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STATE DOCUMENTS

Twenty-First Report

1967-1968

OFFICE OF
THE STATE FORESTER

To
Honorable Tim Babcock
Governor
State of Montana



GARETH C. MOON
State Forester

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Twenty-First Report

1967 - 1968

**OFFICE OF
THE STATE FORESTER**

**To
Honorable Tim Babcock
Governor
State of Montana**



**GARETH C. MOON
State Forester**



TIM BABCOCK
GOVERNOR

State of Montana
OFFICE OF
STATE FORESTER

2705 SPURGIN ROAD
MISSOULA, MONTANA - 59801

GARETH C. MOON
STATE FORESTER

DON M. DRUMMOND
DEPUTY STATE FORESTER

ROBERT W. ARNOLD
DEPUTY STATE FORESTER

September 1, 1968

Honorable Tim Babcock
Governor, State of Montana
Helena, Montana 59601

Dear Governor Babcock:

In accordance with the requirements of Section 81-1411 and Section 82-1916, RCM 1947, there is herewith transmitted to you the Report of the State Forester covering the fiscal years ending June 30, 1967, and June 30, 1968.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gareth C. Moon".

GARETH C. MOON

State Forester

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**MEMBERS OF
THE BOARD OF LAND COMMISSIONERS**

GOVERNOR TIM BABCOCK Chairman
HARRIET MILLER Superintendent of Public Instruction
FORREST H. ANDERSON Attorney General
FRANK MURRAY Secretary of State

ADMINISTRATIVE OFFICERS

MONS L. TEIGEN Secretary and Commissioner of State Lands and Investments
GARETH C. MOON State Forester

**MEMBERS OF
THE STATE BOARD OF FORESTRY**

GOVERNOR TIM BABCOCK Chairman
DON L. DELANEY Water Resources Board
GEORGE NEFF Forest Fire Protection Associations
JOHN BAUCUS Stock and Wool Growers' Associations
HOLLIS YOUNG Small Woodland Owners
MARK SCHOKNECHT Lumber Manufacturers' Association
ARNOLD BOLLE School of Forestry
NEAL H. RAHM U. S. Forest Service, Region 1

ADMINISTRATIVE OFFICER

GARETH C. MOON Secretary and State Forester

In Recognition



MAURICE CUSICK

Maurice Cusick, Whitefish, has been around the Office of Montana State Forester for more than forty years. He has fought more than 600 forest fires, and has performed almost every job in the field, from planting trees to harvesting them.

The Civilian Conservation Corps Program, 1933–1942, provided Maurice the opportunity to work with boys on such forest projects as road building, timber stand improvement, and telephone line construction.

With this background, Cusick is well qualified to serve as Chief Forester for the newly established Swan River Youth Forest Camp on the Swan River State Forest where he has the boys working to improve Montana's forests as they work to improve themselves.

Biennial Highlights

In "Biennial Highlights" we list, not necessarily the more important jobs of the State Forester, such as selling timber, fighting fire, and assisting forest landowners, but the ones that are in some way unusual.

First is the forest fire season of 1967 which, in the annals of forest fire fighting, was something to behold. For the first time in history, a major portion of the forest lands in Montana were closed to entry due to the extremely high fire hazard. For the first time in history, too, all the forest lands between the Continental Divide and the Pacific Ocean were closed for the same reason. This fire season is more fully covered under Forest Fire Protection in this report.

During the Biennium the first County Commissioner-State Forester Cooperative Agreement on fire protection for the forest and rural lands of a county was worked out on a county-wide basis. Meagher County, as a result, is organized and equipped to fight rural and forest fires. The State Forester, through arrangements made possible by the Clarke-McNary Law, is able to secure excess military equipment—trucks, trailers, and other items. This equipment, in the State Forester's shop is converted to first-class fire fighting equipment. This equipment can then be loaned to counties under certain agreement terms. The State Forester also provides training and planning to the country in its rural fire control program.

Construction of a Youth Forest Camp, a function of the Board of Institutions, was completed on the Swan River State Forest early in 1968. The Superintendent of the Camp, and his staff, established themselves during the winter and early spring, and worked with the State Forester and his staff in making ready for the arrival of the first youths on July 1, 1968. The Camp members will accomplish useful work on the Swan River State Forest in forest improvement projects.

Weight and Sample Scaling of the larger timber sales made by the State Forester became reality. This method is faster and cheaper than the more usual "stick scaling of each individual log," yet it adequately safeguards and protects the financial interests of the State.

The State Forester, again during this biennium, conducted a Neighborhood Youth Corps Program on even a larger scale than the original program. However, because facilities were required which could not reasonably be provided by the State Forester, the program was discontinued on December 31, 1967. Over 130 youths were assisted both financially and by job training in this program during the biennium.

During both years of this Biennium the State Forester cooperated with the University of Montana Forestry School in sponsoring a "Conservation Orientation Camp" for selected outstanding high school juniors from throughout the state to encourage young Montana men of high caliber to consider natural resource management as a possible career, and the University School of Forestry as the institution at which to learn it.

The Council of Western State Foresters made Butte the location of its annual meeting in April, 1968. A unique sidelight on this meeting, devoted to discussions of federal government-state forestry cooperative relationships, was a field trip through the Con Kelley mine where the visiting foresters saw more wood underground than above.

During the biennium the State Forester and the Commissioner of State Lands and Investments recommended to members of the State Land Board that certain State-owned lands be reclassified. This recommendation resulted in action by the Board in July, 1967, which reclassified approximately 23,000 acres of grazing land to forest land, and 13,000 acres of classified forest land to grazing land.

The State Forester and The State Board of Land Commissioners

The Office of State Forester was established by legislative action in 1909 when the need for technical help in managing forested state lands was felt by the Board of Land Commissioners.

This Board, comprised of the Governor, Superintendent of Public Instruction, Secretary of State and the Attorney General, has direct control of all lands granted to the State for the support of the various educational institutions. The objectives of the Board of Land Commissioners and the objectives of the State Forester as they pertain to the forested state lands are:

- 1) To hold the lands in trust for the support of education and for the attainment of other worthy objectives helpful to the well-being of the people of the State of Montana.
- 2) To administer this trust so as to secure the largest measure of legitimate and reasonable advantage to the State.
- 3) To accomplish a sustained income for the school and other trust funds.

The State Forester is the chief administrator and executive officer, under the State Board of Land Commissioners, in all matters pertaining to the State Forests. By statute all state lands which are principally valued for the timber on them, for watershed protection or for the growing of timber, are designated State Forests, and are reserved for forest production and watershed protection. These lands are not subject to sale.

The State Forest Lands consist of 491,446 acres generally on the scattered Sections 16 and 36 in every township and are, by grant, dedicated to school support. Some 202,949 acres of forested land, selected in lieu of other lands which had been homesteaded or otherwise claimed, make up seven State Forest Units.

These seven units are:

- 1) Stillwater State Forest, approximately 91,000 acres in the watershed of the Stillwater and Whitefish Rivers in Flathead and Lincoln Counties.
- 2) Swan River State Forest, approximately 39,000 acres in the Swan River watershed of Lake County.
- 3) Coal Creek State Forest, approximately 15,000 acres in the Coal Creek watershed of the North Fork of the Flathead River, Flathead County.
- 4) Sula State Forest, approximately 13,000 acres in the watershed of Camp and Cameron Creek of Ross Hole and Ravalli County.

The Office
of

STATE
FORESTER

- 5) Thompson River State Forest, approximately 23,000 acres in the Thompson River watershed of Sanders County.
- 6) Clearwater State Forest, approximately 24,000 acres in the Clearwater River watershed of Missoula County.
- 7) Lincoln State Forest, approximately 9,000 acres in the Blackfoot River watershed in Lewis and Clark County.

The State Forester is appointed by the Governor and confirmed by the State Senate. He uses factual and scientific information gathered by qualified technical help in making possible a program that will enable Montana's forest lands to continue production of wealth in the form of forest products, abundant usable water and matchless outdoor recreation areas.

In accordance with the provisions of the Federal Enabling Act of 1889, necessary laws have been enacted by the State Legislature to guide the administration and distribution of income received from the management of the grant lands. The net rental income, such as grazing fees on the Public School grant lands, together with the interest earned on investments, after statutory deduction, is distributed annually to the counties of the State on the basis of the number of school age children. Income from other grant lands is made available to the institutions to assist in defraying operational expenses.

All monies received from the sale of timber are credited to a permanent fund for each of the land grant institutions. These permanent funds are held forever inviolate as the property of the fund. The monies are invested in the United States Government Bonds, Bonds of the State of Montana, counties, cities, and school districts within the State. The interest received on these investments is distributed annually with the other income to the land grant institutions.

The Capitol Building Grant is predominately forest land. All money received from grazing, rentals, agriculture, sale of timber, oil royalties and interest are distributed as received for improvements to and construction of capitol buildings.

During the Biennium, the Board of Land Commissioners:

Authorized the collection for brush disposal on State timber sales to be a maximum of \$2.25 per thousand board feet of timber sold, and up to \$1.25 per thousand board feet for timber stand improvement.

Authorized the State Forester to charge those fees as listed in Section 81-419 and Section 81-1113, RCM 1947, when similar to licenses and permits issued by the State Land Commissioner for other than forest lands, and also authorized him to charge a fee of \$1.00 for all timber removal permits issued under Section 81-1407, RCM 1947.

Approved a total of ninety Rights-of-Way Applications crossing State Forest Lands.

Approved the Christmas Tree Sales Program for FY 1967 and 1968.

Approved a total of 21 timber sales.

The State Forester and the State Board of Forestry

The State Forester is responsible to the State Board of Forestry for programs which largely affect privately owned forest lands.

This Board, created by legislative action in 1939, is comprised of the Governor as Chairman and seven additional members who are appointed to represent the Water Resources Board; Forest Protection Agencies; Stock and Wool Growers Association; Lumber Manufacturers Association; the Grange, Farm Bureau, and Farmers Union; Montana University Forestry School; and the U. S. Forest Service. The State Forester serves as Secretary to the Board.

The objectives of the State Board of Forestry are in part:

- 1) To protect and conserve the forest resources and watersheds of the state from destruction by fire and from destruction by insects and disease.
- 2) To enhance the production of the forested lands.
- 3) To promote the stability of the forest industry.
- 4) To give technical and practical assistance to private landowners of the state in respect to soil and forest conservation and the establishment and maintenance of woodlots and windbreaks.
- 5) To assist the State Board of Land Commissioners in the protection, economic development and use of State Forests and forest lands held by the State for the benefit of the common schools and State Institutions.

The State Board of Forestry is required by law to hold at least two meetings each year. While the Board as a whole may meet only twice during the year, committees made up of its members pursue answers to forestry problems continually. Among the major forestry problems that have faced the Board and the State of Montana for a number of years are:

- 1) Organized fire protection for the state and privately owned forest lands.
- 2) Reduction of the hazard created by logging and clearing operations.

3) The control of forest insect pests and diseases.

4) The need for forest industries designed to utilize forest by-products now being wasted; and the need for local re-manufacturing of the end products of the forest industry.

5) A current study, being made by a committee of the Board, is being conducted to determine how forest fire protection costs should be paid—how much, if any, should be borne by all Montana tax payers, and how much by the private forest landowner.

Actions of the State Board of Forestry during the biennium include:

Revised the Fire Protection Agreement between Region 1, U. S. Forest Service and the State Board of Forestry which was written in 1952 and modified in 1959.

Recognized the Blackfoot Forest Protective Association as the agency to provide forest fire protection in the Avon area.

Recognized the State Forester as the agency to provide forest fire protection to certain wild lands in the Helena area.

Authorized the State Forester to provide forest fire protection in the area formerly covered by the Anaconda Fire Protective Service plus other lands in Powell County.

Recommended to the Legislature amendments to existing statutes to provide that forest fire districts may be created with the approval of 51% of the owners representing 51% of the acreage therein, and which would establish a Class III forest land classification.

Authorized the State Forester to cooperate with the Commissioners of Meagher County in developing the Meagher County Fire Protection Plan.

Developed and approved a new set of Forest Fire Regulations, copy of which is on the last page of this biennial report.

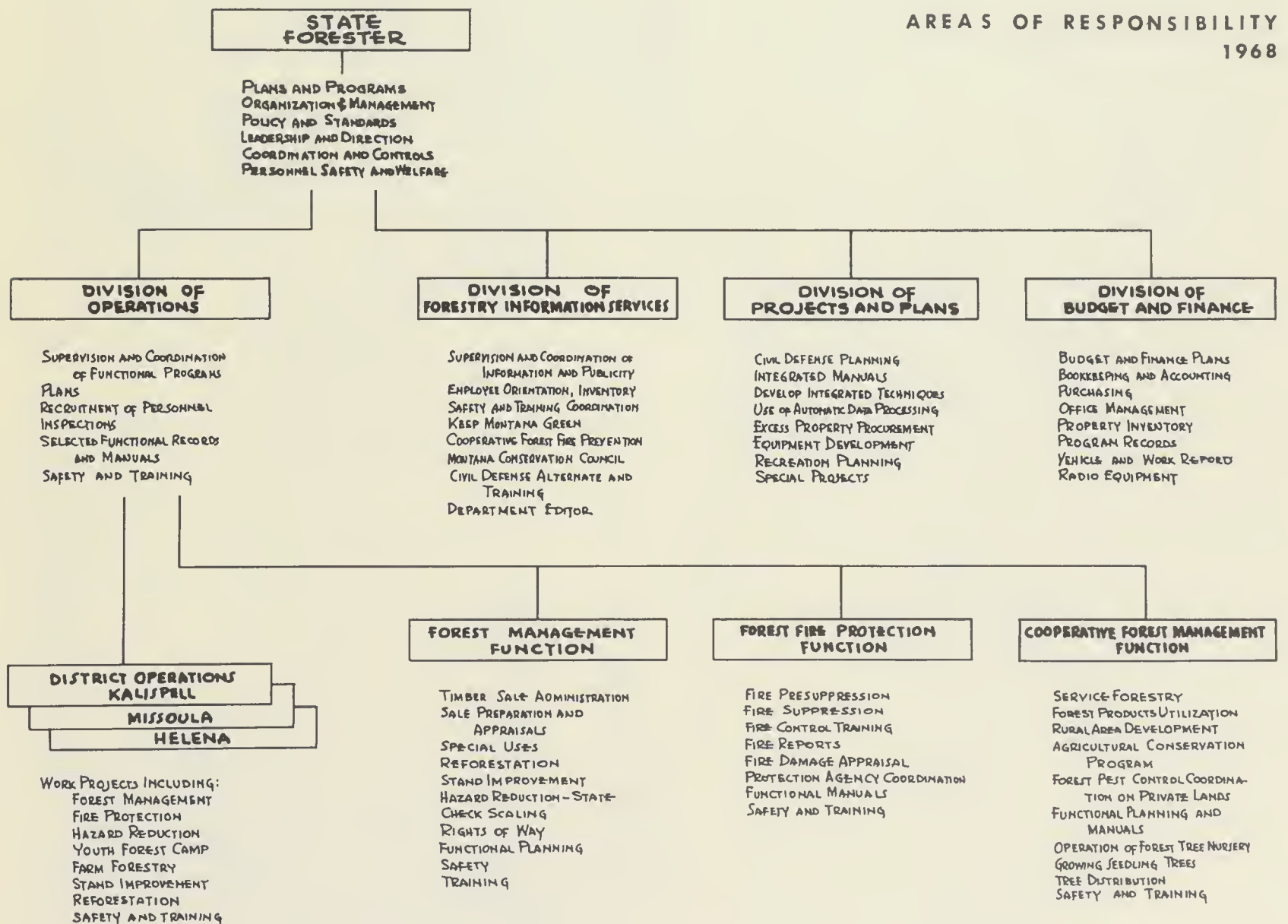
Responsibilities and Organization of the State Foresters Office

The State Forester is responsible for "all matters pertaining to forestry within the jurisdiction of the state." As a regular part of his job the State Forester is also assigned to several groups as an advisory or working member, such as the Council of Natural Resources and Development, the Natural Resources Council of the Federation of Rocky Mountain States, and the Diversified Land Use Committee. In the State's Civil Defense Organization, the State Forester serves as Director of the Fire Section.

In general he is responsible to the State Board of Land Commissioners for the protection, management,

and regeneration of the state-owned forest lands. His responsibilities to the State Board of Forestry deal generally with protection of privately owned forest lands, production and distribution of seedling trees for farm and ranch forest and shelterbelt plantings, and assistance and advice to owners in the management of their small woodlands.

The State Forester has chosen to meet these responsibilities through four Divisions in his office—Operations, Forestry Information Service, Projects and Plans, and Budget and Finance.



Division of Operations

The Division of Operations is responsible for the field operations of the Office of State Forester.

This Division was reorganized during the biennium from a functional operation to a district-type operation, with all Management functions operating on a district basis.

Three State Forestry Districts have been established. The district headquartered at Kalispell serves Flathead, Lincoln and the northern portions of Lake and Sanders counties. A second district, headquartered in Missoula, serves the southwestern counties of the State except Deer Lodge and Silver Bow. The third district with headquarters in Helena, serves the eastern portion of the State. Three former function supervisors have been assigned as staff personnel to the Operation chief to assist in compiling the annual work plan, establishing procedures, techniques and guidelines, and guiding the districts in carrying out the work projects.

Problems in forest management, fire control, hazard reduction and cooperative forest management are now handled on a local basis to provide better service to the users of state lands and the purchasers of State forest products.

The Division of Operations is also responsible for recruitment of personnel and for inspections of the district work programs.

Division of Projects and Plans

The Division of Projects and Plans is responsible for department-wide, long-range planning, special projects and special studies pertaining to future work programs of the State Forester's Office.

The Projects and Plans Division also prepares drafts, coordinates and distributes the integrated manuals, work plans, and agreements, which guide the operation of the Forestry Department.

The Development of more efficient methods which can be applied to present programs is also an assignment carried by Projects and Plans. For example, this Division developed the method by which Automatic Data Processing is applied and used in the preparation of the annual forest assessment rolls, and is currently developing methods by which Automatic Data Processing can be applied to other phases of the State Forester's work.

Through Section 2 of the Clarke-McNary Law, the State Forester has access to excess federal military equipment which is adapted to fire fighting purposes. During the past two years the Equipment Development Shop, a part of this Division, has converted and placed in fire fighting operation, numerous military excess vehicles and pieces of equipment, such as cargo tankers, tank trailers, utility trailers, pickups, flatbed trucks, jeeps, dump trucks, busses, fork lifts, and miscellaneous equipment such as field desks, air compressors, and metal benders.

This Division also handles the repair and maintenance of special equipment such as fire pumps.

Division of Forest Information Services

A primary responsibility of the Division of Forest Information Services is to make all employees aware of the responsibilities of the Office of State Forester and the manner in which it is intended that these responsibilities be met. The training needs of each employee are determined by this Division, and programs are set up to provide the opportunity for each employee to acquire the needed training.

This Division is responsible of all training which transcends functions, such as First Aid, Safety and Communications.

Each member of the State Forester's Office is trained by the Division of Forest Information Services to fit into the Civil Defense organization as a radiological monitor, and instruments for this purpose are maintained at Missoula, and Kalispell offices and Stillwater and Swan River State Forests.

The Division is responsible for directing and coordinating internal and external information services such as preparation of the Biennial Report; the Arbor Day Brochure and presenting a state-wide program for observance of Arbor Day; developing the Keep Montana Green Program; promoting the Cooperative "Smokey Bear" Forest Fire Prevention Campaign; developing and promoting the use of educational materials, especially those applying to Montana's State Forestry program.

Division of Budget and Finance

The Division of Budget and Finance is responsible for all financial functions of the Office of State Forester, including fiscal planning and control, preparation of the biennial budget requests, accounting for expenditures by programs, and construction of the federal state cooperative financial plans applying to the State Forester's programs partially financed with federal funds.

Central purchasing for the State Forestry Department is handled by the Division of Budget and Finance. Needs of all districts and divisions are combined and reviewed, specifications written, and requisitions submitted to the Department of Administration. Records are maintained of expendable and non-expendable items used by the State Forester.

Department-wide property inventory control is maintained by this Division. All permanent records are on file in the central office and the necessary reports are prepared here.

The cost accounting records and information pertaining to the divisions, special projects, vehicles and equipment, and personnel, is a function of Budget and Finance.

The Department's radio network—six base stations (Missoula, Kalispell, Helena, and Anaconda Offices, and Stillwater and Swan River State Forests) plus 21 mobile and 17 portable radio units—is supervised by this Division.

OFFICE OF STATE FORESTER
STATEMENT OF EXPENDITURES AND FINANCING

Fiscal Year 1967 (July 1, 1966 - June 30, 1967)

Programs	Personal Services		PERS, SS, IAB	Operation	Capital		Grants, Aids Benefits	TOTAL
	Sal. & Wages				Equipment	Land & Bldgs.		
Administration	\$ 78,209	\$ 5,085	\$ 19,699	\$ 1,819	\$	\$	\$	\$104,812
Cooperative Forest Mgt.	43,462	3,761	8,626	2,914	51			58,814
Fire Protection	100,316	8,931	58,122	21,403	9,963	188,189		386,924
Nursery	32,634	2,921	12,866	949	2,151	164		51,685
Slash & Brush Disposal	57,316	5,224	46,223	143		77,320		186,226
Forest Management	62,197	5,650	14,655	249	314	50		83,115
Neighborhood Youth Corps	37,652	3,142	7,958					48,752
TOTAL PROGRAM	\$411,786	\$34,714	\$168,149	\$27,334	\$12,622	\$265,723		\$920,328

Financing	Balance		Appropriation or Income	Expenditures	Balance June 30, 1967
	June 30, 1966				
General Fund	\$ 5,170	\$ 302,062	\$ 301,968	\$ 5,264	
EARMARKED REVENUE FUND:					
215600 Slash & Brush	243,805	198,502	195,955	246,352	
210000 Timber Stand Improvement	17,141	48,919	33,118	32,942	
216000 Foresters Nursery	1,250	32,568	21,169	12,649	
904700	9,492	100,696	86,373	23,815	
215500 Fire Protection, State	17,527	121,901	10,997	128,431	
FEDERAL & PRIVATE REVENUE FUND:					
410441 Coop. Forest Mgt.	7,580	44,432	46,282	5,730	
410419 Clark-McNary	1,783	63,592	61,818	3,557	
410525 Neighborhood Youth Corps		51,447	38,856	12,591	
604500 Fire Ins.	21,977		21,977		
505300 Fed. & Private Grant Clearance		127,848	101,815	26,033	
TOTAL FINANCING	\$325,725	\$1,091,967	\$920,328	\$497,364	

**OFFICE OF STATE FORESTER
STATEMENT OF EXPENDITURES AND FINANCING**

Fiscal Year 1968 (July 1, 1967-June 30, 1968)

Programs	Personal Services		PERS, SS, IAB	Operation	Capital		Grants, Aids Benefits	TOTAL
	Sal. & Wages				Equipment	Lands & Bldgs.		
Administration	\$ 87,127.79	\$ 6,311.79	\$ 23,587.96	\$ 117.00	\$ 675.00	\$	\$ 117,819.54	
Cooperative Forest Mgt.	47,414.18	4,366.35	10,817.38	3,885.72			66,483.63	
Fire Protection	149,258.71	13,662.23	76,304.39	8,801.43	10,683.82	259,831.92	518,542.50	
Nursery	33,667.06	3,157.01	10,907.20	1,960.24	2,673.85	57.37	52,422.73	
Slash & Brush Disposal	45,327.72	4,094.10	42,969.25	8,692.97		49,084.44	150,168.48	
Forest Management	80,235.08	7,495.06	19,781.42	3,795.57		192.89	111,500.02	
Neighborhood Youth Corps ...	25,931.05	2,080.37	8,207.35			3,165.39	39,384.16	
Youth Forest Camp	15,511.61	1,616.45	1,894.40	1,439.11			20,461.57	
TOTAL PROGRAM	\$484,473.20	\$42,783.36	\$194,469.35	\$28,692.04	\$14,032.67	\$312,332.01	\$1,076,782.63	

Financing	Balance		Appropriation or Income	Expenditures	Balance June 30, 1968
	June 30, 1967	June 30, 1968			
General Fund	\$ 5,264	\$ 444,900	\$ 405,239	\$ 41,921	(Reversion 3,004)
EARMARKED REVENUE FUND:					
215600 Slash & Brush	246,352	167,589	175,294	238,647	
210000 Timber Stand Improvement	32,943	56,176	38,249	50,870	
216000 Foresters Nursery Acct.	12,649	37,929	38,990	11,588	
215500 Fire Protection, State	25,517	-0-	887	0-	(Balance Transferred to 505300)
FEDERAL & PRIVATE REVENUE FUND:					
410441 Coop. Forest Mgt.	5,730	44,863	49,058	1,535	
410419 Clark-McNary Acct.	3,557	93,427	96,217	767	
410525 Neighborhood Youth Corps	12,591	23,985	36,576	-0-	
604500 Fire Insurance	-0-	25,110	1,566	23,544	
505300 Federal & Private Grant Clearance	26,033	235,256	234,032	17,778	(9,479-transferred to 410419)
614200 General Fund	-0-	52,750	675	52,075	
TOTAL FINANCING	\$370,636	\$1,181,985	\$1,076,783	\$438,725	

DISTRIBUTION OF INCOME FROM STATE FOREST LANDS

FISCAL YEAR	Montana State College		Montana State College Council		Deaf and Blind		Industrial School		Eastern Montana Normal School		School of Mines		University		Common School		Normal School		TOTAL
	Montana State College	Montana State College Council	Deaf and Blind	Industrial School	Eastern Montana Normal School	School of Mines	University	Common School	Normal School	Normal School	Common School	Normal School	Normal School	Common School	Normal School	Normal School	Common School	Normal School	
*INCOME FUNDS																			
1967	\$372.91	\$7,890.23	\$1,264.50	\$1,954.50	\$463.50	\$4,419.79	\$143.69	\$16,931.98	\$463.67	\$463.50	\$4,419.79	\$143.69	\$16,931.98	\$463.67	\$463.67	\$16,931.98	\$463.67	\$463.67	\$33,904.95
1968	381.08	7,997.50	1,166.32	1,874.22	470.66	4,564.83	148.17	16,653.08	470.66	470.66	4,564.83	148.17	16,653.08	470.66	470.66	16,653.08	470.66	470.66	33,726.52
**PERMANENT FUNDS																			
1967	282.34	12,563.48	1,579.30	-	-	39,676.43	-	488,410.32	1,319.14	-	39,676.43	-	488,410.32	1,319.14	1,319.14	488,410.32	1,319.14	1,319.14	543,831.01
1968	3,747.23	9,427.38	781.01	3,579.41	-	22,904.66	-	271,489.82	6,809.31	-	22,904.66	-	271,489.82	6,809.31	6,809.31	271,489.82	6,809.31	6,809.31	318,738.82
***CAPITOL BUILDING FUNDS																			
1967 \$ 80,095.45																		
1968 \$ 199,051.70																		
Total Fiscal Year 1967									 \$ 657,831.41									
Total Fiscal Year 1968									 \$ 551,517.04									
Total Biennium									 \$1,209,348.45									

*INCOME FUNDS: 95% allocated to school and other State institutions: 5% of these credited to PERMANENT FUNDS.

**PERMANENT FUNDS: Interest only on these funds expendable.

***CAPITOL BUILDING FUNDS: 100% expendable upon deposit.

Forest Management

Forest Management includes the programs which deal with timber production and special uses of the state-owned forest lands. These activities are guided by laws enacted over the years by the State Legislature. A brief resume of the origin and purpose of the State Forest lands provides a background for the objectives of this program.

Forest Management includes the direction of all activities pertaining to the forest in a businesslike fashion, keeping in mind the guiding rule and principle "that these lands are held in trust for the support of education, and for the attainment of other worthy objects helpful to the well being of the people of this State."

Objectives.

The objectives of Forest Management on State Forest lands are:

- 1) To conduct a program on State Forest lands which will provide maximum income to the several state school funds on a sustained basis.
- 2) To provide for multiple use of State Forest lands to include sale of forest products, recreation, watershed protection, grazing and other uses in the best interest of the people of the State; and
- 3) To manage State Forest land in such manner as to conserve water, soil, and young stands of timber.,

STATE FOREST LANDS

All lands granted the State of Montana by the Federal Government under the different land grants have been classified by the State Board of Land Commissioners into one of four categories: 1) grazing, 2) timber, 3) agricultural, and 4) those within the limits of, or within three miles of the limits of, any town or city. The management of these lands, and funds originating from them, is the responsibility of the State Board of Land Commissioners with the State Forester as the chief administrative and executive officer in all matters pertaining to the State Forest lands. Sections 16 and 36 in each township in the State (or other equivalent lands in lieu) were reserved for the support of public schools.

The Montana Constitution provides that when any of these lands are sold, or any of the intrinsic value of the lands is removed, such as timber, the monies received are deposited in the Permanent School Fund. When any of these lands are leased, 95% of the lease income is placed in the Interest and Income Fund, as is 95% of the interest received from the investment of the Permanent School Fund. The remaining 5% is deposited in the Permanent School Fund. The Interest and Income Fund is distributed each year to the school districts on the basis of the annual school census of children between the ages of six and twenty-one residing in the district. Other grants were also made the State of

FOREST MANAGEMENT

Montana. The Forest lands under each of the following grants are also managed by the State Forester: Montana State College, Montana State College Morrill, Deaf and Blind School, Industrial School, Eastern Montana Normal School, School of Mines, University and Capitol Building. Income from each of these grants, excepting Capitol Building, is handled in the same manner as those from the Public School lands with the income going to the proper institution to assist in defraying operating expenses. Income from Capitol Building lands is distributed as received for improvements to Capitol buildings.

Approximately a half million acres of State land have been classified as "Timber." 202,949 acres of forested land, selected in lieu of other lands which had been homesteaded or otherwise claimed, are within the seven State Forests. The remaining 288,497 acres are "scattered," generally Sections 16 and 36.

Of the total state forest land ownerships, 440,878 acres are west of the Continental Divide and 50,568 acres are east.

Revenue from these lands is derived from the sale of timber, Christmas trees and from licenses for such uses as grazing, home and cabin sites. This revenue is directed to the support of the public schools and to various institutional schools of the State.

Management of these lands, in addition to timber sales, stand regeneration, and fire protection, involves problems of access, road use authorizations for others who may need to share the use of roads in back areas, rights-of-way for roads required by other, and for uses such as power transmission lines and pipe lines. Home and cabin sites, group camps, sawmill sites, and similar activities, make up other uses of State Forest land. Much of the State Forest land is grazed under authorization.

Timber has been cut from these State lands since before the turn of the century. Volumes cut annually have varied from year to year depending largely upon

market conditions and the accessibility of the lands. In 1954, an inventory of timber volumes was begun on the State Forest lands. The objective of this was to prepare a management plan which would provide for a sustained annual harvest of timber, a comprehensive reforestation and stand improvement policy, with provisions for multiple income and benefit use.

For the past 10 years, timber sales have averaged 27 million board feet annually. The total income from sales for the 1967-1968 biennium is \$1,209,348, as compared to \$973,000 during the preceding biennium. An active timber stand improvement program is being carried out

on the cutting areas. This program includes site preparation for planting and direct seeding, thinning of dense timber stands, and removal of diseased and cull trees.

The timber inventory was completed in 1965. One man has been assigned preparation of a forest land management plan. When completed, this plan will be the guide to all phases of forest land management including watershed, wildlife, recreation, timber harvest and special uses such as grazing, home and cabin site development.

TIMBER MANAGEMENT



Clearcutting, as a forest harvesting method most nearly simulates nature's method of reproducing coniferous forests. By not adhering so rigidly as in the past to man-made survey lines, they can be made more pleasing to the eye.

Timber Management devotes its energies to the management of the State-owned forest lands, as directed by law, "primarily to secure through forest management a continuous supply of timber and the protection of watershed cover," in terms of the following objectives:

1. To remove annually the current growth plus mortality in such manner that the residual stands will remain in a thrifty, productive, or reproducing condition.
2. To employ cutting practices which will remove mature and overmature timber on a silviculturally sound basis and provide for regeneration.
3. To improve the productivity and composition of young stands of timber.
4. To reforest non-stocked forest lands.
5. To salvage all fire-killed, blowdown and insect timber as loss occurs.
6. To promote the expansion of forest industries within the state by raising the productivity of the State Forest lands.

Many of the State's forested lands, as is true of other ownerships in much of Montana, support large volumes of small mature and over-mature, and suppressed trees in

the nine to fourteen inch diameter classes. During recent years this fact has acted as one of the major influences encouraging forest industry to work toward development of methods and equipment with which to harvest and process it. At the same time the markets for stud material, and other small logs, has permitted the State Forester to make sales to dispose of timber made up, largely, of small overmature timber.

Also, in northwestern Montana, there has been a notable increase in the market for barn poles and small power poles.

The availability of a market for small material has also permitted about two-thirds of the annual cut under sale contracts by the State Forester to be made in stands cut over several years ago. The sales have permitted removal of the residual old-growth trees which have been serving as an over-story to the presently restocked areas. On areas not presently properly restocked, seed trees have been left to provide for regeneration.

Roads were developed into areas within and adjacent to the logging areas through the timber sale program in order to remove mature timber, protect the areas from

fire, provide access for recreation, harvest blowdown, and thin adjacent young stands.

During the biennium, intensive reproduction surveys were made in the Swan River State Forest to determine planting needs. These areas will be prepared for planting through the timber stand improvement program and planted by members of the Swan River Youth Forest Camp.

Collection of data for the "Proposed State-Wide Timber Management Plan" for the State-owned forest lands, begun last biennium, has been almost completed. It is hoped that this proposed plan can be ready for review by experts in the field of forest management representing private industry, educational institutions, and federal forestry agencies, by the end of calendar year 1968.

The State Forester's studies have determined that the State Forest lands shows a 49% stocking; this is higher than prior estimates which suggested that the cut from state lands be limited to 25 million board feet annually until such time as a complete management plan could be determined.

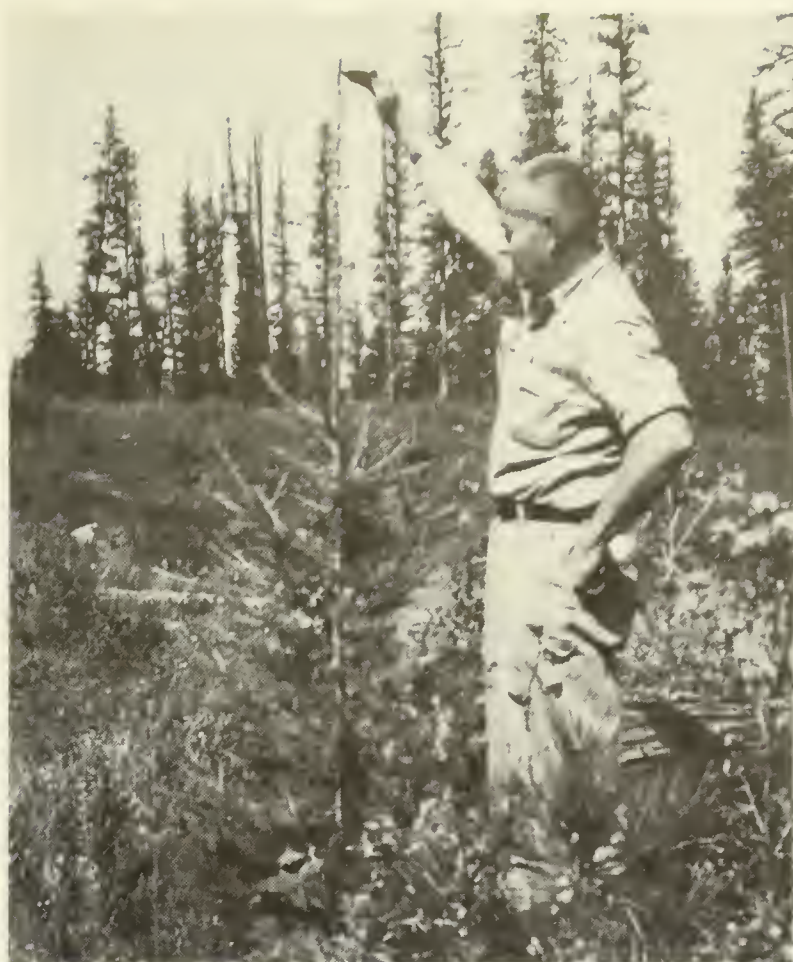
The 49% stocking, according to the proposed management plan, will permit an annual cut of 35 million board feet. Should the State through silvicultural activities such as seeding and planting of understocked areas, and thinning of over-stocked stands, bring the stocking level to 70%, the annual growth could be increased to 70 million board feet per year on a sustained yield basis—more than twice as much per year as has been cut during the past 10 to 12 years.

State Forest Lands are supporting 75,950 acres of seedling, sapling, and pole size trees which are overstocked; 48,150 acres which are understocked and 15,780 acres which are not stocked at all. Many lodgepole pine stands are stagnant in the seedling and sapling size classes and will not grow into marketable size trees. This points out the need for silvicultural treatment.

Each of the following recommendations in the preliminary proposal have many facets which need to be fully explored before being revised as "final," but in general they are:

1. Convert from the present volume control system as used to a combination area and volume control, as the method of forest regulation.
2. Intensify the silvicultural treatment of young stands both in area and age by thinning, pruning, and removal of diseased trees.
3. Accelerate the seeding and planting program, particularly on the unstocked acreage.

In 1965 the State Board of Land Commissioners approved an increase of the timber stand improvement fees from 75 cents to \$1.25 per thousand board feet. This is sufficient to do the thinning job in the overstocked stands and do the reforestation needed particularly on the understocked and nonstocked, and burned-over areas.



Many, many clear-cut areas in Montana's forests have new forests growing on them, undetected by the motorist glancing at them from a distance. The tree in this photo is seven years old, and is difficult to detect, even with a camera. Many clear-cut areas within ten years after cutting are in need of thinning.

Increased use of the forest main haul road system on the Swan and Stillwater State Forests by the general public and operators logging State forest lands in the past has pointed out the need for wider and better aligned roads. Many of these roads have had no major alignment, widening or improvement work other than grading, done to them since they were originally constructed by Civilian Conservation Corps in the 1930's. During the biennium widening and improvement work was accomplished on approximately nine miles of main haul roads on the Swan and Stillwater State Forests.

In addition, many of the roads have lost their cushion through years of use and normal erosion. This cushion of gravel must be replaced.

Recommendations:

- 1) For the future benefit of the State, an accelerated timber stand improvement of State-owned Forest lands should be undertaken.
- 2) To facilitate the replacement of the gravel cushion on the main haul roads within the State Forests, a tractor mounted front-end loader should be purchased during the next biennium.

**SAWTIMBER CUT FROM STATE FOREST LAND
BOARD FOOT VOLUMES
FISCAL YEAR 1967**

County	White Bark Pine	White Pine	Ponderosa Pine	Larch	Douglas Fir	Spruce	Lodgepole Pine	Cedar	White Fir	Total Green	Total Dead
Flathead	-	477,580	127,780	3,880,100	4,114,630	2,861,120	429,890	238,530	622,980	12,772,610*	317,510
Lake	63,570	181,030	746,420	5,308,290	6,032,490	1,202,290	184,070	292,890	294,290	14,305,340	355,850
Ravalli	-	-	1,761,586	-	3,410,334	327,550	64,564	-	38,341	5,602,375	9,380
Lincoln	-	6,550	1,053,170	1,466,890	1,043,990	82,740	1,138,134	-	15,320	5,008,124**	10,770
Lewis & Clark	-	-	110,970	-	215,460	10,740	51,460	-	070	388,700	120
Mineral	-	1,334	170,817	114,171	776,767	780	4,268	3,435	96,620	1,168,192	4,398
Meagher	-	-	-	-	58,500	-	-	-	-	58,500	-
Granite	-	-	3,490	-	460	-	-	-	-	3,950	-
Gallatin	-	-	-	-	-	-	-	-	-	2,500***	-
Missoula	-	-	156,120	23,850	58,430	3,000	2,070	-	200	243,670	090
Sanders	-	-	10,560	27,470	28,580	030	510	-	100	67,250	-
Park	-	-	5,980	-	-	-	-	-	-	5,980	-
TOTALS	63,570	666,494	4,146,893	10,820,771	15,739,641	4,488,250	1,874,966	534,855	1,067,921	39,627,191	698,118

* Includes 20,000 bd. ft. Cottonwood
 ** Includes 201,330 bd. ft. Cottonwood
 *** Includes 2,500 bd. ft. Quaking Aspen

TOTAL GREEN AND DRY 40,325,309 Board Feet

**SAWTIMBER CUT FROM STATE FOREST LAND
BOARD FOOT VOLUMES
FISCAL YEAR 1968**

County	White Bark Pine	White Pine	Ponderosa Pine	Larch	Douglas Fir	Spruce	Lodgepole Pine	Cedar	White Fir	Total Green	Total Dead
Flathead	-	373,060	30,830	2,960,650	3,300,950	1,042,510	883,960	250,430	327,160	9,270,400*	134,390
Lake	482,120	-	76,380	2,899,350	2,159,150	791,900	242,290	257,060	286,120	7,194,450**	159,030
Lincoln	-	-	2,816,370	2,250,330	2,905,400	60,320	1,238,029	-	-	9,293,239***	74,940
Mineral	-	570	35,200	2,210	151,170	-	270	-	17,930	207,350	-
Lewis & Clark	-	-	8,550	-	86,140	250	29,860	-	-	124,800	-
Ravalli	-	-	241,290	-	614,650	6,560	14,050	-	3,210	879,760	150
Sanders	-	-	1,330,810	271,360	3,442,620	27,450	998,960	-	72,220	6,143,420	30,010
Missoula	-	-	66,440	10,910	99,070	-	80	-	-	176,500	260
Powell	-	-	2,450	400	106,740	-	840	-	450	110,880	-
Meagher	-	-	-	-	98,113	-	-	-	-	98,113	-
Gallatin	-	-	-	-	98,114	-	-	-	-	98,114	-
TOTALS	-	855,750	4,608,320	8,395,210	13,062,117	1,928,990	3,408,339	507,490	707,090	33,597,026	398,780

* Includes 100,850 bd. ft. Hardwood
 ** Includes .080 bd. ft. Hardwood
 *** Includes 22,790 bd. ft. Hardwood

TOTAL GREEN AND DRY - 33,995,806 Board Feet

HARVESTING SYSTEMS

In harvesting trees from forest areas, the forester strives for the reproduction of a new stand, or the regeneration of the old one. Wherever a stand of trees is harvested, considerable thought and activity accompany this very important phase of forestry.

For ease of description, the primary forest cutting systems used by the State Forester are listed as: 1) Selection systems, 2) Shelterwood systems, 3) Seed-tree systems and 4) Clear cutting systems. Each of these systems have modifications. Each is used alone or in combination on state forest lands where it is most suited.

Basic Selection Systems: In principle the selection system is simply selecting overmature and undesirable trees for harvest, leaving younger, healthier trees to put on additional growth for future harvest. It requires an all-aged stand with proper proportions of young and old trees. As the trees mature, they are harvested. If the area has not adequately reseeded itself, scarification, interplanting or seeding is carried out in order to insure future forests.

Basic Shelterwood Systems. The essence of the shelterwood systems is the gradual removal of the timber crop in a series of steps.

Initial cuts remove enough trees to permit adequate sunlight to reach the forest floor to insure regeneration but retain enough crown cover to protect the young seedling trees as they develop.

These cuts are followed by removal cuttings in which the older trees are removed as fast as necessary for the best development of the new stand.

Basic Seed-tree Systems: The seed tree system brings about reproduction by leaving enough healthy, windfirm, mature trees to reseed the area within a reasonable length of time.

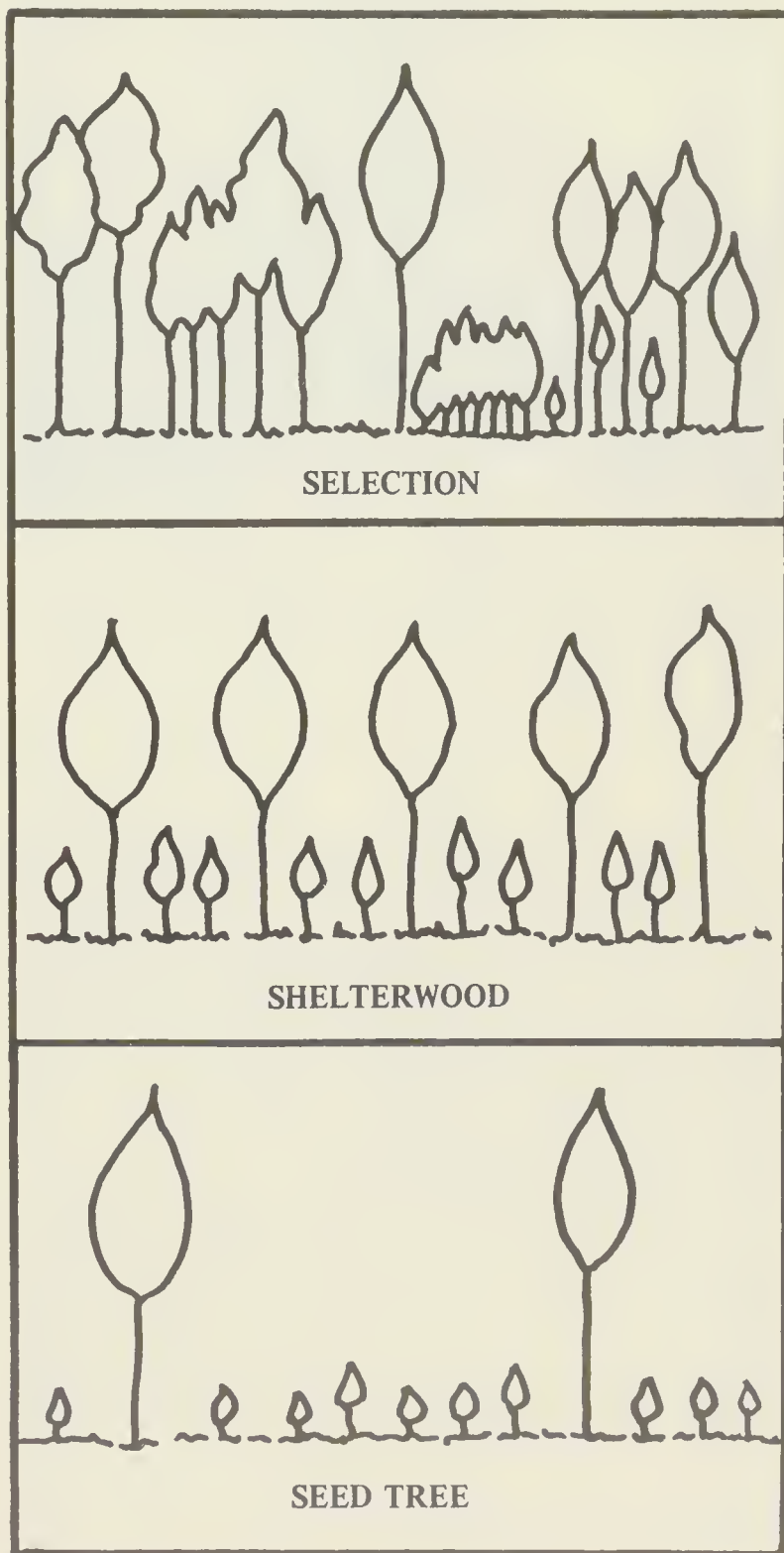
Ordinarily not over 10 percent of the stand by volume is left for seeding purposes, usually amounting to four to eight trees per acre.

Basic Clear-cutting Systems: Most of the coniferous forests of Montana were established as a result of forest fires which burned the organic material from the surface leaving mineral soil exposed. Coniferous trees require this kind of seed bed in order to germinate and grow. The result has generally been an even-aged stand of timber. Clearcutting permits the forester to more nearly simulate nature, by exposing mineral soil to encourage the natural re-establishment of conifer trees.

This system includes several variations—block, strip, progressive strip, and alternate strip. Clear-cutting requires a forest consisting of virtually nothing other than merchantable trees and non-merchantable material which the foresters wish to dispose of. It is the most satisfactory system to use in over-mature decadent and diseased stands common to many areas in Montana. The merchantable material is burned to expose a mineral seed bed.

Considerable care must be taken to prevent or arrest soil erosion. After several years, usually three to five, if natural reseedling of desirable species is not taking place, direct seeding or planting is undertaken.

Clear cutting as a method of harvesting mature timber has been the subject of considerable criticism. The principle objections to clear cutting are aesthetical. Portions of a forest removed in this manner are generally unsightly and give the appearance of wanton destruction. A few years later when a vigorous healthy stand of young trees cover the cutting area and it becomes visually evident that the forester's primary consideration has been for the future generations, rather than the present, objections generally change to admiration.



CHRISTMAS TREES



A custom of many years is the presentation of the "Capitol Christmas Tree" to the employees in the State Capitol from the employees of the State Forestry Department.

The number of Christmas trees sold annually from State forest lands continues to decline.

The spruce budworm infestation has spread into the Swan Valley and north along both sides of the Mission Range from central and southwestern parts of the State.

The Christmas tree needle blight and the needle midge have infested many areas of Christmas trees in the northwestern portion of Montana.

A ten year Christmas tree sale is planned in an area overstocked with Christmas-tree-size Douglas fir. The ten year sale will allow the operator to thin and prune Christmas trees to provide for a greater harvest of higher quality trees. It is anticipated income will be greatly increased from the area and, in part, a valuable thinning job will be accomplished.

Several more ten-year Christmas tree sales are planned for the next biennium.

CHRISTMAS TREES CUT BY COUNTIES

F.Y. 1967

County	No. of Permits	No. of Bales *	Unit Average	** Price	Stumpage
Granite	2	186		\$.54**	\$ 54.66
Mineral	1	115	2/24	.54	62.15
Missoula	1	128	12/24	.88	112.29
Sanders	8	4,204	7/24	.62	2,603.44
Lake	7	1,542	22/24	.64	988.25
Flathead	40	7,315	23/24	.70	5,085.28
Lincoln	21	6,999	18/24	.76**	5,220.36
Totals	80	20,492	12/24		\$14,126.43

Bough Permits

Lake County	.85 tons	\$10.00
Flathead County	5.97 tons	41.92
Totals		\$51.92

* Christmas Trees are sold in bales containing 24 feet of trees, i.e., 8 3-foot trees = 1 bale; 4 6-foot trees = 1 bale
 ** Includes Land Office Permit

CHRISTMAS TREES CUT BY COUNTIES

F.Y. 1968

County	No. of Permits	No. of Bales*	Unit Average	** Price	Stumpage
Flathead	16	5,982	9/24	\$.73	\$ 4,354.02
Lake	4	441		.76	420.00
Lewis & Clark	1	21	18/24	.61	13.05
Lincoln	12	5,994	13/24	.79	4,763.72
Ravalli	6	772	12/24	.43**	335.44
Sanders	4	1,221	3/24	1.18	1,440.00
Totals	43	14,543	7/24		\$11,326.23

Bough Permits

Flathead County	3 tons	\$21.00
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* Christmas Trees are sold in bales containing 24 feet of trees, i.e., 8 3-foot trees = 1 bale; 4 6-foot trees = 1 bale
 ** Includes Land Office Permit

Land Use Authorizations

The objectives of the Land Use Authorizations are:

1. To license State Forest land for grazing, homesites, cabin sites, recreation and other purposes in areas suitable for such license and where there is little or no conflict with the growing and sale of forest products.
2. To develop recreation areas along rivers, lakes and streams which will provide for joint public and private use and which will produce sufficient revenue to justify removing the areas from timber production.

The following table indicates the numbers and kinds of special use authorizations in effect on State forest lands as of June 30, 1968.

The demand for home and recreation sites has been increasing at a rapid rate. Values of private recreation homesites on lakes and rivers as well as adjacent areas also show a proportionate increase. It is apparent that additional areas should be planned for development and additional areas classified for future recreation use and coordinated with other uses in the area.

STATE FOREST LAND USE AUTHORIZATIONS IN EFFECT JUNE 30, 1968

No. of Land Use Authorizations	Use	Rental
353	Cabinsites	\$ 12,820.00
228	Residences	8,585.00
343	Grazing	13,974.16
13	Hay	335.12
6	Agriculture	116.00
2	Ski Runs	50.00
5	Tourist Camps and Stores	295.00
4	Sawmill Sites and Trailers	275.00
5	Public Campgrounds	100.00
1	Restaurants, Service Stations	110.00
17	Beacon Light, Television Distributing Cable and Relay Station, and Radio Repeater Stations	171.00
3	Rifle Ranges	140.00
2	Recreation Summer Camps, Church Development Area	150.00
5	Use of Water, Irrigation Reservoir, Etc.	71.50
6	County Equipment Maintenance Building, Oil Mix Stockpile Site, Powder Cache, Boat Landing, Construction and Maintenance Parking Lot, Hunting Lodge Dump Site, Leaching Pond	80.00
28	Cooperative Grazing	690.36
2	School Houses	No Charge
1,023	Total	\$ 37,963.14

Note: Because Authorizations are renewed at different times, totals may not coincide exactly with other records.

**PERMANENT RIGHTS OF WAY APPROVED BY THE STATE BOARD OF LAND COMMISSIONERS
AS RECOMMENDED BY THE STATE FORESTER
JULY 1, 1966 – JUNE 30, 1968**

Purpose	Number Granted	Acreage	Land Value	Ingrowth Timber	Timber Value
Roads and Highways	38	166.292	\$ 1,677.97	\$ 3,356.67	\$11,816.61
Power and Telephone Lines	14	97.964	508.04	1,924.65	24,050.43
Pipe Lines	3	3.455	21.40	25.00	12.79
State Parks	2	32.500	325.00	—	—
Fishing Access Sites	3	37.000	370.00	—	—
Reservoir	1	4.300	43.00	—	—
* Libby Dam including reservoir, highway and Great Northern Railway relocation, acquisition areas for borrow pits, channel improvements, waste areas and staging areas acquisition of recreation and vista sites	29	468.690	9,973.90	17,777.78	45,380.25
TOTALS	90	810.201	\$12,919.31	\$23,084.10	\$81,260.08

*The equivalent of one man-year on work related to the Libby Dam project was spent during the biennium by State Forest personnel. This work included investigations of applications for rights-of-way, cruising timber, preparing timber sales and permits, and scaling.

Applications for easements on 26 tracts, totalling 468.69 acres, were inspected and recommended for approval to the State Board of Land Commissioners. These included areas acquired for borrow and fill, channel realignment, roads, staging areas, and administrative sites. Logging on the acquisition areas scheduled for logging was completed. Logging on additional areas on the Great Northern Railway right-of-way relocation, and lands to be inundated by the reservoir, for which title in fee will be acquired by the Corps of Engineers, has also been completed.

Total volumes logged by individuals or sold directly to the Corps of Engineers amounted to 2,791,780 board feet for the biennium.

SCALING



In weight scaling the trucks are weighed on platforms long enough to accommodate tractor and trailer. The driver activates the automatic scales which, first, determine and record the loaded weight of the trucks, and, later, after unloading, the empty weight. The difference in the two weights is the weight of the logs which permits the statistical determination of the number of board feet in the load.

Scaling is the measurement of the contents of logs for the purpose of ascertaining their volume, usually in board feet. This customarily has been done by means of a "scaling stick," which is lath-like or rectangular in shape and from 3 to 4 feet long. On one edge the inches are marked and on the other edge and on the sides the volume values are placed according to specific log rules. The volume is read direct from the stick. During scaling operations the scaler makes deductions for rot or defect.

Under an earlier law, Montana state timber was sold by volume determined by the Scribner Decimal C log rule. In 1963 this statute was modified by the Legislature to permit the use of converting factors which shall be as nearly as practical equivalent to the Scribner Decimal C log scale. This permits the State Forester to sell timber by sample scaling—by log count, or weight, or both.

The State Forester has moved rather slowly during the past four years into sample scaling. Careful studies have shown that by use of sample weight, and sample log or load count, scaling can be done more rapidly and more economically than one-hundred percent stick scaling, and that it can be done without losing the accuracy necessary to protect the State's interest.

During the biennium, approximately 60% of the timber sold by the State Forester was sold on the basis of sample scaling.

TIMBER STAND IMPROVEMENT



Timber Stand Improvement consists of one to several practices designed to improve the stand—usually for timber production purposes. This picture shows a man thinning—cutting the undesirable trees—to permit more moisture, minerals, sunlight, and growing room for the “crop” trees he will leave standing.

Timber stand improvement is work done to improve a present stand of timber on an area, or to improve a future stand. Its accomplishment may result from any one of several operations such as scarification for seedbed improvement, planting in areas where natural regeneration has failed to establish a stand of trees, thinning in over-crowded, densely populated stand, or pruning to improve log quality. These operations, under present economic conditions, can only be afforded on the better growing sites.

Timber stand improvement projects are financed by a fee of \$1.25 collected on each thousand board feet of timber cut from the State forest lands.

Some financial assistance in the amount of \$29,000 during the biennium has been available from the federal government through Title IV of the Soil Bank Act.

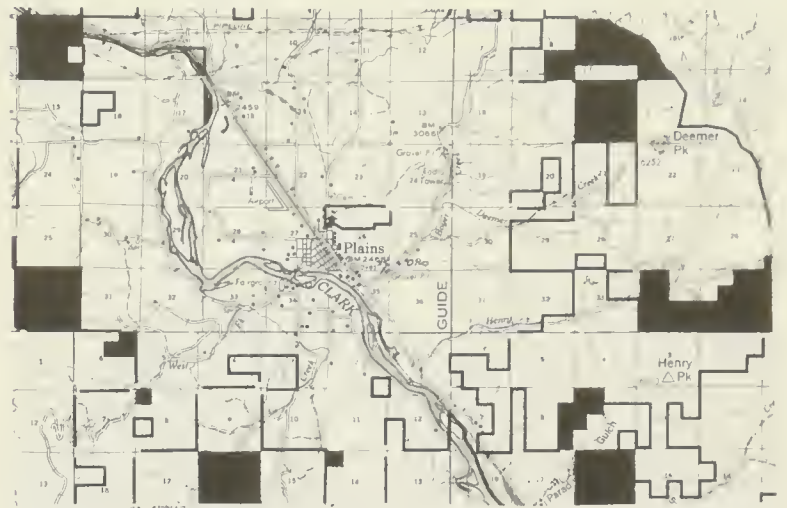
During the biennium, state-employed crews thinned 280 acres of young timber stands. On 132 acres, 80% of the cost of doing this work was borne by the federal government through the Agricultural Conservation Program. More than 100 acres were thinned by State Crews, the cost of which was not shared with the federal government. In addition crews planted 83,000 seedling trees on 266 acres, prepared seedbed on 2,504 acres for natural regeneration, and removed diseased and cull trees from approximately 300 acres.

Cost of thinning averaged approximately \$35.00 per acre. Efforts are being made to reduce this per acre cost. Dozer thinning in strips in dense stands under 4 inches in diameter is planned during the next biennium. The use of an improved chemical compared to axe or chain saw thinning has been studied. It appears that using chemicals for thinning, as well as cull and diseased tree removal, in larch and fir stands would be more economical.

Conifer tree seedlings are currently produced for forest plantings by the State Forest Tree Nursery in Missoula.

CONSOLIDATION OF STATE FOREST LANDS

In 1925 the Legislature designated seven state forests, which presently include about 202,949 acres of classified state forest land. These lands are what might be called “semi-consolidated” as the state forests contain scattered private and federal lands. It appears to have been the intent of the Legislature, when the State Forests were designated, that trades would be made to consolidate the bulk of the state forest land ownership into these areas.



Portions of the above map in solid color represent state forest lands. “Scattered” ownership, such as this map portrays, tends to make proper management both more difficult and more expensive.

During the 1920's the State was able to consolidate a few blocks. Later some consolidation was effected through exchange of land with the national forests.

Approximately 288,000 acres of Montana's state-owned forest lands are scattered throughout the State in tracts of 640 acres or less. The scattered nature of these lands poses many problems of management which include access, expense of sale preparation and administration, and the loss of revenue through trespass cutting. These problems would be greatly diminished by consolidation.

Exchanges of forest land for consolidation purposes are presently being made by the federal government and forest industry. If the State delays action on an exchange program, the desirable areas will be permanently occupied and the opportunity to consolidate into practical management units will be lost.

During the coming biennium the State Forester plans to initiate an action program leading to consolidation wherever feasible. The guidelines, established by the 1955 Forestry Advisory Committee*, would be followed.

*See note at bottom of next page.

HAZARD REDUCTION



Slash has caused fire problems in the West since man began his harvest of the forest. This pictures a lodgepole pine area after logging which has been prepared for broadcast burning to dispose of the fire hazard under controlled conditions and to create a favorable seed bed for either natural or artificial regeneration of another coniferous forest.

Hazard Reduction On Private Forest Land:

Debris from logging or other tree cutting operations that is left in the woods constitutes an extreme fire hazard. This "slash" constitutes the major influence for fire spread in almost all of the large forest fires which have been plaguing the Northern Rocky Mountain area since white men came. In an effort to reduce the hazard and size of forest fires resulting from slash, the Montana Legislature enacted the first slash laws in 1927 and made the State Forester responsible for their administration.

Periodic changes in the slash laws have attempted to take care of changing conditions and rising costs. In brief, the State Slash Law requires that anyone who cuts timber for any purpose on private lands within the State and thereby creates a fire hazard, must notify the State Forester in advance of cutting and enter into an agreement setting forth how the slash will be disposed. The operators have the option of either disposing of the fire hazard themselves or electing to have State Forestry crews dispose, protect or treat the slash.

The hazard reduction program is one of the most difficult programs to administer. It is difficult to predict the amount of timber that will be cut from private lands. Generally, the large companies prefer to do the job themselves, while the small operators turn the job over to the State. The State Forester has entered into a Master Hazard Reduction Agreement with several of the

*The Forestry Advisory Committee, established by the 33rd Legislative Session, reported to the 34th Legislative Assembly on recommendations for a Program for the Administration of the State-owned Forest Resource. This published report recommended that "the State take immediate steps to consolidate its timber holding within the boundaries of presently established State forests and that new forests be designated in the eastern part of the State where other consolidation may be made."

large operators. These agreements provide for the operator to do his own hazard reduction work to the satisfaction of the State Forester. The operator agrees to pay the costs of the inspections. Under this procedure the operator does not deposit funds with the State, but rather supplies a bond which can be collected by the State in the event the operator does not comply with the law.

The Problem:

Most of the disposal work done by state crews on private land is on small widely scattered tracts. In order to do this work, state crews usually must travel long distances and move rapidly from one small ownership to another. This type of operation considerably raises the cost of administration and operation of the portion of the reduction program carried out by state crews. The administration and enforcement of the slash laws is financed through inspection fees and by a percentage of the deposit made by the operator. Operating costs of the program include equipment, insurance, travel and repairs, and all other pertinent costs. The costs of the administration of the program and the cost of all equipment, tools, supplies, repairs and travel have been increasing each year to the point where the State Forester can no longer do an adequate job of hazard reduction with the present fee limited by law to \$1.00 per thousand board feet of timber cut.

Recommendation.

The Hazard Reduction Law should be amended to authorize the State Board of Forestry to establish the fee schedule to be charged the operators for hazard reduction work on privately owned forest lands.

Hazard Reduction On State Forest Lands.

The Hazard Reduction Program whether on state or privately owned lands is tied into the policies and programs of the National Forests, Bureau of Land Management and other timber selling agencies to make a consolidated state-wide hazard reduction program to help prevent catastrophic forest fires.

For several years the State Forester has recognized that the slash fee of \$1.50 charged to cutters of State timber was inadequate to do a satisfactory hazard reduction job on all areas, especially areas with steep slopes and low volumes of timber per acre.

Since 1966, with approval of the State Land Board, brush disposal fees on state timber sales have been up to \$2.25 per thousand board feet on logging areas where it was needed. As a consequence, hazard reduction on State lands has kept pace with cutting operations, and has been adequate from a fire protection standpoint.

Forest Fire Protection

The Office of State Forester has been, since its inception in 1909, a coordinating agency in the overall forest fire protection program. It is the responsibility of the State Board of Forestry, through the State Forester, to make the arrangements necessary to provide fire protection to the classified forest lands. Until recently, the classified forest lands were found only in the area generally west of the Continental Divide. For many years, fire protection has been furnished these lands under a program coordinated by the State Forester. Agencies, recognized by the Forestry Board to furnish this protection, are the Northern Montana Forestry Association, Blackfoot Forest Protective Association, the Flathead Indian Agency, the U.S. Forest Service, the Office of State Forester, and until 1966, the Anaconda Fire Protection Service.

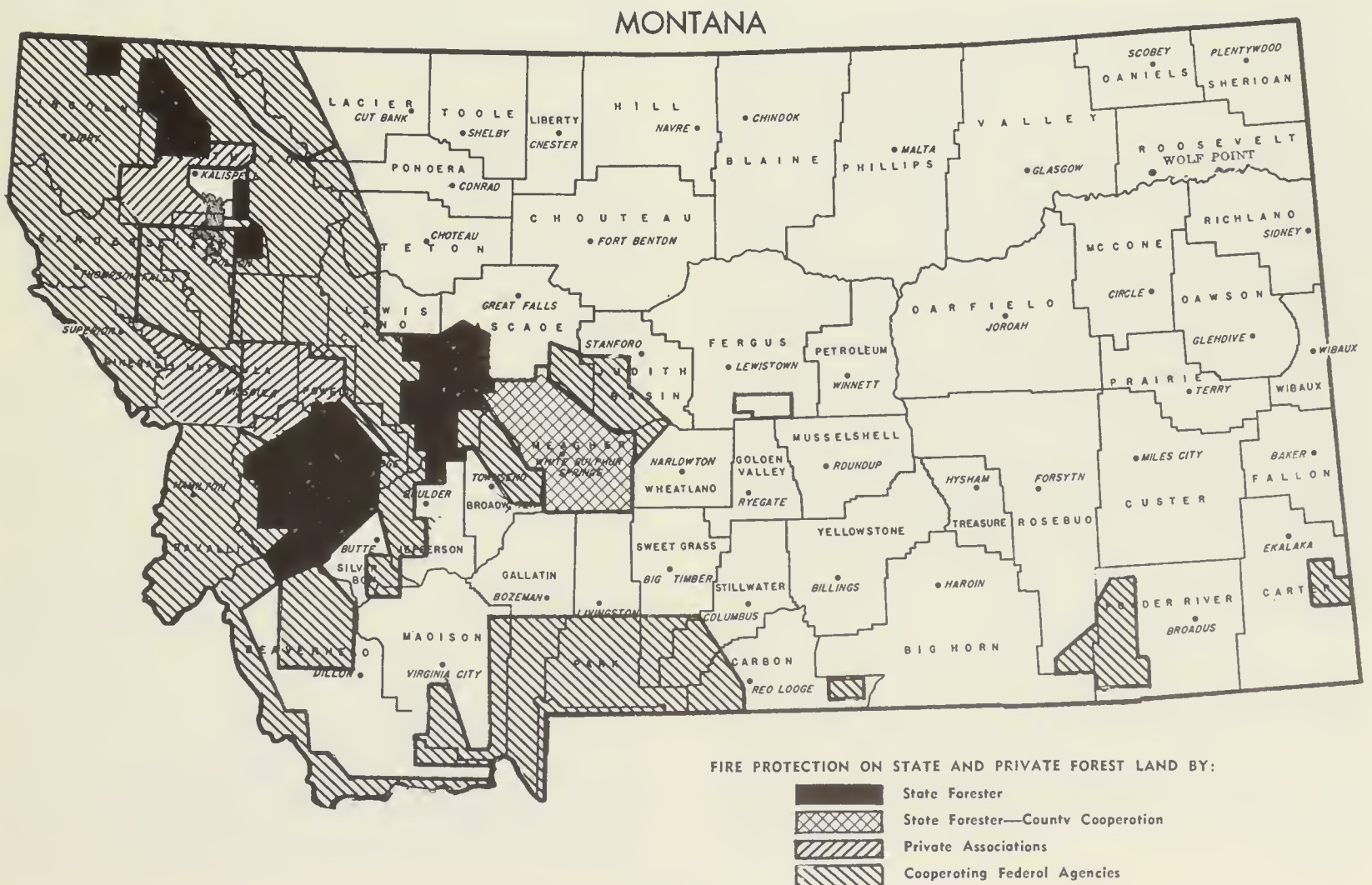
Perhaps the most explicit and clear statements describing the fire protection responsibilities of the State Forester are found in the statutes which state that the Board of Forestry is authorized and empowered to provide through the State Forester, forest fire protection of any forest lands by the State Forester's organization or by contract or any other feasible means in cooperation with any federal, state or other recognized agency or agencies.

FOREST FIRE PROTECTION

The objectives of the Fire Control Program are:

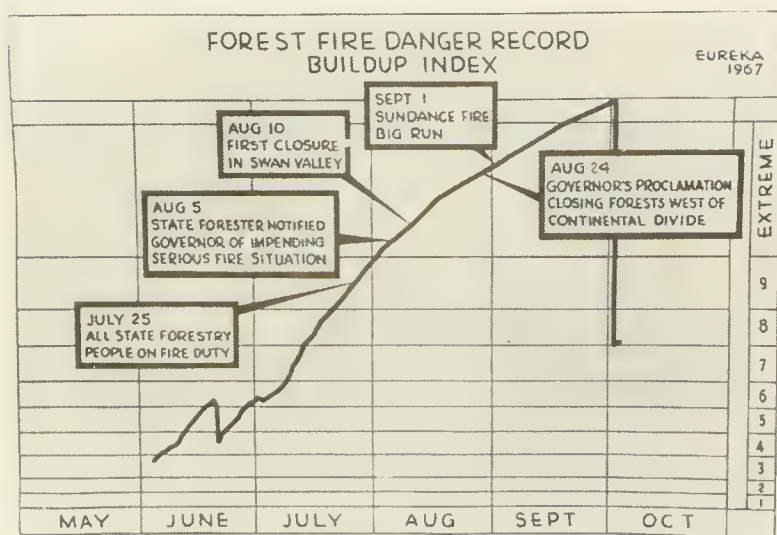
- 1) To provide, as rapidly as possible, adequate organized forest fire control to all State and privately owned forest and related watershed lands within the State.
- 2) Through the use of effective fire prevention programs prevent as many fires as possible by reducing risks and hazards.

The summers of both 1966 and 1967 were characterized by hot, drying winds, abnormally high temperatures and below average moisture levels. These



factors resulted in tinder dry forests in explosive condition. Fires started easily from all causes, burned intensely, and spread rapidly. The system of organized forest fire protection for state and private forest lands in Montana was put to a severe test during each of the past two years. A larger number of fires burned on state and private forest lands under protection than during any other two year period within the last decade.

Regardless of the large number of fires, the total acreage burned is considerably below average. During 1966 and 1967, on protected state and private lands, 887 fires burned 5,443 acres of forested land.



The fire season of 1966 and 1967 pointed up the immensity of the job required to equip and supply a forest fire control organization. The figures used to picture the 1967 fire season in the northwestern United States are staggering. Over 300 helicopters and fixed wing aircraft were in use; more than 30,000 passengers were ferried by aircraft; 2½ million gallons of chemical fire retardant and over 5 million pounds of supplies and equipment were supplied fire fighting agencies. Smokejumpers, employed by the Forest Service and used by all the various fire control agencies, made nearly 1700 jumps in 1967 which is the greatest number of jumps in any year since the smokejumper program was organized in 1940. More than 600 supervisory personnel, 700 military personnel, 5,000 men in organized 25-man crews from the northwest, 5,000 men in the crews from other states and 4,000 men recruited locally, were used to combat the many fires that occurred. Some days saw more than 20,000 meals served in the field.

THE 1967 FIRE SEASON IN MONTANA

For the first time in history, a major portion of the forested areas in Montana, due to the prevailing high forest fire danger, were closed to public entry. All forests between the Continental Divide in Montana, through Idaho, Washington and Oregon, to the Pacific Ocean, also were closed. This event should be factually recorded.

June was wet, but six weeks of dry summer weather turned conditions into a severe forest fire season by August 5. On that date the fire danger meters were indicating extreme fire danger throughout western Montana. Previous to this, on July 25, the State Forester had placed all State Forestry personnel on fire duty.

The State Forester, on August 5, formally advised the Governor of the impending dangerous fire situation. Idaho, less than 100 miles to the west was already in serious trouble. The Governor instructed the State Forester to alert all state agencies in a position to assist to be ready and available in the event help was needed. Those contacted included the State Highway Department, Fish and Game Commission, Highway Patrol, and the National Guard.

On August 10, due to a serious possibility of fires starting in logging slash, the U.S. Forest Service requested the State Forester to close the Cold Creek and Jim Creek drainages near Condon in Swan Valley.

On August 11, the U.S. Weather Bureau's forest fire forecasters posted a "red flag alert," to all fire protection agencies in western Montana. Five hundred new forest fires occurred in this area during the next eleven days. Between August 11 and September 11 an average of 25 new fires started each day.

By August 23, ten large fires had been controlled by the U.S. Forest Service, but the fires still required the attention of fire fighters and fire fighting equipment. Twenty-one large fires were still burning out of control. Fire agencies were aware that no more fire fighting resources were available in the western Montana northern Idaho area. The U.S. Forest Service and the National Park Service were importing crews from as far away as Alaska and New Mexico. Fire tool warehouses were empty. Every available operable bulldozer, airplane and helicopter was committed to going fires. Fire overhead—experienced fire bosses—were all on the fire lines, as were all local organized crews. This was August 23.

On this day, the man-caused Miller Creek fire, five miles west of Olney, and on the west boundary of the Stillwater State Forest, blew up and travelled east one and one-half miles in 31 minutes. Spot fires occurred two to three miles ahead of the main fire.

Flathead County Commissioners, Civil Defense authorities, and the Sheriff's Office in Kalispell were prepared to care for 600 people should the Miller Creek fire actually move in on Olney. The National Guard brought trucks to stand by to evacuate the people from the valley. State Highway patrolmen kept traffic moving along the main highways and were prepared to close it if necessary. Kalispell District Fish and Game personnel assisted in patrolling to prevent man-caused fires.

State and Federal crews, fortunately held the fire.

On this day the State Forester recommended that the Governor declare a State of Emergency. After conferring with the Adjutant General, and others, the Governor issued the proclamation on August 24.

On August 29, in unprecedented action, the forests of the entire western portion of Montana were closed to public entry. The general closure remained in effect until the rains came on October 4.

In comparing two severe forest fire seasons, we learn that during 1960 in Montana we had 471 fires which burned more than 13,000 acres, while in 1967, 521 fires burned less than 4,000 acres on State and privately owned forest lands.

In view of the hazardous situation this is a remarkable record.

The State Forester attributes this to:

- 1) **Closure:** It effectively stopped man-caused fires and made the public extremely fire conscious.
- 2) **Fire Weather Service:** This assistance from the U.S. Weather Bureau provided timely and critically needed accurate weather forecasts and other information.
- 3) **Cooperative Relationships.** Federal, State and Private fire fighting organizations assisted by other federal, state and private agencies worked closely together as a team.
- 4) **Organized Fire Protection:** When the severe tests come, it takes organizations well trained, properly equipped, and adequately financed to do the job.

PROBLEMS

The Board of Forestry's fire protection organization assisted by other federal, state and private agencies, did a remarkably capable job during the extreme test of 1967. It proved conclusively that the organization was capable of handling a severe situation in a commendable manner. However, the severe fire season also forcefully brought out the glaring weaknesses and inadequacies of the fire protection picture in Montana. As a consequence, the State Forester has initiated a program to eliminate or reduce the impact of these weaknesses. Some of these inadequacies can be handled with existing facilities while several will require legislative assistance. Most of the problems are complex, requiring considerable thought, judgment and cooperation.

Unprotected Areas

At the present time there are approximately 6½ million acres of forest land and 48½ million acres of rural, non-forested watershed lands in Montana without adequate organized forest and rural land fire protection.

Signs of the Times in Western Montana



Newspaper headlines pretty well told the Forest Fire story during the latter part of August, 1967.

Landowners in Montana who own forested land within organized forest fire protection districts receive protection through the State Board of Forestry.

Landowners owning classified forest land not within Forest Fire Protection District boundaries may receive protection in several ways. The landowners may vote under present statutes and create a fire district, or they may sign affidavits, individually requesting protection from the State Board of Forestry. To date, 540,834 acres owned by 1,197 landowners have been provided protection through affidavit procedure. This is double the acreage protected under this system in 1965. The 1967 Legislature amended the law providing for the formation of forest fire protection districts by reducing the necessary affirmative vote from 75% to 51%. This amendment will provide fire protection to more forest land in the future.

A new team approach is being made in eastern Montana towards providing forest and rural land fire protection. As a pilot project, a cooperative program was developed in Meagher County by the County Commissioners and the State Forester. This program has proven capable of suppressing fires on both State and Private lands at a reasonable cost to the landowner.

This same team approach, coupled with the State Civil Defense system and supported by strategically located and highly mobile fire caches can provide forest and rural land protection necessary at a reasonable cost commensurate with the values protected.



Military excess heavy-duty equipment is quite readily adapted to fire fighting purposes. However, many items, such as the six-wheel drive pumper pictured above, are so old that maintenance and repair parts are difficult to find.

Forestry Board Forest Fire Regulations

During the critical 1967 fire season it became obvious to firewardens throughout the State that the Forestry Board Fire Regulations needed updating and revising. The State Forester solicited suggested changes from the firewardens. The Governor appointed a sub-committee of the Board of Forestry to review these recommended changes and present its recommendations to the Board of Forestry. At the regular annual session in 1968 the Board approved the revised fire regulations.

Cooperative Agreements

The severe fire season precipitated a re-evaluation of the Cooperative Agreements among suppression agencies. A master fire protection agreement between the United States Forest Service and the State of Montana represented by the State Board of Land Commissioners and the State Board of Forestry has been prepared and is currently undergoing legal scrutiny. The agreements with the fire protection agencies and the Board of Forestry are presently being rewritten. Memoianda of understanding between the State Forester and other state agencies such as the State Highway Department, Fish and Game Commission and National Guard are being prepared for their consideration. Working agreements with the Bureau of Land Management and the Bureau of Indian Affairs are being considered. The goal for all agreements is the 1969 fire season.

Organized Fire Fighting Crews

The increasing use of organized 25-man fire fighting crews indicated another problem area to Montana fire fighters. The federal fire fighting agencies often move fire crews long distances quickly, out of the range of use by local Montana fire fighting organizations. To offset this problem the Office of State Forester is presently working with the Montana State Prison to develop a 25-man fire team. This team will add an organized team punch to the local manpower supply in the Anaconda area. Selected members of the Youth Forest Camp will serve a similar function on the Swan River State Forest.

Fire Fighting Equipment

The direct fire fighting responsibilities of the Office of State Forester has increased by 1,119,170 acres during this biennium. Of this 638,681 acres consists of Class I and Class II forest land and an additional 480,489 acres of Class III land.

The Anaconda Fire Protection Service notified the State Board of Forestry in August 1966, that they wished to terminate as a protection agency. As of July 1, 1967, the protection responsibilities of the Anaconda Fire Protection District were assigned to the Office of State Forester. This change made possible the protection to a wider area near Anaconda and has brought an additional 100,000 acres of forested land under organized protection. The private forest land within this area was added by individuals through the affidavit procedure.



"Bull dozers" are expensive, but indispensable, fire fighting machines. Arrangements are made prior to each fire season with owners and operators of these tractors for their use whenever and wherever forest fires might justify their presence.



To handle wild fires efficiently takes organization and training, as well as proper equipment. This is a four-man pumper crew at the State Forester's Anaconda Fire Protection Unit headquarters.

This increased load was accomplished with relatively little additional fire equipment, consequently when the 1967 fire season arrived, the equipment of the State Forestry Department was spread out dangerously thin, in certain areas, for such a severe challenge.

During the 1967 fire season all the equipment was repeatedly committed to going fires and received brutal punishment. Much of the equipment used up its normal life expectancy during this fire season alone.

Despite all out efforts to repair, salvage and re-tool, the fact remains that the bulk of the fire equipment is now in poor shape and in many cases needs complete replacement.

Excess military equipment, formerly available in good condition, is becoming shorter in supply. The older excess equipment, particularly water supply tankers are becoming undependable and too costly to maintain and operate.

Closure

The closing of the forests of western Montana due to high forest fire hazard during the 1967 fire season was action unprecedented in Montana history. It was taken under Board of Forestry regulations and a Proclamation issued by the Governor, and was accomplished only after thorough consultation with fire wardens, forest industry leaders, legislators, county commissioners, the regional forester for the U.S. Forest Service, Forestry Board members and many others. Because the impact would be great on vacationists, and on the forest industry especially, the action was delayed as long as possible.

The fact was, however, that none of the fire agencies could handle any new fires—all available manpower, supervisory overhead, and fire fighting equipment throughout the entire western United States was already committed to going fires.

Strong public pressure from timberland owners, farmers, and ranchers demanded that the forest areas be closed because of the extreme danger.

On the other hand, closing the forests would shut down an industry, which, in the Pacific Northwest of which Montana is a part, has a payroll of one million dollars per day. It would stunt the tourist season at its zenith, ruin summer vacations for thousands of people planning trips to forested areas, and cut off the income of those providing services to the recreation business.

After many meetings and discussions with scores of responsible persons, the decision was made to close the forests.



Four-wheel drive, heavy-duty pickup trucks, with 200-gallon water tanks, pumps, hose and nozzles, make excellent vehicles with which to get to and suppress wild fires quickly. The number painted on top of the cab identifies it to anyone who may be scouting the fire by airplane. This vehicle is located on the State Forester's Helena unit.



These signs, especially the one at right, are rarely used in Montana. Both were quite prominently displayed over wide areas of forest land for several weeks during the 1967 forest fire season.

The closure was the major contribution in saving the forests, and supported Montana's fire fighting agencies in their most trying experience.

However, in looking back, it is realized that the closures could have been accomplished more smoothly and with less inconvenience to those affected. Following the fire season the State Forester initiated a review of the procedures used in closing the forests. With the U.S. Forest Service, Fish and Game Department representatives, County Commissioners, Fire-wardens, operators of forest industries, and sportsmen, the State Forester set up definite steps to accomplish forest closures should they ever again become necessary. The fire fighting agencies need and want public support to make closures effective and desire to keep public inconvenience to a minimum.

During 1967 closures the U.S. Forest Service and the Office of State Forester, and other fire fighting agencies, were made aware of the tremendous demand by the public for information. It was necessary that round-the-clock answering service be provided, and that the news media be kept constantly informed of events as they developed.

The State Forester, with the assistance of the other fire agencies, following the 1967 fire season, developed a written outline of procedures to be used for disseminating necessary information should the need arise again.

Fire Suppression Costs

The recent sky rocketing costs of fire suppression are of utmost concern to the State Forester. In recent years the increased costs of labor, supplies and materials, and rental of heavy equipment would lead one to expect increased costs in fire suppression. The increase in values protected somewhat offsets this factor.

It is argued that the increase in values of the property protected is not commensurate with the costs of protection. This is probably true from a property valuation standpoint but when one considers the value of watersheds, soil, recreational area, and scenic beauty to a State like Montana, the comparison of protection costs to property valuation may be misleading. It is argued that the high cost due to increased use of aircraft and water tankers is disproportionate. Yet, on potentially dangerous or on run-away fires, retardants usually mean the difference between a small controlled fire or a calamity. Despite the fact that an experienced firewarden knows that his use of aerial retardants stopped or slowed down an escaping fire, it is sometimes difficult to prove or convince the unexperienced that this is true. In the opinion of the State Forester, the use of aerial retardants and water tankers has had a significant effect on reducing overall fire suppression costs and particularly reducing losses to the natural resources.

The real key to fire control is the ability to hit fires hard with pre-trained crews and equipment operators, including aerial retardant applicators while the fire is small.

In broad terms the fire suppression monies available to the State Forester are based on appropriations. The State Forester's request for fire suppression funds is based on the actual average costs of the previous 5 year period modified by other known factors, such as increased area to protect. If the actual costs exceed expectations, the State Forester either reduces internal operation costs on all forestry projects to make up the difference or he requests a supplemental appropriation, or, normally, a combination of both. Historically, the legislature, aware of the on-the-ground situation, has approved the supplemental requests and the internal reductions made by the State Forester. Generally, costs of fire suppression assistance provided by other state agencies, such as the National Guard, have been contributed at no charge to the State Forester's budget.

To date, the obligation of the State to pay its fire suppression costs has been fully met through legislative support and assistance from other federal, state, county and private agencies.

The situation is now changing. The tremendous increase in fire suppression costs is a factor. The legislature is faced with increased demands on the

monies available for appropriations. The agencies of federal, state, county and private sectors are now requesting payment for services they formerly provided at no cost to the State Forestry Department. The hazards are becoming more serious due to the increasing numbers of cabin and home sites in the forests, amount of untreated slash brought about by rising hazard reduction costs against a limited hazard reduction fund, and numbers of recreationists and people using the forested areas, coupled with better accessibility into the forest.

Montana is not alone in this situation. The neighboring state of Idaho, faced with fire suppression costs far exceeding the fire suppression appropriation, was forced to call a special session of the legislature in 1968. During the 1967 fire season, because Idaho state forces were fully committed on existing fires, several fires were turned over to branches of the federal government. Normally this is handled on a re-payment basis. The extremely high costs that resulted from

federal action staggered the Idaho legislature. Final action on repayment is pending.

From this experience has come a number of studies and requests for the federal government to assist states in similar situations.

The question facing the Montana State Forester is how to prevent a situation, such as the one which faced Idaho, from occurring. The immediate concern of the State Forester is the absence of an acceptable, clearly defined route or stated policy of the state in a situation where all available fire suppression funds have been expended but the requirement for major control action continues to exist. Obviously, in the face of going fires, the State Forester cannot cease action to control them. The losses that could result from such a policy can be fantastic.

Executive and legislative assistance is needed by the State Forester and the Board of Forestry in solving this dilemma.

AREA PROTECTED, NUMBER OF FIRES, AND AREA BURNED, BY RECOGNIZED AGENCIES PARTICIPATING IN MONTANA'S CM2 FIRE CONTROL PROGRAM

Ten Year Period 1958 – 1967

Year	Acres Protected	Number of Fires	Ranking in Last Decade	Acres Burned	Ranking in Last Decade
1958	6,915,000	253	8	1,358	8
1959	6,915,000	261	7	11,167	2
1960	6,915,000	471	2	13,562	1
1961	6,915,000	397	5	10,976	3
1962	6,915,000	346	6	2,222	6
1963	6,915,000	408	3	1,737	7
1964	6,915,000	104	9	4,104	5
1965	4,774,000*	76	10	680	10
1966	4,806,364*	404	4	4,332	4
1967	6,247,767	483	1	1,111	9

Average 1958–1967: 320 fires 5,125 acres

*The lower figures for 1965 and 1966 are due to withdrawal of protection by the U.S. Forest Service on lands outside the National Forest boundaries.



The Montana Highway Department is one of KEEP MONTANA GREEN's best cooperators. Not only is the KEEP MONTANA GREEN message carried on many of the State's highways, and on the bumpers of thousands of automobiles which travel these highways—it is the message carried to the public at all State Highway Rest Stops.

FOREST FIRE PREVENTION

The fire prevention program of the State Forester covers all state and privately owned forest lands.

The objective is to, through effective fire prevention programs, prevent as many fires as possible by treating risk and reducing hazard—consistent with a balanced over-all prevention program.

It is a cooperative program including federal, state, and private agencies and individuals, aimed at preventing careless, man-caused fires on the timber, range, and watershed lands of the state.

The Cooperative Forest Fire Prevention Program



The Cooperative Forest Fire Prevention Program, popularly known as the Smokey Bear Program, is sponsored by the National Association of State Foresters, the U.S. Forest Service, and the National Advertising Council. The purpose of the program is to provide a national plan to promote forest fire prevention. The program is financed cooperatively by federal and State agencies having fire prevention responsibilities, royalties from manufacture and sale of items featuring copyrighted Smokey Bear, and to a large extent by private organizations through contributions of radio and TV time, newspaper and magazine space.

During the biennium State Forestry personnel presented the forest fire prevention message to thousands of Montanans by helping Smokey Bear appear in numerous parades, at a score of fair booths and celebrations, and in the class rooms before hundreds of school-aged youngsters.

The Keep Montana Green Program

The National Keep Green Program is sponsored by American Forest Products Industries. The Keep Montana

Green Program is financed chiefly through private subscription from many facets of the economy, particularly the wood products industries. The State Forester's Office supplies a continuous secretary for the program, and federal agencies cooperate by assisting with equipment and supplies.

As a part of the program to interest young people in the cause of forest fire prevention, the Western Forestry and Conservation Association conducts an annual fire prevention poster contest in all the western states and British Columbia. State winners are selected in several age groups. The winning posters from each state are entered in an international contest at the time of the annual meeting of the Western Forestry and Conservation Association in December. In the 1967 contest Rene Levesque of Russell School in Missoula placed third in the International Contest. Although no exact count can be made from the number of posters reaching the state level contest, it is estimated that more than four thousand Montana youngsters participate. Over the years the impact of the fire prevention message is felt by thousands of young Montanans.

More than 200 forest and range fire prevention reminders—PREVENT FOREST AND RANGE FIRES — KEEP MONTANA GREEN—were stencilled on Montana highways each spring of the biennium through the sponsorship of Keep Montana Green. The State Forester's Office, other fire agencies, forest industries, with members of the Jaycee Clubs providing local assistance cooperatively, are responsible for this program.

Five thousand bumper strips carrying the message, KEEP MONTANA GREEN, were distributed each summer.

It is through the State Forester's Office that all Cooperative Forest Fire Prevention material such as posters, bookmarks, and bumper stickers, used by non-federal agencies is channelled and used state-wide.



The annual KEEP MONTANA GREEN forest and range fire prevention poster contest involves probably 4,000 school-aged youngsters each fall. This poster, drawn by Joseph Thornbrugh, Senior, Victor High School, placed third in the junior division in 1967.

Cooperative Forest Management

The Cooperative Forest Management Program is made up of the Service Forestry program, the Forest Utilization program, and the Forest Tree Nursery program.

The Cooperative Forest Management program is primarily aimed toward providing assistance to the forest landowner and the processor of raw forest material.

The Nursery is maintained to produce seedling trees for farm and ranch windbreak and shelterbelt planting throughout Montana, and to produce planting stock for State and privately owned forest lands.

FARM FORESTRY PROGRAM

Twenty-four percent of Montana's 15,727,000 acres of commercial forest land is in small private ownership. Fourteen thousand farmers, ranchers, and business men own 3,771,000 acres of Montana's commercial forest lands capable of providing one-third of the State's annual timber harvest. These lands generally do not produce as they should. In many cases lands have been abused, overcut, overgrazed, and have suffered from attempts to convert them to uses for which they are not suited.

To assist ranchers and farmers in saving this land and restoring it to its best potential of producing forest products is a major goal of the Cooperative Forest Management Service Forestry Program.

The objectives of the CFM Farm Forestry Program are to:

- 1) Maintain and improve the productivity of privately owned timber lands.
- 2) Integrate the management of these lands with other farm crop lands.
- 3) Increase owner income.
- 4) Maintain a continuous flow of raw forest products to stabilize local industries.

The CFM program furnishes the small private landowner with technical advice pertaining to the management of his land for forestry purposes. Professionally trained service foresters meet with the landowner on his land to provide on-the-ground guidance, and help him draw up simple forest management plans. They teach the owner to properly select and mark trees to be cut, estimate timber volume, determine proper cutting methods, market forest products, establish or re-establish forest stands, thin, and protect his timber from fire, insects, and disease.

COOPERATIVE FOREST MANAGEMENT

The technical assistance provided for under the Cooperative Forest Management Act, through which the State receives financial assistance, is restricted to woodlands or potential woodlands (i.e., plantable areas), including shelterbelts. Areas with horticultural or ornamental tree problems do not qualify under the terms of the CFM Act.

The Cooperative Forest Management Act places no restrictions on size of ownership, but it is understood that the Act is primarily for small forest owners and



Many acres of slow-growing, over-mature, forests cover large areas of Montana's farms and ranches. One of the farm forester's jobs is to assist the owner of such forested areas, to develop plans of management for these areas which will be best for the forest, best for the owner, and best for Montana over the years.

small processors of primary forest products. This policy is followed in the State Forester's CFM Program.

Most of the work carried out under this program involves small forest properties where the owners wish to do their own forestry work. In some instances the kind of work, or more usually the amount of work required, indicated that it was desirable to have the landowner employ a full or part-time forester. In such cases the landowner is advised of this fact and given assistance in locating a qualified private consulting forester.

Presently, Service Foresters are located in Missoula, Kalispell, Plains, Hamilton, and Helena. Since 1955, when the program was begun, requests from farmers and ranchers for assistance averaged 317 per year. Four hundred forty-one requests were received in 1967 and 470 in 1968, indicating that the demand for the program is growing. In addition, Department Service Foresters inspected and approved 312 Agricultural Conservation Practices in 1968 and 256 in 1967.

The lack of complementary services—specifically an Extension Forester in the State's Agricultural Extension Service—hampers the State Forester's program through the lack of an information and education program.

Recommendation:

Encourage the State Extension Service to reactivate the position of Extension Forester to work closely with the Office of State Forester to provide technically sound and practical advice to owners of forest land.

RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

The objectives of the Resource Conservation and Development project are:

- 1) To develop and protect natural and human resources to their full potential,
- 2) To accelerate application of practices to protect the area's soil and water resources
- 3) To establish close working relationships with those now associated in community development, and
- 4) To develop recreation enterprises.

The Farm Forester assigned to Bitterroot Valley Resource Conservation and Development Project, provided technical forestry assistance to woodland owners throughout the Bitterroot River drainage.

Since January 1, 1966, a Service Forester has been assigned to the Project to prepare the forestry portion

of the work plan which contains: 1) The acreages of timber by ownership, size, class, species and stocking; 2) A listing by ownership, size class and species of volumes in thousand board feet for sawtimber, and thousand cubic feet for pole timber, 3) Annual growth and annual harvest over a five year period; 4) A timber-type classification map; 5) Problems and opportunities on woodland within the project area.

Non-reserved commercial forest lands cover 62 percent of the project area. Since effective management of timber lands poses many problems, the Service Forester is directly involved helping the landowners of the valley solve these problems.

Presently the RC&D Service Forester is working on all project proposals which pertain to private woodland, some of which include timber management plans, Christmas tree plantations, the possibility of developing a timber using industry which could use, as part of its raw material, some of the thousands of board feet of cottonwood which are growing within the Bitterroot Valley. The service forester is also handling Agricultural Conservation Program and Cooperative Forest Management requests throughout the project area. At present there are over 20 active ACP forestry practices.

Because of close working relationships within the project area, requests for technical assistance on private woodland are increasing at a rapid rate.

The State Forester, working with the local committee provides direction to the project foresters, but the entire cost of the program is provided by the Federal government.



At a Whitefish woodworking plant, plywood peeler cores, normally waste material, are converted to snowfence laths.

FOREST PRODUCTS UTILIZATION

The utilization of the products of our forests provides a portion of the justification for the expenditures made over the years in the management and protection of them.

The Forest Products Utilization function of the State Forester's Office is designed:

- 1) To encourage full and effective use of the timber resource for the maximum benefit to the State's economy and well-being,
- 2) To raise the economic level of the forest land areas by encouraging employment of more people and locating more markets for the products of the forest.
- 3) To enhance wood's competitive position in all fields where wood performs satisfactorily, but particularly in construction,
- 4) To expedite acceptance of wood for uses for which it is better suited than non-wood materials, and
- 5) Where the need exists, to assist loggers and wood processors to become more stable in order that they may contribute their full potential to the State's economy.

The Utilization Forester keeps himself informed on all phases of the forest industry—markets, sources of raw material, problems and their solutions. Many requests for assistance come from out-of-state for information about sources of raw material.

A monthly Utilization Bulletin is published which is a summary of the latest developments and thinking of Forest Industry. Carried in it also are items operators wish to purchase or wish to sell. This is the only agent of this kind serving Montana forest industry.

Examples of the accomplishments of the Utilization Forester are: Collaborated with the Stanford Research Institute to develop feasibility location study of pulp mill; helped the forest industry put together a \$900 display to inform public of value of timber industry to economy of western Montana; helped a Spokane lumber manufacturer who had raw material in the Idaho Sundance fire which required immediate harvesting, locate an idle portable sawmill in Montana with which to do the job; located sources on State and privately owned land of special house logs for manufacturer; assisted in organizing and presenting a dry kiln short course school attended by 14 Montana and 8 out-of-state lumber firm representatives; got purchaser and seller of sawmill and dry kiln together; advised chain saw distributor on location of distribution center; set up highway wood post guard rail placement demonstration.

These samples indicate the varied kinds of assistance provided forest industry by the State Forester's Product Utilization program. This assistance can be provided better by the Office of State Forester than any other agency in the State.



A requirement of conifer seed beds is an overhead fine-mist-spray sprinkling system (shown above). Hydraulic oscillators (one shown below), supported by a satisfactory water supply and a suitable pumping system, continually move the spray.

THE STATE FOREST TREE NURSERY

The State Forest Tree Nursery was established in 1927 on the campus of the University of Montana in Missoula. In the early fifties, to make room for the Field House and accompanying parking lots, the tree nursery was moved to the west side of Missoula on land acquired by the University. During this time, the nursery operation was a part of the Montana Forest and Conservation Experiment Station, under the jurisdiction of the University of Montana, School of Forestry. Jurisdiction of the nursery passed to the Office of State Forester from the University on July 1, 1963.

The purposes of the State Forest Tree Nursery include:

- 1) Production of seedling trees for farm and ranch windbreak, shelterbelt, and woodlot plantings in Montana.

(Continued on Page 40)

FARM TREE SALES BY COUNTIES 1967

1967 Montana Farm Tree Sales by Counties

County	No. of Trees	County	No. of Trees
Beaverhead	2,375	Madison	2,150
Big Horn	13,375	Meagher	None
Blaine	10,975	Mineral	.100
Broadwater	.450	Missoula	25,225
Carbon	3,825	Musselshell	1,450
Carter	19,825	Park	3,200
Cascade	36,250	Petroleum	4,000
Chouteau	18,650	Phillips	10,025
Custer	3,375	Pondera	10,150
Daniels	9,975	Powder River	5,075
Dawson	10,650	Powell	1,875
Deer Lodge	None	Prairie	5,500
Fallon	4,475	Ravalli	4,350
Fergus	15,400	Richland	9,600
Flathead	8,675	Roosevelt	56,500
Gallatin	21,000	Rosebud	1,950
Garfield	1,725	Sanders	.225
Glacier	31,075	Sheridan	13,650
Golden Valley	.300	Silver Bow	.750
Granite	None	Stillwater	7,100
Hill	60,375	Sweet Grass	2,775
Jefferson	3,750	Teton	27,550
Judith Basin	11,225	Toole	76,200
Lake	1,850	Treasure	None
Lewis & Clark	8,425	Valley	16,550
Liberty	111,875	Wheatland	2,175
Lincoln	2,800	Wibaux	5,800
McCone	11,525	Yellowstone	17,000
		Total	735,125

Top 10 Counties

1. Liberty	111,875
2. Toole	76,200
3. Hill	60,375
4. Roosevelt	56,500
5. Cascade	36,250
6. Glacier	31,075
7. Teton	27,550
8. Missoula	25,225
9. Gallatin	21,000
10. Carter	19,825

Other 1967 Sales

State, Industry and Indian Agencies	216,775
Surpluses sold in and out of State	118,250
Total of all 1967 Sales	1,070,150

FARM TREES BY COUNTIES 1968

1968 Montana Farm Tree Sales by Counties

County	No. of Trees	County	No. of Trees
Beaverhead	1,775	Madison	4,950
Big Horn	5,350	Meagher	2,975
Blaine	3,900	Mineral	.100
Broadwater	3,400	Missoula	9,900
Carbon	9,225	Musselshell	1,925
Carter	16,075	Park	14,500
Cascade	19,000	Petroleum	.50
Chouteau	24,075	Phillips	23,200
Custer	3,575	Pondera	8,700
Daniels	22,900	Powder River	3,075
Dawson	11,600	Powell	.500
Deer Lodge	2,350	Prairie	1,450
Fallon	5,250	Ravalli	3,000
Fergus	9,050	Richland	8,000
Flathead	10,250	Roosevelt	55,800
Gallatin	24,025	Rosebud	2,050
Garfield	9,175	Sanders	5,275
Glacier	7,150	Sheridan	29,350
Golden Valley	2,175	Silver Bow	1,100
Granite	.300	Stillwater	4,725
Hill	59,825	Sweet Grass	1,275
Jefferson	.575	Teton	22,750
Judith Basin	7,200	Toole	78,750
Lake	5,275	Treasure	.150
Lewis & Clark	5,200	Valley	19,075
Liberty	92,275	Wheatland	3,150
Lincoln	.625	Wibaux	8,325
McCone	9,850	Yellowstone	5,950
		Total	691,475

Top 10 Counties

1. Liberty	92,275
2. Toole	78,750
3. Hill	59,825
4. Roosevelt	55,800
5. Sheridan	29,350
6. Chouteau	24,075
7. Gallatin	24,025
8. Phillips	23,200
9. Daniels	22,900
10. Teton	22,750

Other 1968 Sales

State, Industry and Indian Agencies	231,650
Surpluses sold in and out of State	102,825
Total of all 1968 Sales	1,025,950

1967 Tree Distribution Record

Species	Age Class	Montana	State, Industry Indian Agencies	Total in State	Out-of-State	Total Sold
Buffaloberry	2-0	23,450	1,750	25,200		25,200
Nanking Cherry	1-0	350	400	750		750
Honeysuckle	2-0	10,200	100	10,300		10,300
Lilac	2-0	28,050	300	28,350	25,000	53,250
Sandcherry	1-0	15,500	700	16,200		16,200
American Plum	1-0	4,550		4,550		4,550
Chokecherry	1-0	2,500	100	2,600		2,600
Purple Willow	*R.C.	1,800		1,800		1,800
Siberian Crabapple	2-0	10,800	350	11,150		11,150
Golden Willow	*R.C.	9,450	1,200	10,650		10,650
White Willow	*R.C.	8,000	100	8,100		8,100
Cottonwood (Siouxland)	*R.C.	6,350	2,050	8,400		8,400
Cottonwood (Robusta)	*R.C.	1,350		1,350		1,350
Skunk Sumac	2-0	1,700	1,300	3,000		3,000
Caragana	3-0	448,400	2,150	450,550	50,000	500,550
American Elm	2-0	10,250	250	10,500		10,500
Green Ash	2-0	14,000	300	14,300		14,300
Russian Olive	1-0	38,150	4,800	39,950		39,950
Siberian Elm	2-0	42,000	200	42,200		42,200
Ponderosa Pine (West)	2-0	16,225	68,400	85,625		85,625
Ponderosa Pine (East)	2-0		6,925	6,925		6,925
Ponderosa Pine (West)	1-2	5,425		5,425		5,425
Ponderosa Pine (East)	2-2	5,550	175	5,725		5,725
Douglas Fir (West)	2-0		10,425	10,425		10,425
Douglas Fir (West)	2-2	1,450	3,875	5,325		5,325
Colo. Blue Spruce	2-2	34,275	2,275	36,550		36,550
Juniper	2-2	9,400	400	9,800		9,800
Scotch Pine	2-0	5,000		5,000		5,000
Scotch Pine	1-2	4,950	75	5,025		5,025
Scotch Pine	2-1	20,725		20,725		20,725
Engelmann Spruce	2-0		7,700	7,700		7,700
Engelmann Spruce	2-2		3,100	3,100		3,100
Lodgepole Pine	2-0		2,275	2,275		2,275
Lodgepole Pine	1-2	525		2,525		2,525
Larch	1-0		1,550	1,550		1,550
Ponderosa Pine (A.F.P.)	2-0		78,675	78,675		78,675
Lodgepole Pine (A.F.P.)	2-0		12,875	12,875		12,875
		778,375	216,775	995,150	75,000	1,070,150

*R.C. - Rooted Cuttings

1968 Tree Distribution Record

Species	Age Class	Montana	State, Industry Indian Agencies	Total in State	Out-of-State	Total Sold
Buffaloberry	2-0	12,900	5,100	18,000	16,000	34,000
Skunk Sumac	2-0	2,350	500	2,850		2,850
Honeysuckle	3-0	10,550	450	11,000		11,000
Lilac	2-0	23,100	150	23,250		23,250
Sandcherry	1-0	5,100		5,100		5,100
American Plum	1-0	1,200		1,200		1,200
Nanking Cherry	1-0	2,050		2,050		2,050
Chokecherry	1-0	3,400		3,400		3,400
Siberian Crabapple	1-0	9,450	450	9,900	13,800	23,700
Purple Willow	*R.C.	3,300	100	3,400		3,400
Golden Willow	*R.C.	8,600	700	9,300		9,300
White Willow	*R.C.	8,800	650	9,450		9,450
Cottonwood (Roundup)	*R.C.	800		800		800
Cottonwood (Robusta)	*R.C.	1,800		1,800	3,000	4,800
Cottonwood (Siouxland)	*R.C.	14,500	400	14,900	2,000	16,900
Caragana	2-0	383,350	3,150	396,500	25,000	421,500
American Elm	2-0	8,900	100	9,000	2,500	11,500
Green Ash	2-0	12,950	200	13,150	15,000	28,150
Russian Olive	2-0	73,550	4,450	78,000	200	78,200
Siberian Elm	2-0	39,800	700	40,500		40,500
Ponderosa Pine (West)	2-0	2,775	60,275	63,050		63,050
Ponderosa Pine (East)	2-2	12,975	250	13,225		13,225
Douglas Fir (West)	2-2	1,175	14,500	15,675		15,675
Colorado Blue Spruce	2-3	27,275	275	27,550		27,550
Colorado Blue Spruce	3-0	26,250		26,250		26,250
Juniper	2-2	2,525		2,525		2,525
Scotch Pine	2-1	7,375		7,375		7,375
Engelmann Spruce	2-0		3,950	3,950		3,950
Lodgepole Pine	2-2		12,300	12,300		12,300
Ponderosa Pine (A.F.P.)	2-0		60,825	60,825		60,825
Lodgepole Pine (A.F.P.)	2-0		35,200	35,200		35,200
Larch (A.F.P.)	2-0		5,200	5,200		5,200
Larch (A.F.P.)	1-0		17,200	17,200		17,200
		716,800	231,650	948,450	77,500	1,025,950

*Rooted Cuttings

(Continued from Page 35)

- 2) Production of conifer stock for planting on Montana State-owned forest lands.
- 3) Production, under special arrangements, of seedling trees for forest planting by other agencies and companies which cannot be supplied by commercial nurseries.

The State Forest Nursery grows 18 species of deciduous trees and shrubs and eight species of coniferous trees. No ornamental stock is produced.

The State Forest Tree Nursery is financed by income from sale of seedling trees, federal funds made available through provision³ of Section 4 of the Clarke-McNary Act, and General Fund appropriation. Income from the sale of trees is the largest source of income.

A three year period elapses between the time of seed collection and the sale of trees grown from that seed with the exception of transplanted conifers intended for windbreaks. Transplants are usually four year old trees before being sold.

Irregardless of the number of trees grown from year to year in the Nursery, income from tree sales fluctuates widely depending upon the demand in a given year. The demand for trees on the part of private landowners depends to a great extent on other farming conditions such as weather, farm prices, and current economic conditions. In planning for future needs, plans are made to meet the estimated maximum demand for tree seedlings three year hence.

The Forest Tree Nursery must limit its sales of trees to sizes suitable for planting. Only deciduous trees 12 to 20 inches tall with a diameter from 3/16 to 1/2 inch in diameter measured 1 inch above the ground and having a root system from 8 to 12 inches long are salable. Seedling conifer trees, suitable for forest plantings, must be at least 5 inches tall with a diameter of 5/32 inch at ground level, and must have an adequate root system. Salable transplanted conifer trees must be 6 inches tall and at least 7/32 inch in diameter.

In fiscal year 1967 the Nursery filled 920 orders for windbreak and forest plantings on farms. In 1968, 1,005 orders were processed. In addition to farm order 200,725 conifer seedlings for forest plantings were sold in 1967 and 214,550 in 1968. Approximately 50,400 of these seedlings were planted on State-owned land in 1967 and 23,150 in 1968.

During the biennium the Nursery received orders for 690,000 seedlings for reforestation projects.

Problems:

The demand for conifer seedlings has increased more than 280% during the biennium. Two seasons are required to grow conifers to transplant age. Proper rotation of crops and implementation of other conservation measures, such as the use of cover crops to increase the organic matter in the soil, are necessary. To meet this growing demand, the Nursery

is presently required to use all available prepared ground to assure an adequate supply of conifer stock for 1969 and 1970. In order to supply the needed conifer trees alone for 1971, an additional five acres of conifer seed beds with overhead irrigation system must be in place by 1969. An additional 25 acres of land has been prepared to meet future demands. The pumps which supply water to the present seedbeds are not capable of meeting increased production needs. There is an underground water supply at the one hundred foot level adequate for nursery needs.

The State Forester has secured suggestions from hydrologists for expanding the nursery irrigation and pump system to take care of the additional seed and transplant beds needed to meet the 1971 demands.

Recommendations:

It is recommended that:

- 1) The irrigation system for the nursery be renovated and an additional well be provided to integrate irrigation which will allow proper tree-crop rotation and use of cover crops and other conservation practices. This system should be installed in such manner as to provide adequate water for seedling trees should any breakdown in the irrigation system occur.
- 2) The existing cooler at the State Forest Nursery, which is obsolete and does not lend itself to renovation, be replaced in order to provide sorely needed storage space for seeds, and stock awaiting shipment.



TREE FARM CERTIFICATION

During the biennium the State Forester undertook a unique form of cooperation with the American Forest Products Industries, Inc., and the Western Wood Products Association. By cooperative agreement with these two sponsors the State Forester's farm foresters now serve as complementary field representatives to inspect and certify forest ownerships for membership in the A.F.P.I. Tree Farm Association.

The Tree Farm Association is a group of taxpaying forest landowners who have dedicated themselves to growing future crops of trees under good forest management practices.

Neighborhood Youth Corps

The Office of Montana State Forester again, during this biennium, sponsored a Neighborhood Youth Corps Program in the Flathead area. In addition, several Neighborhood Youth Corps members were employed in Missoula. The program operated from September 1, 1966 to December 31, 1967, with the members on the outdoor work crews furloughed during the mid-winter months.

The primary objective of the NYC Program was to provide constructive work experience for the enrollees—most of whom were high school “dropouts”—, and at the same time encourage them to continue their formal education or make themselves more employable through vocational training.

Work was accomplished on both the Swan River and the Stillwater State Forests in roadside cleanup, campground maintenance, and, especially in timber stand improvement. The boys on these crews learned how to use the tools commonly used in woods work—the axe and saw—and they learned to handle themselves in work situations.

Several girls were trained in the cookhouses at the Stillwater and Swan River State Forests in meal planning, grocery purchasing, food preparation and serving.

Several girls also were trained in office work in the Kalispell and Missoula offices where they learned to use the office machines, such as typewriters, adding machines, calculators, and duplicating machines. They also learned filing, office procedures, greeting visitors, and communicating by both telephone and radio.

One crew of boys was employed in the Forest Tree Nursery in Missoula where they participated in all the manual functions involved in operating a nursery.

Three boys worked in the Missoula Equipment Development Shop under the supervision of a skilled mechanic.

The majority of the young people who participated in the Neighborhood Youth Corps program sponsored by the State Forester returned to school or entered the armed forces. Several accepted employment in civilian occupations.

The State Forester’s NYC Program was terminated on December 31, 1967, largely because it was not possible to make adequate formal educational arrangements to fit into a program which necessitated transporting the enrollees approximately fifty miles each way to work and return.

During the period of the NYC project carried out this biennium 120 boys and 13 girls participated in the program.

State authority to enter into this program is found in House Bill 324, Chapter 263, Laws of Montana, 1965. The program operated under Title I Part B, of the Economic Opportunity Act of 1964.

OTHER PROGRAMS



Although the majority of youths who worked in the Neighborhood Youth Corps program were boys, several girls received on-the-job training in office procedures, supervised by the State Forestry clerical personnel.



Charles Roll, Swan River Youth Forest Camp Foreman, Demonstrates The Use Of An Axe Both Safely And Effectively To A New Crew Member.

SWAN RIVER YOUTH FOREST CAMP

During the biennium the Swan River Youth Forest Camp—designed to accommodate fifty boys—became a reality on the Swan River State Forest thirteen miles south of Swan Lake. By early 1968 three buildings—administration, dormitory, and kitchen-dining room—had been completed and the new superintendent was in residence. The Camp will be administered by the Department of Institutions. The State Forester will provide the workload and supervise the enrollee work program.

The Swan River State Forest is an ideal location for this Camp. Even considering the anticipated winter weather, a forest workload can be maintained year round.

Prior to the arrival of the first enrollees of the Camp on July 1, 1968, members of the Camp staff and the State Forester's staff jointly prepared a "Camp Manual," a copy of which will be presented each boy at the time of his arrival at the Camp. It explains what the boy can expect during his stay in the Swan River Youth Forest Camp, and what his camp and work supervisors will expect of him.

In addition, the State Forester prepared an Operations Manual explaining the position and responsibilities of the State Department of Institutions, the Office of State Forester, "Vocational Education Department," and the employees directly connected with the Camp program. It outlines in detail how the three agencies will work together for the benefit of the boys, keeping in mind that all jobs must be accomplished safely.

The Work Plan, prepared also by the State Forester, which is the third manual, outlines in detail more than 100 work projects to be accomplished. Jobs are prepared for both fair weather and foul.

The several planned work crews are Forest Improvement Crew, Landscape Crew, Carpentry Crew, and the Clerical Crew. Two "elite" honorary crews with membership open to those displaying a cooperative and industrious attitude will be developed—the Hot-Shot Fire Fighting Crew and the Mountain Rescue Crew.

The Swan River State Forest will benefit from the presence of the Youth Forest Camp. If the success of forest camps of this nature in other states can be taken as an indication of what will happen in Montana, the enrollees of the Camp will benefit from their stay in the Swan River Youth Forest Camp.

COLLEGE WORK-STUDY PROGRAM

Through the University System-Federal Government Work Study Program, the State Forester, during both summers of the biennium, provided work for several college students. During the summer of 1967 the State Forester employed 18 Work-Study Students, and 46 in 1968.

The wages are financed 85% by the Federal Government and 15% by the employing agency, with the employing agency, in addition making the Industrial Accident and Social Security payments, and paying the administrative costs.

The work-study students supplemented the forest fire fighting crews, formed two additional timber stand improvement crews which worked on thinning projects in the Kalispell area and on the Stillwater State Forest; worked in the shop at Missoula to increase conversions of excess military equipment to forest fire fighting equipment, cultivated, weeded, and built fence in the forest tree nursery; assisted in both the Kalispell and Missoula offices.

CONSERVATION ORIENTATION CAMP

The second and third "Conservation Orientation Camps" were held at the Swan River State Forest in June of 1967 and 1968.

The week-long camp, sponsored and operated jointly by the State Forester and the University of Montana Forestry School, is designed to acquaint twenty out-standing Montana high school students each year with the field of natural resource conservation.

Primarily the purpose of the Camp is to encourage interested and competent students to consider natural resource conservation as a possible field of future employment, and the University of Montana Forestry School, as the place to secure their training.

The boys contribute two half-days' work to the State Forest in thinning, campground clean-up, and similar tasks.

ROSTER OF ANNUAL EMPLOYEES As of June 30, 1968

Gareth C. Moon, State Forester, Missoula
Don M. Drummond, Deputy State Forester, Missoula
Robert W. Arnold, Deputy State Forester, Missoula
Robert B. Griffes, Assistant State Forester, Missoula
Richard Isaacs, Administrative Assistant, Missoula

Trudi M. Anderson, Stenographer-Clerk, Missoula
Ronald E. Behimer, Timber Management Assistant, Kalispell
Roger E. Bergmeier, Timber Management Assistant, Missoula
Gary G. Brown, District State Forester, Helena
Geneva E. Burmaster, Stenographer-Clerk, Missoula
Elsie J. Clark, Stenographer-Clerk, Missoula

Virginia P. Collins, Stenographer-Clerk, Missoula
Joseph L. Cone, Scaler, Kalispell
Robert A. Crowe, Forest Products Utilization Forester, Missoula
Maurice N. Cusick, Chief Youth Camp Forester, Swan Lake
Richard S. Denecke, Firewarden, Anaconda
Raymond J. Erickson, Timber Management Assistant, Stillwater

LaVone E. Evans, Stenographer-Clerk, Missoula
Louis F. Gildemeister, Stillwater State Forest Supervisor
James F. Gragg, District State Forester, Kalispell
Misha Griffiths, Typist-Clerk, Missoula
Arthur H. Gruenhagen, Fire Prevention Forester, Missoula
Ruth Guinard, Dispatcher-Clerk, Kalispell

William F. Guntermann, Scaler, Kalispell
James W. Hammond, Service Forester, Kalispell
Willis J. Heron, Nurseryman, Missoula
Margaret Holden, Typist-Clerk, Missoula
Albert T. Kington, Assistant District State Forester, Helena
Maxine K. Kramer, Stenographer-Clerk, Missoula

James H. Kuechmann, Timber Management Assistant, Kalispell
David L. Kulm, Timber Management Assistant, Kalispell
Bethel Lambson, Stenographer-Clerk, Missoula
Joseph W. Lawrence, Youth Camp Foreman, Swan Lake
Carl J. Managhan, Hazard Reduction Forester, Kalispell
Edgar L. McCulloch, Machine Operator, Kalispell

Marvin D. McMichael, Timber Management Forester, Missoula
Lloyd B. Messner, Chief Mechanic, Missoula
Helen E. Murray, Stenographer-Clerk, Missoula
James C. Poling, Swan River State Forest Supervisor
Larry R. Pyke, Fire Protection Forester, Missoula
John L. Ramsey, Custodian, Missoula

Thomas F. Regan, Youth Camp Foreman, Swan Lake
Vesta R. Richardson, Chief Clerk, Missoula
Craig E. Roberts, Service Forester, Hamilton
Charles W. Roll, Youth Camp Foreman, Swan Lake
Earl B. Salmonson, Forest Management Supervisor, Missoula
Richard J. Sandman, Fire Protection Supervisor, Missoula
Herman Schultz, Hazard Reduction Inspector, Kalispell

Dennis R. Stewart, Dispatcher-Clerk, Helena
Donald R. Underwood, Administrative Aid, Missoula
Harry T. Vars, Assistant District State Forester, Kalispell
David Walker, Service Forester, Plains
Virgil F. Weaver, Chief Scaler, Kalispell
Jerry L. Williams, Fire Protection Forester, Missoula
Donald M. Wood, District State Forester, Missoula
Charles E. Wright, C.F.M. Supervisor, Missoula

FOREST FIRE REGULATIONS

Applicable To All Operations, Including Camping, On Forested Lands Within Montana

Violation of any of Montana's forestry laws or of any regulations promulgated by the Montana State Board of Forestry under authority of Title 28, Chapter 1, Revised Codes of Montana 1947, as amended, is an offense punishable by fine or imprisonment, or both.

Fire Regulation—No. 1: During periods of dangerous fire weather, no person shall enter or be upon those forest lands designated by public proclamation of the State Forester, under the authority of the State Board of Forestry, as areas of extreme forest fire hazard, except under a written permit issued by a State Firewarden. Permits to enter upon such areas during critical periods will not be issued by the State Firewarden except upon a showing of real need by the applicant. Permits may be issued to those persons having actual residence, as a permanent or principal place of abode, or persons engaged in non-fire hazardous employment on an area of extreme hazard.

Fire Regulation—No. 2: In areas designated by public proclamation as areas of extreme forest fire hazard, the State Forester, under the authority of the State Board of Forestry, may request all persons, firms or corporations present or engaged in any activity in the hazardous areas, to voluntarily cease operations or to adjust working hours to less critical periods of the day. In the event such a request is refused, the State Forester, with the consent of the State Board of Forestry will issue a written order directing compliance.

Fire Regulation—No. 3: During the forest fire season, May 1 to September 30 or any legal extension thereof, all persons, firms, or corporations engaged in any activities in forest areas shall have available for firefighting purposes one basic fire cache per each 10 men so employed. A basic fire cache shall consist of 1 axe, 5 shovels, 5 pulaski tools, all in good condition and located at a point immediately accessible for firefighting purposes. The fire cache tools shall be contained in a closed box marked specifically, "FOR FIRE USE ONLY." Where less than 10 men are so employed, the shovel, axe and bucket regulation shall apply.

Fire Regulation—No. 4: During the forest fire season, the State Firewarden responsible for fire protection within the area, will give proper notice and publicity regarding these fire regulations to all persons, firms or corporations engaged in activities within said forest area. Whenever, in the judgment of the State Firewarden an extreme fire hazard exists, he may require that any industrial operation, any burning, outdoor welding, blasting or any other activity known to cause fires, be halted until such hazard is removed, abated or corrected. The State Firewarden during periods of high fire hazard may require of the party or parties engaged in activities within the forest area that an able individual in their employ be designated as a patrolman, whose duties shall be to patrol the operation as specified by the State Firewarden, enforce the fire laws, rules and regulations, extinguish small fires and immediately report all fires to the Firewarden.

Fire Regulation—No. 5: On all crew operations of 20 or more men on forest lands, all persons, firms or corporations, responsible for said operations shall designate a fire crew, and fire foreman with powers to act for his employer, to take immediate initial action to suppress any fire starting on the operation area and to immediately report all fires to the Firewarden.

Fire Regulation—No. 6: During the forest fire season, smoking is prohibited on all operations on forest lands except at safe places designated and properly posted. Lunch and warming fires shall be limited to cleared and bare areas and such fires will not be left unattended until completely extinguished. Smoking while walking, riding horses, motorbikes, bicycles or other unenclosed equipment and conveyances is prohibited.

Fire Regulation—No. 7: Prior to the forest fire season and as directed by the State Firewarden, the operator, owner or resident of any camp, establishment or resident located upon or within the forest area, shall dispose of accumulations of slash or other inflammable debris upon the property of such owner or operator. During the fire season, inflammable material, slash or other inflammable debris will not be burned excepting under a written fire permit issued by the State Firewarden.

Fire Regulation—No. 8: Prior to the forest fire season, every operator of a sawmill or other woodworking plant, located upon or immediately adjacent to forest lands shall dispose of all slash, brush, snags and other natural debris within such distance from such sawmill settings, camps or other buildings as may be designated by the State Firewarden. Operators of sawmills or other woodworking plants erected during the fire season on or immediately adjacent to forest lands will not begin sawing or other utilization operations until the State Firewarden is satisfied that conditions surrounding the mill or land are such, or have been made such, that sparks from the operation will not set fires in the adjacent areas.

WARNING

These regulations have been established by the State Board of Forestry for your own protection and your benefit.

Carelessness or negligence may also make you liable in damages to the owners of land and timber damaged or destroyed.

Protect your forests — protect your pocketbook — be cautious! Prevent Fire!

Fire Regulation—No. 9: During the forest fire season each unit of mobile or stationary power equipment, including trucks operating on forest lands, shall be equipped with at least one 2½-lb. dry chemical fire extinguisher, at least one serviceable shovel and enough other serviceable firefighting tools to equip, for firefighting purposes, the number of men that ordinarily work with such equipment.

Power saw operators shall have serviceable firefighting equipment including one shovel and one fire extinguisher of at least 8 ounces liquid or 1-pound dry chemical capacity available at the place of refueling.

Fire Regulation—No. 10: During the fire season all internal combustion engines excluding automobiles, trucks with less than 2½ ton capacity, and power saws, operating on forest lands, shall be equipped with spark arrestors adequate to meet standards set forth in the Spark Arrestor Guide published by the San Dimas Equipment Development Center, or shall be equipped with a tailpipe and effective muffler combination which points upward. Each spark arrestor must have the manufacturer's name and model plainly stamped upon it. All automobiles, trucks with less than 2½ ton capacity, and power saws, must have an effective muffler and exhaust system in good condition. Provided, however, this requirement shall not apply to those automotive or internal combustion engines traveling upon numbered State, Federal or County highways within forest areas, on designated forest campgrounds, and places of permanently improved habitat.

Further provided that turbochargers qualify as efficient spark arrestors when all gases pass through the turbine wheel. The turbine wheel must be turning at all times and there must be no exhaust bypass.

Fire Regulation—No. 11: Should any operator believe that in his case, any requirement of the State Firewarden is excessive, the operator may request the State Forester, acting for and in behalf of the State Board of Forestry, to review said requirement; and if in the opinion of the State Forester any or all are not necessary in the interest of public safety, he may make such changes as he deems advisable.

Fire Regulation—No. 12: Prior to each fire season, all persons, firms or corporations creating or responsible for mill waste within the forest areas will treat, dispose of, remove, or reduce the hazard created until the State Firewarden is satisfied that such accumulation of sawmilling waste does not constitute a fire hazard.

In the event that burning is the disposal method elected, the piles shall be prepared for burning by cribbing the base with slabs. The State Firewarden is authorized to determine when and how the piles will be burned.

Fire Regulation—No. 13: Shovel, bucket and axe provision—During the forest fire season, May 1 to September 30, or any legal extension thereof, all persons going into forest lands with automobiles, other vehicles, or pack animals, shall have each such vehicle or pack train equipped with a serviceable shovel, axe and bucket. Recommended standards are as follows:

- 1 axe 26" in length over-all, weight 2 lb. or over.
- 1 shovel 30" in length over-all, with 6" wide blade.
- One water container, capacity 1 gallon or more.

Provided, however, that this tool requirement shall not apply to designated forest camps and places of permanently improved habitation and while traveling on numbered state or federal highways.

PERSONS DESIGNATED AS STATE FIREWARDENS UNDER THE LAWS OF MONTANA

Ex-Officio Firewardens, serving for purpose of enforcing penal provisions of forestry laws and rules: Members of State Board of Forestry; State Forester and all regular employees of his office; officers of organized forest protection districts; members of the Montana Highway Patrol; all field officers in the U.S. Forest Service; game and deputy game wardens; officers of National Park Service and Indian Service in Montana.

Also the State Forester may appoint public-spirited citizens to act as volunteer firewardens with same power as ex-officio firewardens designated above.

AS REVISED AUGUST, 1968



MONTANA STATE BOARD OF FORESTRY

