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STATE OF MONTANA

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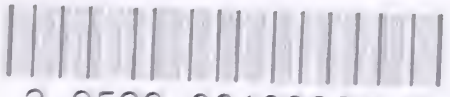
OF THE

State Forester

For the Period July 1, 1926, to June 30, 1928

Covering also a summary of the three preceding years.

TO
HONORABLE J. E. ERICKSON
GOVERNOR



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THE TRULINE PRINTING CO.  GREAT FALLS, MONTANA

LETTER OF TRANSMITTAL

Forest School Bldg.,
University of Montana,
Missoula, Montana.
December 13, 1928

Honorable John E. Erickson,
Governor of Montana,
Helena, Montana.

Dear Governor:

The Eighth Report of the State Forester, covering the period between July 1, 1926, and June 30, 1928, including a brief summary of the three preceding years, is herewith submitted.

Yours respectfully,
Rutledge Parker,
State Forester.



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STATE FORESTS

The State of Montana, in acquiring timber land under the Federal grants, consolidated its selections in certain localities to the extent of the amount which was available and suitable. Also, through the exchange of unsurveyed school sections lying within National Forests for National Forest lands, two areas more or less consolidated were created.

The 1925 Legislative Assembly created seven State forests in those localities where the State lands were in more or less compact bodies, as follows:

1. Coal Creek, located on the North Fork of the Flathead River, containing 20,000 acres.
2. Stillwater, located on the Whitefish and Stillwater Rivers, containing 90,000 acres.
3. Swan, on Swan River, containing 42,000 acres.
4. Thompson River, containing 15,000 acres.
5. Clearwater, in the Blackfoot drainage, with 18,000 acres.
6. Lincoln, near the headwaters of the Blackfoot River, containing 8,000 acres, and
7. Sula, on the East Fork of the Bitter Root River, with 10,000 acres.

The boundaries of the Thompson River, Clearwater and Sula forests include some of the best timber and forest land to be found in the State. Since most of the timber and land within these boundaries is privately owned, the State Forest idea is, at present, little more than a name. If it is found to be to the State's interest to acquire the cutover land when the timber owned by private interests has been logged, these State Forests will then take concrete form. Sooner or later the State must make its decision as to what policy to pursue regarding private cutover lands outside of National Forest boundaries.

The U. S. Forest Service is now acquiring, by purchase and exchange, private holdings within National Forest boundaries. This gives assurance that these lands will be kept producing timber. Some of the best and most accessible timber lands are located outside of these National Forest boundaries, and it is with these cutover areas that the State is concerned. If the

private owner desires and can afford to retain them for producing timber the State should give every encouragement to him. On the other hand, if he has no intention of retaining the cutover lands for forest production, it becomes the State's duty to find ways and means of doing it.

Examples of State laxity in similar cases East of the Mississippi River are too numerous to need more conclusive evidence as to what Montana's attitude should be regarding idle and waste timber lands. These Eastern states are now paying for their lack of forethought by introducing costly corrective measures. Montana can and should take the necessary "stitch in time."

FIRE PROTECTION

From a small organization in 1911 fire protection on State and privately owned timber lands has expanded to now include practically all of the forest lands in Western Montana. This extension has been due largely to the recognition of the benefits of protection by private owners, particularly those with heavy holdings. Also the Federal Aid funds, through the Weeks and Clarke-McNary laws, have been a big factor in stimulating the growth of private fire protective associations.

Regardless of the recognized benefits of fire protection in reducing timber losses and the assistance given this work by Federal funds, a majority of the owners of small tracts of timber land did not become members of these associations until legislation was enacted in 1927 making fire protection measures more or less obligatory. This law holds the owner of timber land responsible for any fires uncontrolled or spreading on his property, unless such property is listed with a recognized protective agency. As a result most of these small tract owners are now members of organized protective associations.

At the present time State and privately owned timber lands in Western Montana are being protected by the following organizations:

Northern Montana Forestry Association, with a contributing acreage of 1,200,000 acres;

Blackfoot Protective Association, with 1,048,000 acres;

U. S. Forest Service, with 800,000 acres;

Stillwater State Forest, by the State, with 100,000 acres, and

Big Fork Unit, by the State, with 25,000 acres.

In addition, the State has 35,000 acres listed with organizations of the Flathead Indian Agency and the Glacier National Park, making a total contributing acreage, State and private, of 3,208,000 acres. It is not known just how much more land should be listed for protection. The associations are now making a detailed classification of lands within their respective boundaries to ascertain this fact.

The state owned timber lands are now protected as follows:

Northern Montana Forestry Association.....	107,460 acres,
Blackfoot Protective Association.....	143,314 acres,
U. S. Forest Service.....	116,343 acres,
Stillwater State Forest.....	90,000 acres,
Big Fork Unit.....	8,000 acres,
Flathead Indian Reservation.....	25,000 acres,
Glacier National Park.....	10,000 acres,

A total of.....500,117 acres.

The cost of protecting these lands varies with the season and the locality. On the average, it amounts to approximately three cents per acre each year, including suppression. The lands listed with private protective associations are assessed at a rate fixed each year by the Boards of Directors, usually two cents per acre. This amount is sufficient only for protection and suppression costs during favorable seasons. In case of a bad fire season, with heavy expenses, an extra assessment must be levied on the members.

The associations are assisted materially in maintaining a low rate for protection by the Federal allotment to Montana under the Clarke-McNary Act. This allotment during the past fiscal years has been as follows:

1924.....	\$13,725.00
1925.....	13,725.00
1926.....	14,470.00
1927.....	15,560.00
1928.....	18,708.00

The State distributes this money among the various protective agencies in amounts proportionate to private expenditure. It is the intent of the Act under which the appropriation is made that it will be used chiefly for the encouragement

and promotion of protective measures on cutover and second growth areas. In order that this principle may be carried out it will be necessary for each organization qualifying for Federal assistance to have accurate data relative to non-commercial timber stands; such lands will then receive a reduction in protection rate which will be proportionate to the Federal funds available.

Certain blocks and isolated sections of State timber within National Forest boundaries have been protected for a number of years by the U. S. Forest Service. Several agreements have been entered into between the State and the U. S. Forest Service relating to this protection, but the substance of these, until the year 1927, was that of a fixed rate for protection, and an additional assessment at the end of each fire season to cover the actual suppression costs.

The severe fire season of 1926 created an extremely high cost of suppression in some of those forests where a high percentage of the land belonged to the State. As a result the State's obligation to the Government under the existing protection agreement amounted to approximately \$25,000.00. Since the State had a balance to its credit of about \$7,000.00 (representing the difference between the U. S. Forest Service claim against the State for the seasons of 1919 and 1920, and the State claim against the Federal Government for fire fighting costs on the public domain in 1919), the actual balance in favor of the Government is about \$18,000.00. This amount can be raised only as a deficit appropriation by the Legislature.

No Forest protective agency can estimate in advance the funds which will be required for fire fighting costs. It has, therefore, been the policy of the Federal Government and the State to provide funds suitable for protection in normal years. Any unusual expenditures, due to bad fire seasons, are taken care of by deficit appropriations. Considering the acreage of State owned timber and the fire hazard of the country, Montana has an enviable record among states in the few and small deficits incurred through fire suppression.

As a means of reducing excessive fire costs during seasons of high fire hazard, the State entered into a new fire protection contract with the U. S. Forest Service in the spring of 1927. This contract fixes a flat rate for protection and suppression, which is based on an average cost of preceding years.

STATE TIMBER RESOURCES AND SALES

Montana ranks fifth among the states as a timber-land owner, with a total of 500,000 acres acquired under Federal land grants.

The merchantable saw timber stands comprise approximately 300,000 acres, with an estimate of two and one-half billion feet. About 75,000 acres have been cut over during the past thirty-five years, and the remaining 125,000 acres are either burned over or are alpine protection forests. All of the alpine and a considerable amount of the burned over lands have a very low potential forest value, and this, together with their inaccessibility, renders them almost worthless for the production of commercial timber. Consequently, the 375,000 acres of commercial and cutover timber lands, and possibly 25,000 acres of the restocking and accessible burned areas, include all of the state owned commercial timber resources on lands carrying a forest classification.

Eighty per cent of the cutover lands are fully restocked, with the promise of a heavy cut in 80 to 100 years. Most of the old cutover areas contain, also, a scattering advance growth stand which may be cut in about fifty years, with an average expected yield of 5 M. per acre. This is apparently a very low yield for profitable logging operations, but the accessibility of the areas will more than compensate for the lightness of the cut.

During the past eight years all timber cutting has been restricted to trees above 14 and 16 inches in diameter. This method, together with more conservative slash disposal, will insure a better stand of advance growth timber and give higher acreage yield. It is believed that the present system of cutting will give an average crop period of 80 years, with a yield equivalent to the average now obtaining in the virgin stands. There are, of course, many factors which may reduce the expected yield, chief among which will be fire and insects, but, after making due allowance for these, it seems safe to expect that the state timber lands will sustain an annual cut of from 30 to 35 million feet.

The following tables give the annual cut for the past five fiscal years:

TIMBER CUT—ADVERTISED SALES. TABLE NO. I.

Fiscal Year	Green Ft. B. M.	Dead Ft. B. M.	Poles	Cordwood	Ties	Posts	Piling	Lath Bolts	Linear Feet	Stulls	Acres	Value
1924	27,612,442	530,853	.....	725.25	14,758	.....	.....	978,000	.....	.....	3,600	\$85,770.88
1925	27,598,200	298,880	1,357	832.30	16,744	1,900	5	462,000	.....	.....	3,600	84,527.95
1926	38,545,772	1,168,880	1,483	100.00	174	2,292	23	90,000	57,261	.....	4,800	135,043.52
1927	25,895,910	3,009,930	1,974	.....	50,530	29,702	6	.....	80,658	.....	3,600	88,381.01
1928	20,865,990	4,034,240	96	.38	156,171	34,761	.....	.....	122,557	235,500	3,000	75,021.53

TIMBER CUT—GREEN—UNADVERTISED SALES.

Fiscal Year	No. Permits	Saw Timber	Poles	Posts	Cords Wood	Linear Feet	Props	Value
7-1-23	122	1,626,264	984	5,727	185.0	.....	.....	4,922.54
7-1-24	118	2,217,423	1,066	4,620	120.5	384	30	6,866.97
7-1-25	99	1,112,480	1,674	15,976	363.7	6,795	.....	3,566.18
7-1-26	105	400,825	2,984	16,431	317.5	10,192	7,570	2,384.60
7-1-27	123	932,330	3,647	11,147	420.0	2,510	9,015	5,043.06

TIMBER CUT—DEAD—UNADVERTISED SALES

Year	No. Permits	Saw Timber	Poles	Posts	Cords Wood	Linear Feet	Props	Value
7-1-23	88	183,500	.....	400	2,570.9	.....	.....	1,089.27
7-1-24	150	301,510	2	2,145	2,506.5	.....	.....	1,298.92
7-1-25	118	44,280	18	.....	2,166.5	2,030	.....	747.21
7-1-26	911	75,240	.....	350	1,618.0	1,000	.....	529.27
7-1-27	39	96,940	584	160	773.5	3,000	.....	648.58

TIMBER CUT—FREE PERMITS—DEAD

Year	No. Permits	Cords	Poles	Bridge Timber	Saw Timber	Posts	Bld. Logs
7-1-23	161	1,306	251	18,870	1,900	875	30
7-1-24	129	1,204	50	.....	.....	100	50
7-1-25	184	1,662	230	.....	.....	410	.....
7-1-26	185	1,677	451	.....	.....	1,650	116
7-1-27	179	1,597	526	.....	11,000	1,400	16

It is interesting to note that the average cut of green timber during this five year period approximates the expected sustained yield. This may be purely accidental, since there has been no effort at any time on the part of the State to limit the cut. In fact, it cannot be expected, with the demand for timber as the only limit, that the average cut through a short period of years will follow so closely the sustained yield. Undoubtedly, there will be periods when the demand will greatly exceed any sustained yield plan of cutting. It does not seem advisable for the State during such periods to make any attempt to limit the cut, excepting, possibly, on independent logging units on which the timber is thrifty and immature.

The policy of allowing the demand to fix the limit of timber cut may need an explanation. The State timber is scattered and intermingled with that privately owned to the extent of 12% to 15% of the total area and estimate. About 90% of the privately owned timber is the property of a few large corporations, which, with the exception of the Northern Pacific Railway Co., are all actively engaged in lumbering. Under such conditions of ownership a sufficient amount of timber to justify the expenditure of large sums in opening up stands for logging operations is assured. Logging Companies naturally expect to acquire all the timber within practicable logging limits on each tract or drainage to be logged, and, in order to do this, are willing to pay full market value for all timber purchased, based on costs prorated for the entire block. Obviously, it would be a financial mistake for any owner holding only a small tract to attempt to fix a limit on the amount to be cut each year. In all probability such a policy would mean a loss of a considerable portion of the timber, with no future compensating benefits whatsoever. In such cases the demand must fix the limit of the amount to be cut.

The timber on many of the State areas is now over mature and in a decadent condition, and it is doubtful if the rate of growth is keeping pace with decay. There can be no reason for fixing a limit on such areas. Rather, it is to the State's interest to encourage the sale of these old crops, and to get the land on a timber producing basis. The object here, as well as on all other timbered areas, is to secure the highest yield.

The annual cut of State timber will, therefore, vary con-

siderably from year to year, according to market conditions, and, also, according to the amount of state timber lying within new logging units which may be opened up. It is believed that over a long period of years the demand for State timber will closely approach the sustained yield, giving an average annual cut of from 30 to 35 million feet. It is a fact that this sustained annual cut could have been increased if all of the 75,000 acres of the State cutover land had been properly managed. Most of this cutting antedates forestry methods, with the result that the next crop will be light, or will require an extra growing period.

The Fifth Legislative Assembly in 1897 undertook the introduction of forestry methods by enacting a law fixing the minimum diameter limit to which green timber should be cut at eight inches in diameter at a point twenty feet from the ground. This law had some merit but no practical means of application. It is strange that a law so obsolete should still remain on the statute books.

Considering the fact that all of the early timber cutting was done without a thought of future crops, it is surprising to find most of these areas in a promising condition.

The State is more concerned with the condition of privately owned cutover areas than in limiting the cut of its own timber. If the 80% or 90% of privately owned cutover land on a watershed can be left in a promising condition for a future crop, the State land intermingled with it has assurance of not becoming a future isolated stand of timber. As a rule, private timber is cut more closely than is permitted on the State land, and, for this reason, the State land should yield more at the time of a second cutting. This difference in cutting limit is of very little consequence excepting that it may possibly extend the cutting period on State land to permit more growth on the predominating areas which were cut more closely.

By far the most important factor relating to the next crop of timber is slash disposal. Until 1919 such disposition was optional with the private owner. In many cases the slash was left unburned, and in these we have today some of the best examples of well stocked young stands. Other areas were partially burned as a means of securing safety to further operations and adjacent timber. The present indications are that most of

this old slash burning was neither extensive or intensive. At least, not many denuded and barren areas were created.

In 1919 the State Legislature was called upon to pass a law retro-active to October 1, 1918, requiring that all brush or slash left from timber cut, should be burned or otherwise disposed of within one year from the date of cutting. Those responsible for this law had in mind, apparently, a temporary means of reducing the fire hazard on cutover areas, and at the time did not recognize the disastrous effect it would have on future timber crops.

The usual method of complying with this law was to burn the slash broadcast, which resulted in the destruction of most of the remaining young tree growth and, thereby, created another fire hazard as great as, and in many cases greater than, the one left by the logging operations. Therefore, in order to minimize fire hazard, which was the intent of this slash disposal law, a second burning was necessary just as soon as the young timber killed after the first slash became a tangle of debris on the ground. There are, unfortunately, too many examples of these second burnings, accidental and set, in old cut over areas and they usually give the appearance of, and are, barren wastes which may never produce timber except by expensive artificial methods of reforestation.

This destructive system of slash disposal was so apparent that in recent years some of the largest timber owners adopted a plan of selective burning in order that more of the young tree growth might be spared. However, since the law required that all slash be removed, any effort to better conditions and to comply with the law offered very little hope for the next crop of timber on the land. Accordingly, at the 1927 Session of the Legislature this slash disposal law was repealed and another law substituted as follows:

“Every person, firm or corporation who shall hereafter cut any timber, logs, ties, posts, poles, cordwood or pulpwood or any other forest product upon lands within the State of Montana shall remove any fire hazard to the property of others created by the slashings, incident to such cutting, by partial or complete disposal of said slashings, or by other procedure, to the extent and in the manner required by the State Forester under the conditions obtaining, provided that expenditures in

excess of fifteen (15) cents per thousand (1000) feet board measure, or the equivalent thereof, of any merchantable timber cut shall not be required."

Under this law only partial slash disposal is expected, probably an average of one-third of the area cutover. It is intended and required that the brush will be disposed of properly along all roads, fishing streams and at other points where fire lines can be most economically and advantageously established. The object will be to leave no slash area larger than 100 acres without a fire control boundary. This law proposes fire lines at a cost not to exceed fifteen cents per M feet board measure on the amount cut, in place of the old law and broadcast burning. As far as is possible all operators are urged to pile or windrow the brush where fire lines are established so that it can be burned at a season of the year when the fire will not travel on the ground.

The greatest present danger under the new law appears to be in the tendency to burn too much rather than too little. Fires should be set and confined to fire lines only, and in order to do this successfully the brush must be in such shape as to burn without danger of spreading beyond the limits intended. It may take time and effort on the part of those administering slash disposal to impress upon operators the importance of this phase of the work. However, since there appears to be a general willingness among the loggers to do whatever is reasonably required on slash, it remains only for those having supervision of the work to persevere in order to secure the desired results.

SPECIAL USE BUSINESS

The Legislative Assembly of 1925 authorized the State Forester to handle all grazing and other uses on forest lands. The following tables indicate the volume of the business during the fiscal years 1925, 1926, 1927 and 1928.

GRAZING SPECIAL USE PERMITS

Year	No.	No. Acres	Rental
7-1-24 to 6-30-25.....	21	7,617	\$ 778.25
7-1-25 to 6-30-26.....	44	15,127	1,512.25
7-1-26 to 6-30-27.....	78	27,342	2,498.89
7-1-27 to 6-30-28.....	123	46,789	4,990.01

MISCELLANEOUS USES

Year	Residence	Fur Farm	Fish Hatchery	Hay	Rental
7-1-23 to 6-30-24.....	3	....	...	1	\$ 81.50
7-1-24 to 6-30-25.....	7	....	3	2	287.00
7-1-25 to 6-30-26.....	9	....	1	4	161.35
7-1-26 to 6-30-27.....	29	1	4	5	471.75
7-1-27 to 6-30-28.....	41	3	3	2	531.36

The large increase in this business is chiefly due to the renewal of expiring leases, formerly handled by the State Land Commissioner and recently turned over to this department, and to the high prices now obtaining in the stock industry which have stimulated a demand for more range.

An effort is made each spring to interest stockmen in state lands not under grazing permit. This is being accomplished very satisfactorily through co-operation with other large timber owners. The grazing fees now received from lands carrying the yellow pine type of timber are sufficient to pay almost half of the state fire protection costs. Ultimately the grazing fees should equal these costs and the yellow pine type of timber land, representing about 150,000 acres, will probably supply 75% of this revenue. This means that the larch-fir mixed types, comprising approximately 350,000 acres of the state forest lands, have a very low average grazing value, probably not exceeding one cent per acre.

LAND EXCHANGE

The State, in co-operation with the U. S. Forest Service, has completed the examination for exchange of approximately 90,000 acres of surveyed sections 16 and 36, which are located within the National Forest boundaries. In addition the State has examined and cruised 35,000 acres of other grant timber lands, which are subject to exchange under the law passed by the 1927 Legislative Assembly. This includes all lands that will be available for exchange, except 3,000 or 4,000 acres not yet examined.

National forest lands examined for indemnity selection include four separate blocks totaling 124,423 acres, or about the same acreage as that which the State can offer in exchange. The selection of three of these blocks for examination was agreed upon by the State Forester and the U. S. Forest Service, and the cruising of them was carried on simultaneously with that of the State lands.

The following is a brief summary of the government lands examined:

Block 1 includes 18,817 acres joining the Stillwater State Forest, along the high divide at the head of the Whitefish and

Stillwater drainage. This entire block is worthless for growing commercial timber and has, therefore, been rejected.

Block 2, comprises 49,248 acres joining the Stillwater Forest on the west on Sunday, Lebeau and Martin Creeks with an average timber stand of approximately 4 M per acre. Some of the most accessible timber in this block has been cut. A few sections in lower Martin Creek could probably be sold within a few years. The bulk of the timber will remain inaccessible until most of the private timber in the state is cut. Considering the doubtful timber sale possibilities, high fire hazard and the lack of grazing value on this area, it is not considered to be as valuable as an equal acreage of State land containing a similar estimate of timber. This block has an advantage in that it would enlarge the Stillwater Forest and thereby cheapen the administration of this forest. Negotiations are pending for a part or all of this block.

Block 3, situated west of the Flathead Lake, contains approximately 80,000 acres within the exterior boundaries, 43,212 acres belonging to the government and the remainder being State and privately owned. Actual consolidation within this area could be accomplished only by exchange with private owners, for which there is no present authority. This, in itself, is an objectionable feature to the acquisition of this block. The chief objections to this block are that most of the lands included in it are of very low potential forest value, of low grazing value, and the fire hazard is high.

Block 4, includes 13,146 acres of scattered sections within the Swan River State Forest and a block on the north in T24N, R18W. This tract contains some very good timber and will be a valuable addition to the State Forest. The exchange for this tract is now pending.

It should be understood that most of the State lands involved in this exchange are not superior to those offered by the government in Blocks 2 and 3. 70% of State sections 16 and 36 contain approximately the same grazing and potential forest values as that of the government lands in these blocks. The average stand per acre on this State land is less than that in Blocks 2 and 3, although this is augmented, to a certain extent, by a larger percentage of yellow pine on the State land. The other 30% of this State land contains good, accessible stands

of timber with the valuable yellow pine predominating. These lands are intermingled with private holdings, which fact gives assurance of a steady market for this timber at a high stumpage rate. This timber, without doubt, is more valuable than an equal acreage of the best of that offered by the government. Consequently, all or most of it should be eliminated in considering the indemnity lands now offered, or other government areas should be located which will meet the higher values of these sections.

It is unfortunate that the State and Forest Service did not first examine all State lands to be used in the exchange as a basis for selecting government tracts for examination which would meet State land values, instead of carrying on the work on State and government lands simultaneously. As it now stands, the State has some 20,000 acres included in C. S. sections, and about 10,000 acres in other land grants which appear too valuable for use in acquiring any of the government areas examined.

There is a possibility that these values may be satisfied by selecting a block either in the Bitter Root or on the Swan River. In the near future a preliminary reconnaissance of the Swan River drainage will be made to determine the advisability of a more detailed examination of government timber lands on this watershed for the purpose of exchange.

CLASSIFICATION

Definition of Forest Lands

According to Act 17 of the Constitution all lands which are principally valuable for the timber that is on them are classified as timber lands.

There is no difficulty in classifying those lands which are mostly covered with merchantable timber and not suitable for agriculture, but there is frequently a doubt about lands which are only partly timbered.

The chief revenue of many of these partly timbered sections is from grazing, especially on those lands which contain only a young patchy stand of timber.

Grazing lands, however, are classified as those which are valuable **only** for grazing. Accordingly, when a portion of a sec-

tion or subdivision contains tree growth in sufficient quantity to indicate that when mature it can be profitably logged and marketed, it may be to the State's interest to give such land a timber classification, even though the grazing revenue may exceed the timber value.

Most timber lands have some grazing value and it is not essential that the land be chiefly valuable for growing timber to receive a forest classification. It is most important for the State to realize the highest returns on these lands, and if these returns can be increased by protecting the growing timber upon the areas it would seem that a forest classification for such lands is justifiable. No fixed rule can be followed in making the classification. It has been the custom to demand a greater percentage of timber on lands East of the Continental Divide for a timber classification than on lands in Western Montana. The chief reason for this is due to the fact that tree growth and yield per acre is so much greater in Western Montana.

During the period covered by this report approximately 200,000 acres have been examined and classified; an average of 40,000 acres per year. This examination includes an estimate of the merchantable timber by species, its quality and condition, the amount, kind and distribution of young and advance growth and other factors pertaining to the physical capacity of the land for producing timber.

A knowledge of logging conditions and of the accessibility of the areas is also necessary in forming a basis for a valuation of the timber and land. In addition to the timber and logging data the examiner must make a grazing appraisal for each legal sub-division, and a proper report on any sub-division which may be suitable for agriculture.

A completed report should, therefore, show: the amount of timber which may be cut now; the amount expected from the land in future crops if properly protected and managed; a grazing appraisal as a basis for the annual rental charge; agricultural possibilities on any portion of the area; a report on any site containing recreational advantages. Unfortunately many of the old reports on State Forest lands included only an estimate of the timber. A supplemental examination of these lands seems desirable in order that full information may be available for handling all business pertaining to them.

About 20% or 100,000 acres of the State lands in Western Montana, assumed to be timbered, have not yet been examined. 80,000 acres of this amount are known to be forest land, while on 20,000 acres the classification is doubtful. The work of examining these unreported sections will be carried on just as rapidly as funds will permit. It is expected that this work can be completed in three years.

**RECEIPTS OF THE STATE FOREST DEPARTMENT
FROM JULY 1, 1923, TO JUNE 30, 1928**

Period	Timber Sales	Timber Permits	Special use Permits	Certificate of Purchase	Total
7-1-23 to 6-30-24.....	\$ 82,861.03	\$ 8,109.85	\$ 86.50	\$599.89	\$ 91,567.27
7-1-24 to 6-30-25.....	89,277.04	8,262.52	1,038.00	148.40	98,725.96
7-1-25 to 6-30-26.....	130,091.29	5,000.93	1,617.60	.....	136,709.82
7-1-26 to 6-30-27.....	92,146.76	2,826.36	3,059.67	.....	98,032.79
7-1-27 to 6-30-28.....	68,723.82	5,014.98	5,413.63	.....	79,152.43
Totals	\$463,099.94	\$29,214.64	\$11,215.40	\$748.29	\$504,278.27

**STATE FOREST DEPARTMENT STATEMENT OF APPROPRIATIONS AND
EXPENDITURES FROM JULY 1, 1923, TO JUNE 30, 1928**

Appropriation:	7-1-23 to 6-30-24	7-1-24 to 6-30-25		\$78,750.00
Expenditures:	7-1-23 to 6-30-24	7-1-24 to 6-30-25		
Administration	\$ 8,105.95	\$ 7,784.06		
Timber Sales	11,180.01	10,154.75		
Forest Management	3,898.44	3,175.17		
Protection	13,421.23	9,830.83		
Improvements	874.71	492.42		
Land Exchange	1,888.79	6,483.24		
Telp., Telg., Postage.....	581.98	294.77		
Travel	303.30	215.15		
	\$40,254.41	\$38,431.39	\$78,685.80	
Reverted to General Fund.....			64.20	
			<u>\$78,750.00</u>	<u>\$78,750.00</u>
Appropriation:	7-1-25 to 6-30-26	7-1-26 to 6-30-27		\$74,600.00
Expenditures:	7-1-25 to 6-30-26	7-1-26 to 6-30-27		
Administration	\$ 8,403.82	\$ 9,767.26		
Capital		100.29		
Repairs and Replacements.....	30.33	46.73		
Protection	15,929.23	19,806.39		
Timber Sales	9,375.66	9,103.48		
Land Exchange	5,498.24	3,463.97		
	\$39,237.28	\$42,288.12	\$81,525.40	
Deficit Appropriation				\$ 6,990.65
Reverted to General Fund			65.25	
			<u>\$81,590.65</u>	<u>\$81,590.65</u>
Appropriation:	7-1-27 to 6-30-28			\$39,400.00
Expenditures:	7-1-27 to 6-30-28			
Administration	\$ 9,033.84			
Capital	829.69			
Repairs and Replacements.....	4.00			
Protection	14,505.05			
Timber Sales	11,916.60			
Land Exchange	2,371.77			
	\$38,665.95		\$38,665.95	
Balance, Fiscal Year 1928.....			734.05	
			<u>\$39,400.00</u>	<u>\$39,400.00</u>

QUESTIONS OF POLICIES AND OBJECTIVES

The protection of the forests within the State from destruction by fires constitutes one of the most important forestry problems. The gradual cutting and removal of the virgin timber each year eliminates the natural cover which assists in holding the soil moisture. Thus, the brush, the tops of trees and other debris resulting from logging operations, and the soil itself, are exposed to the intense rays of the summer sun, and all become extremely inflammable when thoroughly dried out. Fires starting on these areas burn with such rapidity, and create heat so intense that often it is beyond the power of man to control them. Inevitably, large tracts of advance growth left after lumbering are totally destroyed, leaving a barren waste.

This danger of destruction by fires on cutover areas can be greatly reduced if a part of the brush creating the hazard is burned in strips from 100 to 300 feet wide, in what may be termed fire lines, or lines of defence, where fires can be controlled.

A great stride in forestry in Montana will be made when we succeed in keeping the cutover lands in a productive condition through adequate measures of slash disposal. The State law is now operative, and gives the Department authority to co-operate with the lumbermen in outlining ways and means of safeguarding the future forests. The State will give the work as much supervision as funds will permit. Demonstration areas will be established to prove the practicability, economy and beneficial results of such a program.

The U. S. Forest Service and the private owners of forest lands have greatly assisted the State in perfecting a forest fire patrol system covering over 95% of all the forest lands in Western Montana, and the State should continue such co-operative work, and should augment the present forces wherever areas are found to be inadequately patrolled, or other weakness is discovered.

The State of Montana received its forest lands through a grant from the Federal Government, as an endowment to its people for the purpose of providing and maintaining schools and other state institutions. Since the money derived from the

sales of all timber and the granting of special privileges on the land goes into this fund, and can be used for no other purpose, it is necessary that as much income as possible should be obtained from the natural resources, in order to assist in the financing of the State's most needed institutions.

In line with a program of good economics, the Department is completing an inventory of all of the State's forest lands, and is recording such information and data in the form of maps and timber estimates by species, and has complete notes on all values the land may have other than its timber resources. This undertaking is being accomplished by the most efficient and highly trained men it is possible to secure. Upon its completion, the Department will be in a position to meet the demands of the public, in relation to the State lands, for every use to which they can be profitably put, whether it be timber, stock grazing, villa sites along lake and stream shores, fur farms, artificial ponds for fish culture, or other purposes, it being of prime importance to utilize the land to its greatest capacity, and to make such charges in the form of rentals and sales, as to give adequate returns not only to the State, but to the lessee as well.

At the present time the lumber market is depressed, and it is not the intention of the Department to force its product upon an already glutted market, particularly at a time when curtailment of production is the better policy.

The State, unlike the private owner, is in a position to carry its timber, since it pays no taxes, and can afford to await higher stumpage prices and more compensating market returns.

It is very important, however, that no mature stands of timber remain unsold and isolated on watersheds now being logged, or to be logged in the future, since, if not disposed of when the opportunity occurs, the timber may prove a total loss, either through fire because of the surrounding hazard, or because of no other prospects of sale. This policy applies particularly to scattered sections 16 and 36.

While all state timber is not marked for cutting, care is exercised that sufficient seed and other tree growth remains on the area logged to insure an adequate second crop. Ordinarily, in the yellow pine stands all trees 16" in diameter breast

high are left, and in the fir and larch stands no trees smaller than 14" are cut, a practice which leaves advance growth sufficient for a future timber supply.

It is the custom also to pile and burn all the slash resulting from logging operations, in order to safeguard the remaining young forest from destruction by fire. The funds for this work are supplied by the operator, and the terms agreed upon are made a part of the timber sale contract.

There are important problems appertaining to the cutover forest land in Montana which are privately owned, the solving of which, to the best interests of the State, must be attempted sooner or later.

The private owner, from the standpoint of an investor, is interested primarily in the commercial timber to supply the raw product for manufacture into lumber. After its removal, the land becomes a liability under the present system of taxation, and he no longer feels justified in retaining ownership, particularly if no opportunity arises of putting the land to some form of use whereby a rental may be received to meet, in part at least, the annual tax and fire protection costs. The owners of large timber tracts, operating lumber manufacturing plants, will continue to pay taxation and other costs so long as they are going concerns, charging the expenses to the annual operating costs. However, after the supply of merchantable timber becomes exhausted, and lumbering operations have ceased, it is obvious that the owner will be very reluctant to advance funds upon property with the present tax liability, and no income for a long time to come. The fact that no plans had been made to cut the timber conservatively, with the intention of holding the land for growing timber crops, to give a permanent supply of timber to the manufacturing plants, and the long time involved in carrying the lands until the maturity of a second crop, the large acreage to be retained to insure an adequate supply, the hazard of fire, combined with the overhead charges in the form of taxes and fire protection costs, are all factors unfavorable to the practice of forestry in Montana by the private owner.

It must not be forgotten, however, that these private forests comprise a large area within the mountainous portion of Western Montana, and constitute the most valuable forest

lands in the State, and, taken as a whole, are, with few exceptions, capable of producing more timber than lands in other ownership. Under the circumstances, the State has a direct responsibility in the matter of assisting the private owner to keep the land productive after the timber has been removed.

The U. S. Forest Service has definite plans made to secure title to the privately owned cutover lands within the boundaries of the National Forests through purchase or exchange, as rapidly as negotiations can be made, in order that its holdings may be consolidated. The Government, however, has no jurisdiction over lands outside of the boundaries of the National Forests, therefore, the State has a direct interest in formulating and executing some plan, either of a subsidy, tax reduction or an actual purchase, of a portion of these lands in cases where the private owner fails to further carry them. Some plan of stabilizing ownership should be inaugurated that the State may have definite assurance of adequate fire protection, and the forests be perpetuated. The State can ill afford to overlook its obligations in planning for the future prosperity of its people, by permitting these lands to become barren wastes, and putting the burden on future citizens of restoring them to productiveness through expensive artificial means of reforestation.

If proper precautions are taken, the cutover lands will produce another crop in one hundred years, and with no taxes to pay, an income of from 2% to 4% on the investment should be derived when the timber is cut. During the time the trees are growing, much of the land can be used incidentally for other purposes, and as high as 10% on a reasonably capitalized valuation, can be realized from the best tracts.

Delinquent-tax forest lands, while not yet a serious problem, are going to become so as time goes on. Should the Counties be unable to dispose of this class of land through Sheriff's sale for the non-payment of taxes, they will be the unwilling holders of large tracts from which no income is derived, and for which they have no organization functioning for the purpose of fire protection. When this problem becomes acute the proper State and County officials should cooperate in formulating a plan for carrying these lands and keeping them productive.

The Forestry program in Montana up to date has included the organization and training of the necessary forces to adequately protect all forest lands. The outstanding educational work carried on by the various agencies interested in the forests of the State has been that of impressing upon the minds of the people the value of the forests and the necessity of their co-operation and assistance in keeping fires out. All of the various agencies worked in harmony in getting to the people the message of Montana's forests, and of forestry generally in the United States.

The Public Relations Department of the U. S. Forest Service has carried on this educational work throughout the year, showing motion pictures, giving lectures illustrated with slides, and short talks, the people thereby having an opportunity to secure some knowledge of forestry and of the work being done.

The members of the personnel of the State Forest Department, working with other agencies interested, have given talks in the schools, before civic clubs and other organizations, have distributed pamphlets on forestry subjects, have awarded prizes for essays dealing with forestry problems, and in many other ways have promulgated forestry educational features.

A Proclamation issued by the President of the United States, followed by one by the Governor of Montana, designating American Forestry Week, gave much publicity to the part our forests play in the social and economic welfare of the people and the need of keeping them productive.

The U. S. Forest Service and the private agencies have done excellent work in assisting the State Department in organizing the forces necessary to carry out effectively the program of American Forestry Week, and it would have been difficult to have accomplished the favorable results without their active co-operation.