Logs and pulpwood	123,500 M	
Cut in Mayfield to saw	80,000 M	
Cut by small local sawmills	13,000 M	922,500 M
Total cut for the drainage		5,008,910 M

The tabulation first given supplements and extends a similar one contained in the report of the State Forest Commissioner for 1896, covering the years from 1853 onward. Such figures would seem to be in themselves of a good deal of historical and economic value even if no other interest attached to them.

The report of 1896 was the third of its kind, and to that date by much the most extensive. A large share of it was devoted to an account of the upper Kennebec basin from the timber standpoint. Manufacturing capacity on the river was summarized; the volume of timber driven for 37 years previous was given as just noted; such estimates of standing timber as could be obtained were assembled; finally an account was given of timber growing conditions in the woods and wholesale estimates made of what the region could be expected to produce, based on a season's work carried out the year before by the writer of this article.

To those who are accustomed to think in these lines, an extensive field of very pointed interest is thus opened. Here is a river basin of much importance; nearly 40 years ago its features and relations from the timber standpoint were studied with some care and competence; it should be illuminating and instructive to retraverse the ground and see how one thing and another, especially any forecasts that were made, have come out. That it is purposed to do herein, though very imperfectly and briefly.

In the 38 years since 1895 the upper Kennebec has furnished 5 billion feet of soft wood timber. Any such out-turn as that it is certain that the lumbermen and people at large of that time did not look for. The river had long been cut on; only 14% of its area was reckoned as virgin; in fact apprehension was widely felt about the future of forest industry upon it. As to the lum-

bermen of the day, the following brings out their state of mind—their figures for stand of soft wood when assembled gave a total of 1,160 million feet, a figure indeed that may not have been far wrong considering their viewpoint. A cutting standard of 8 inches by 24 feet was implied in it.

The average drive for the past 38 years is 135 million feet. This is 12% larger than for the same number of years prior to 1896. The total cut is 3,600 feet per acre on the producing area liberally reckoned—gross area from U. S. topographic surveys less acreage in water, bog, mountain top, and farm land, as near as these items can be readily ascertained. These figures, too, would certainly have been unbelievable to old timers.

Timber men of today know well why things have turned out so; that two broad facts account for it. First, the pulpwood industry which already in 1895 was consuming nearly half the cut of the river, expanded heavily, soon supplanted the sawmills, and caused the ground to be cut over in a much more thorough way than before. Secondly, there is the matter of growth of timber.

In the brief consideration of this last topic that is here designed, cords will perhaps be a better term to deal with than thousands, and for present rough purposes it may be as well as any way to use the converting factor 2 for 1 that the log driving companies used in connection with their records. So doing, the cut of 38 years totals 10,000,000 cords very nearly.

What next of the stand of 40 years ago? On page 88 of the earlier report that was guessed at 900,000,000 cubic feet (total for river—10% for portion excepted): 8,000,000 cords may be reckoned as the equivalent of it. We have then since 1895 cut a larger quantity on the river by a quarter than was estimated to stand there at that time.

But our business goes on still, and in large volume and much confidence. Large stocks must be in existence still, and such in fact is known to be the case. To complete the picture, estimates on present stand should be brought in and these would certainly be far more trustworthy than the preceding figures. These estimates have not for the present purpose been amassed with great care, but those that have been procured indicate 4 million cords as an approximate total. Assembling now the figures thus brought into view, we have:

Stand at the beginning,	8,000,000 cords
Cut in 38 years,	10,000,000 cords
On the ground today,	4,000,000 cords
Growth in the time,	6,000,000 cords

Those interested may follow that up, examine it from different angles, elaborate it, check it. To aid them in so doing, it will be noted that the area of producing land as earlier defined was called 1,400,000 acres. Lands burned over at any date are included.

By the present writer and at this time, only a very few supplemental remarks will be added.

First, summaries and forecasts of timber stand and growth could be pointed to which have turned out much wider of the mark than can by any means be said of this one. At the same time, close agreement in a matter of this kind could be accidental only.

But it will be stimulating at least to reduce the figures to terms that are more easily comprehended and of practical import. 6,000,000 cords grown in 38 years means 158,000 yearly, and that again means .113 cords per acre per year. How different a figure would Maine foresters and woodsmen, thinking over the proposition independently on the basis of all their knowledge, set than that last?

To be sure, it is true that what the river has produced as an average through 4 decades past, it may not be producing at this time—that depends on a number of factors. Also, the same quantity is a very poor indication of what might be grown in the territory were there need, and at cost perhaps that would be highly rewarded. These points are merely suggested here; they are familiar to many.

The general impression left on the mind by this review, it is perhaps well to set down. That is of a good country sensibly used by a people who are duly appreciative and at the same time prudent.

A VOLUME TABLE FOR HARDWOODS

By Austin Cary, U. S. Forest Service

D.B.H. Inches	Height in feet. 45	50	55	60	65	70	75	80
6	.032	.036	.040	.045	..	..	..	..
7	.044	.050	.056	.062	.068	.076	..	..
8	.057	.064	.071	.078	.086	.095	..	..
9	..	.078	.087	.096	.106	.118	..	..
10	..	.093	.103	.114	.127	.142	.156	..
11	..	.108	.120	.134	.150	.167	.185	..
12	..	.126	.140	.158	.176	.196	.217	..
13	..		.164	.183	.206	.230	.250	..
14	..	..	.190	.214	.240	.265	.290	.300
15	..	..	..	.245	.275	.305	.330	.350
16	..	..	..	..	.315	.345	.370	.400

Based on about 800 trees calipered each 4 feet and in many cases tallied into piles, computed individually. Utilization and piling taken as found, a good commercial standard; tops used to four inches or somewhat less in smaller and normal trees, to an average of six and one-half inches in large sizes. Cubic feet converted to cords at ratios of 87 to 97. Table checked on the tallied piles, the general result being ½% low with + &-5% the extreme variations. Holds for the birches and maples. For beech the figures indicate 13% larger volumes.

The volume table presented herewith, for peeled hardwood in cords as the common hardwoods are being utilized in considerable quantity today by Maine paper mills, was constructed during the past season by the writer and Mr. R. G. Stubbs of the Maine Forest Service. The methods employed in its construction, locally developed as they have been in the last few years, will be of interest to some, both within and without the State; consequently a compact description is given of these methods. This, readers who feel no concern with it may pass by. A larger number perhaps will appreciate the notes that follow on methods of cruising and related matters.

CONSTRUCTION OF THE TABLE

The peeling season in Maine begins sometime in May and closes usually early in August. With that done, the crews shift over to the other line of work—yarding the sticks perhaps, at any rate sawing and piling. Necessary roads are cut any time it is convenient; hauling may be postponed until winter.

The field work behind the table was started in the middle of August and wound up early in October, in the sawing and piling season therefore; it was conducted in five different operations, affording a range in tree sizes, also giving clear insight into utilization and other commercial practices. Procedure in the field was as follows:

Selecting ground somewhat ahead of the crews, stump height and diameter of the trees was measured first. Next, determining a point 4½ feet from the ground as the tree stood, cross measures were taken with a caliper and to the result double thickness of bark (this also measured carefully for each tree) was added. By this means diameter breast high was determined.

Measurement of diameter each 4 feet along the peeled stem, starting from the stump, came next, cross-measurement again employed. Finally the length of unused top was measured, except in those cases where the top had been buried or chopped up. This last was done to get total height. Some 800 trees were measured in that way in the course of the work. Later, in camp or office, the cubic foot contents of the wood utilized from each tree was figured up, by methods that require no description.

This for standard practice and carried out on all trees in effect. When, however, it was designed to measure a group of trees in pile, diameter measurements along the stick were postponed till it came to the yard, carried out as the sawing proceeded and just previous to piling.

Commercial piling was taken,—it was usually good as need be—and the measurement of camp scalers was checked with also when that was possible. A cord in Maine business today seems to be just that—accurate as to length, in height with top sticks rising a few inches above the 4 foot line. It was the desire and usual practice to employ piles of several cords each for the reason that if piles are too short, some space is lost at the ends and solid contents shrunk accordingly.

With a pile of 4 cords say, made up from a given number of measured trees, the following elements can be easily determined—average breast diameter and height of the trees, diameter of the stick of average contents, number of sticks and trees per cord, number of solid cubic feet per cord. With this data worked up, also the same for a number of piles calipered over but not connected with trees standing, the matter of solid contents in the cord of wood of different sizes was next studied. A total of 56 cords of wood in 19 different piles was brought to bear on this question.

The principle involved is well known—that large wood piles closer than that of small sizes. Elsewhere and before now, this matter has been studied by sorting out trees of different diameter classes and making 1 cord piles from the wood of each. That method has seemed for one thing to involve needless cost and refinement, for another not to meet conditions as they actually exist. The practice of the writer in volume table work of recent years has been to see to it that the piles worked over were made up, some from prevailingly small wood and some from large, to group together the piles of small, medium and large wood and strike averages, to arrange the results graphically, and finally to assign to trees of each size class what seemed to be an appropriate converting factor. In the present instance, 87 cubic feet per cord was the factor used for trees 6 inches breast high, 97 for those of the largest sizes. Given then the contents in solid cubic feet of used wood in trees of any given breast diameter and height, converting this into decimal fractions of a cord is easy. Average used contents of trees of different dimensions was determined in the usual way, by tabulating, totaling and averaging the values computed for the individual trees, and, again as is usual, the graphic method was used for smoothing and irregularities. That completes the account of the work done except for a few side issues.

SOME COLLATERAL POINTS

One of these turn on the question of shrinkage. The cruiser measures the diameter of his trees standing and green. As encountered in the conduct of work of this sort, they have lain on the ground peeled from one to three months and both bark and

wood have shrunk in consequence. In this relation the different species behave differently. The birches commonly form 1 or 2 wide, deep cracks; beech and hard maple usually form many fine ones; soft maple may behave in either fashion. Checking in that way will evidently neutralize, as far as outside measurement is concerned, some of the theoretical shrinkage given in books and derived from small perfect pieces. The point was studied to some extent and an allowance made, whether correct or not would be a fine point to determine. Disks of yellow birch and of soft maple were brought home, dried out for 6 weeks, and diameters measured before and after. The result showed shrinkage of 5% in diameter of wood, and for bark 18% for birch and 9% for maple. As for breast diameter green and dry, a difference of 1/10 inch was allowed for 6 inch trees, 2/10 inch for those of 7 to 10 inches, and 3/10 for larger diameters. This is the first time in Maine volume table work that this matter has been allowed for. The fact perhaps accounts for some of the difference between the present and the preceding poplar table.

The broad question of accuracy is brought up thereby. On that point no high flown claims are made; it is felt in fact that in such work as this, refinement is not appropriate. Familiarity with the way business goes on, and has to, strengthens that idea. Standards of utilization vary somewhat, from time to time and locally; closeness of piling is another matter which, much as they would like to, men cannot keep uniform; different men will not agree precisely on pile measurement. Then when the cruising end of the business is considered, other sources of variation and inaccuracy enter, with as simple a thing as breast diameter even. Stepping up to a tree standing on sloping or broken ground, a man sometimes debates at what point within a foot up and down he shall apply his caliper. All this considered, the utility of great elaboration and heavy cost expended on this line of work is not evident. A check of the table back on the piles used in its construction was available as a test; the opportunity was taken advantage of and the result is stated in connection with the table.

Another point that should be brought out is the relation between the species. Of the total of 797 trees measured as stated, yellow birch made up 53%, white birch 25%, maple, hard

and soft 15% and beech 7%. Beech, it may be said in passing, is a difficult wood to peel, especially in small sizes, and is often passed by consequently; some of our mills, too, do not care to use hard maple. In tabulating the above division was made, and in dimensions where any minor species was strong in numbers, comparison of volume was made with the average figure. The conclusion reached is that the birches and maples do not differ significantly among themselves. The 13% larger volume indicated for beech is not unlikely due to its thin bark rather than to any actual difference in tree form. The same idea, too, may apply to the case of poplar lately mentioned.

With all this material in hand collateral ideas acquired in the field were tested out, and that in three directions. The question whether the cross section of a tree's stem below a fork is larger or smaller in area than that of the two stems above was inquired into in connection with 17 trees. The results varied; in general the two areas were very near alike.

About 6% of all trees measured were markedly abnormal in form in the way of forking or heavy branching. Branches with sufficient diameter, it may be said, are generally peeled and used in the Maine woods today. When a tree forks low and goes up in two or three stems, more cubic feet are usually got out of it than from a normal tree of the same breast diameter and height except in the smaller sizes. The overrun proved to average 9% in some trees of 11 inches diameter.

Occasional trees after reaching moderate height, disperse into limbs,—stout and comparatively short trees, most commonly yellow birches in open growth with soft wood. At the same time a good clean butt stick may be in them.

Some study devoted to such trees indicated that slow taper to an extent compensates for their short usable length—not fully, however, for the used volume of the trees studied fell 6% below that of normal trees with the same outside dimensions.

Trees of this form are frequent enough, and their form is so marked, that one or two cruisers have insisted that the ordinary volume table is not suitable for their estimation. In consequence a supplementary table has been prepared, giving cord contents of sticks 4 feet long and of different sizes. It is printed beneath the main table.

ESTIMATING HARDWOODS IN GENERAL

During the Season's work timber cruisers and others interested in this line were contacted as often as possible in the interest of meeting their needs and ideas, and some searching discussions resulted from these contacts. Estimating hardwoods in the past has always been a problem for our timber estimators, vastly more difficult than the same work in connection with the softwoods. That fact arises from two sources—first, the varying form and liability to defect of the timber itself; second, from varying markets, calling for one and another specification of material at one and another place and time.

In the simple matter of being straight and so available in considerable lengths to the saw, all our hardwoods fall well below the standard of pine and spruce. They fork much more often, and not seldom at a greater or less distance above the ground their stems disperse. Compared with the other species, too, defect of various kinds is much more frequent. More often perhaps than soft woods they are seamy; decay seems to be more rapid, of dead limbs most often and significantly, so that bunches formed by their healing over may have bad defect beneath; then the structure of the wood itself is frequently not perfect, rendering it unsuitable for uses of the finer sort. In these respects there is considerable difference between the species. Beech is hardest to judge of safely from its outside appearance; soft maple is much more liable to defect than are the birches, and hard or rock maple, though it may be sound and suitable for ordinary uses, as respects fine quality in the wood falls below the standard of the same tree in the Lake States. The birches then are our most dependable common hardwoods. Yellow birch with us lives pretty well up to its appearance, is said, though it does not attain the length, to turn out sounder and better than that of the Lake States. Some of our white birch, too, is of the finest sort, though in respect to points in quality there is a wide range in this species. In this tree, one may remark in passing, we have a really fine and noteworthy resource, and as far as natural markets are concerned a near monopoly of it. No one familiar with the timber business of Maine, past and present,

will question the great value of this forest tree to our people.

Thus a given tree, large and impressive to ordinary inspection perhaps, may be entirely worthless for manufacturing purposes, or it may be suitable for one of these and not for another. Leaving white birch out of account, veneer stock makes the heaviest demand on quality in our hardwood timber. Not in respect to straightness indeed, for it is used in short lengths, but seams throw it out, and only infrequent defect of any kind is tolerated; then 10 inches diameter is the smallest accepted. A pretty good stand of mature hardwood recently cut for veneering was examined this last autumn and it was concluded that only about one in ten of the trees that were suitable as far as size was concerned had been taken. Something like ten yellow birches were taken for one maple; only very rarely was a beech or white birch used. Estimating quantity available in circumstances of that sort is clearly a task for an expert.

Last blocks will utilize vastly more from the one species (hard maple) that is put to that use; saw timber will take several times as much. In the last connection again all those elements that shrink the really available contents of a tree enter rather largely, so much so that volume tables for hardwoods to be used for saw timber that have been available for some years have been felt to be of assistance only, not by any means to fully solve the problem in hand. Of course it is true that as our virgin hardwoods are exhausted and we come to deal with second growth, the task of the cruiser will be rendered easier by much.

CRUISING PULPWOOD—USE OF THE TABLE

Those to whom the following will appeal would be the last to deny the ability of many practical men—jobbers, scalers, even sawyers they may be—to make a close estimate of the contents of trees or a body of timber. Their own work is different, however, or usually so. As a rule they deal with large areas; they are personally responsible for the results; the interests of economy call for such sub-division and organization of the work to be done that men with little or no training can be employed in it.

Much that is involved can be passed over as well established and understood—arrangement of lines and plots, radial distance control, the proportion of actual measurement that shall be carried out in place of estimating, working up results, etc. To start things off in a positive way, following is an account of how one man who has had considerable of it to do has conducted this kind of business.

He possesses in the first place a volume table, the best he has been able to construct himself, based in the first place on diameter breast high, and in the other dimension on number of 4 foot cuts available in a tree, not the total height of it. His tally sheet has for each diameter class 4 divisions of one main square, one each for four different lengths, as 6, 7, 8, and 9 cuts for trees of 8 inches breast diameter. Cruising himself, he calipers or estimates breast diameter, then looks up the tree, and after settling in his mind how many cuts it will yield, scores it down in the space appropriate. This is all familiar to woodsmen. They know how it is done and that good results can be obtained by that method.

Several questions may be raised, however. In the first place, only a skilled and careful man can estimate the heights correctly; green men cannot be trusted to do so. In the second place, even the practical man finds it very difficult to set the height at which in a tall and slow tapering tree a specified diameter is reached, a point, the importance of which is brought out later. Finally, many trees fork or disperse well up in their length and practical utilization may stop there, a fact which the cruiser realizes perfectly; in consequence there is a tendency to score trees down shorter than should be done to meet the standards of the usual volume table. Most of this difficulty, it should be noted, has arisen of late years, in connection with this late form of utilization for our hardwoods. The case is different entirely when timber is to be used at the sawmill.

A point involved in the above needs further and clearer explanation. Suppose the standard of utilization is 4 inches inside bark and a man looking up a tree of good length and normal form sets the point 2 cuts too high or too low, which is indeed easy. The main trouble is, not that he has reckoned

too few or too many cuts in the top of the tree (their volume may not be large enough to make very material difference). The main point is that the whole tree from breast high up is stouter or slimmer than corresponds to the table. With total height, it is clear much of this difficulty is avoided. It can be measured in the first place though not, it is true, as readily and accurately as in the case of soft woods; it can be better compared with surrounding trees; green men it is thought, can be more easily trained to work in this element.

It only remains now to state how it is thought the table may best be put to use in actual estimating. In what is said further, the usual conditions existing in commercial work are held in view. The really expert man working by himself will use his own methods.

Most any men properly looked after will get diameters about right; they are much less trustworthy with height determination. It was thought, however, that they could, if trained to it, classify timber in 3 classes of total height, tall, medium and short; if it does not prove so the man in general charge of work could take responsibility for that feature of it. Then scoring space could be divided into 3 appropriate subdivisions instead of 4, and the party work proceed as has been customary.

That at any rate is the way in which one thoughtful man sketched things out. Experience of course will be the final test of the table itself and of its application.

Before closing, the supplemental table may well be referred to again. It gives the cord contents (the factors of piling allowed for) of single sticks 4 feet long and in diameter from 6 to 20 inches. The use contemplated is in estimating the contents of trees with short usable stems but dispersing above. It may, however, be found to serve other purposes.

CORD CONTENTS OF STICKS 4 FEET LONG AND OF DIAMETERS GIVEN

Inches	Cords	Inches	Cords
6	.008	14	.044
7	.011	15	.051
8	.014	16	.058
9	.018	17	.065
10	.023	18	.073
11	.027	19	.081
12	.032	20	.090
13	.038		