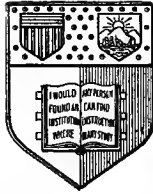


FOREST RESERVE
MANUAL



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FOREST RESERVE MANUAL.

GENERAL INFORMATION.

OBJECT OF THE FOREST RESERVES.

The object of these reserves is to maintain forests on lands where they are needed for two principal reasons:

1. To furnish timber, a valuable and much needed product, from lands which are unfit to produce a more valuable crop, such as corn or wheat.

2. To regulate the flow of the water. This they do—

(a) By shading the ground and snow and affording protection against the melting and drying action of the sun.

(b) By acting as wind-breaks, and thus protecting the ground and snow against the drying action of the wind.

(c) By protecting the earth from washing away, and thus maintaining a "storage layer," into which rain and snow water soak and are stored for the dry seasons, when snow and rain are wanting.

(d) By keeping the soil more pervious, so that water soaks in more readily and more of it is thereby prevented from running off in time of rain or when the snow is melting.

From this it follows that the more extensive the forest and the better its condition, the better it will serve its purpose. It is evident that an open park, an old "burn," an extensive "slash," or an open stand of scattering trees or chaparral does not serve this purpose of the forest as well as a close, thrifty stand of young timber.

Keeping in mind the object and purpose of the reserves and their forests, it is clear that the first and foremost duty of every forest officer is to care for the forest, and every act, every decision he is called upon to make should be guided by the thought, Will it improve and extend the forest?

UTILIZATION OF THE RESERVES.

AGRICULTURAL SETTLEMENT.

Farmers on patented land are, of course, in full possession of their lands, just as much as if the farm were outside of the reserve.

Farmers or agricultural settlers on land not patented stand as follows:

1. If the land was settled on prior to the creation of the reserve, is surveyed land and the claim duly filed, the settler obtains title just as if the land were outside of the reserve.

2. If the land was settled on prior to the creation of the reserve, but is unsurveyed land, and, therefore, the claim is not filed in a United States land office, the settler may so file on the land when it is surveyed, but must do so within three months after the survey plats covering his land are filed in the local land office.

3. Settlers on unsurveyed lands, who, when survey is made, find that they are on the grant of some railway company (railroad land within the primary limits), come under two classes, viz:

(a) Settlers who settled on the land *before* it was a railroad grant. Such settlers have the superior right and can file on the land and obtain title subject to the time limitations stated in paragraph 2.

(b) Settlers who settled *after* the land became a grant. Such settlers have to deal with the railway company.

The fact that the railway company may have relinquished the land to the Government under the act of June 4, 1897 (practically sold it), does not alter the case; the claims of the settlers remain invalid.

4. Any person who purchases a farm which is not patented, a mere "claim" (unperfected settlement claim), subsequent to the creation of the reserve, gains no rights whatever. For here, as elsewhere, the principle holds that *no person acquires any rights by the purchase of the settlement claim of another.*

5. Anyone settling on agricultural lands after the creation of the reserve commits trespass, and gains no rights by his settlement.

Concerning timber on agricultural claims, see p. 25.

PROSPECTING AND MINING IN FOREST RESERVES.

Prospecting and mining in forest reserves is not prohibited or interfered with, and location and entry of claims is allowed under the general mining laws of the United States and the particular State or Territory.

Concerning timber on mining claims, see p. 24.

BUILDING OF ROADS AND TRAILS.

The permit to construct, enlarge, and repair roads and trails in reserves is granted only by the Secretary of the Interior, and never by rangers or other forest officers.

Anyone wishing to construct a road or trail should make application to the Secretary of the Interior.

This application should state:

1. Name of reserve.
2. Name and address of party desiring to build the road.
3. Location and length of the road, giving terminal points and course. This should be accompanied by a map.
4. Width of road and width of right of way intended to be cleared.
5. Character of land, or whether the road passes through timber, burns, or open parks.
6. Amount of timber and stone desired for purposes of construction.
7. When and by whom it will be built.
8. What demand there is for such road.

This application may be sent to the Secretary of the Interior direct or transmitted through the supervisor. In any case, an investigation and full report of the forest officer is required before it can be considered. For this reason all applications of this kind should be made in good season, and not deferred to the last moment.

RIGHTS OF WAY FOR IRRIGATION DITCHES, CANALS, PIPE LINES,
AND RESERVOIRS.

The law says that:

All waters on such reservations may be used for domestic, mining, milling, or irrigation purposes, under the laws of the State wherein such forest reservations are situated, or under the laws of the United States and the rules and regulations established thereunder.

The manner of dealing with projects of this kind is laid down by law.

The permit to build and use such ditches, etc., can be granted only by the Secretary, and not by any forest officer. Anyone wishing to construct a canal, etc., should apply, by letter, to the Secretary of the Interior, since a full explanation of the requirements is beyond the scope of this manual.

Generally, it requires an application with proper survey, map, and field notes; execution of a bond; investigation and report of forest officer; consideration by the Department, and granting or refusal of permit.

While the law distinctly permits the use of water for these purposes, it is equally distinct in stating:

That no such right of way shall be so located as to interfere with the proper occupation by the Government of any such reservation. * * *

As in all cases of this kind, to begin work before permission is given by the Department, is trespass, and should be promptly stopped and reported by forest officers.

RAILWAYS, TELEGRAPH AND TELEPHONE LINES.

The manner of dealing with these enterprises is similar to that prescribed for canals, etc.

A formal application with maps and field notes of a regular survey is submitted, a bond is executed, and the report of a forest officer on the nature of the ground along the line, and the effect of the construction of the line in the reserve, and its management, are considered in connection with the papers of the company.

After permit is issued the construction can begin. The forest officer in charge of the particular district should in every case make certain that a permit has been granted; and, in case no permit has been issued, he should stop the work and report the case as a trespass, according to the form provided for such cases.

SITES FOR SCHOOLS AND CHURCHES IN RESERVES.

Schoolhouses or churches may be erected on reserve lands, but the amount of land used for any one school or church site must not exceed 2 acres. The matter is simply a privilege; the title to the land remains in the Government. To obtain

the privilege, application is made according to the prescribed form; see p. 68.

HOTELS, ROAD RANCHES, STORES, AND OTHER BUSINESS ENTERPRISES IN FOREST RESERVES.

Establishments of this kind are permitted wherever the demand for them appears to warrant the granting of a permit for their construction and maintenance.

The Secretary alone grants the privilege. So far, it is granted free of charge. The application is made as per form on page 68.

A report of the forest officer in regular form accompanies the application or is made afterwards.

The applicant in all cases of this kind signs a definite contract in which he agrees to observe the several rules and regulations governing forest reserves, especially those relating to the protection of timber against fire and trespass. Where the importance of the case appears to warrant, the applicant is required to give bond to assure proper fulfillment of his agreement.

Where the rapid development of some mining districts leads to the sudden "springing up" of little hamlets or towns, the mistake has frequently been made to build on bogus or fraudulent mineral claims, commonly placer claims, without any showing of mineral. Since this use of the placer claim, and the removal of the timber for such purposes, is trespass, and is almost certain to lead to complications and prosecution, forest officers should inform the people to this effect, and induce them to make applications to the Department for use and occupancy of the ground, in the manner set forth above for hotels, stores, etc.

Application for permit to erect a sawmill on land within a forest reserve is made in the same form as for other privileges. In addition to the information reported in other cases, the applicant will state the kind of mill, water or steam power, its daily capacity, and the kind of machinery, whether circular or band saw, and whether shingle, lath, or other additional machinery will be used. Also, whether the lumber is dried on the ground, necessitating a large yard, or is hauled away green.

Applicants for sawmill permits are required to enter into a contract (see form of contract on p. 79) and execute a bond for its proper fulfillment.

The proper disposition of refuse especially is insisted upon in every case.

SANITARIUMS AND HOTELS AT MINERAL, MEDICINAL, OR OTHER SPRINGS.

Land about such springs can be leased.

The Secretary alone grants permit and leases such lands.

The proceeds of such leasing go to a special fund and are expended in the care of the forest reserves.

The application is made in the same manner as prescribed for ordinary hotels, stores, etc.

The time for which the lease may be drawn, and the amount to be paid per year, are determined by the Department.

TRAVEL IN AND ACROSS THE RESERVES.

All law-abiding people are permitted to travel in forest reserves for purposes of prospecting, surveying, to go to and from their own lands or claims, and for pleasure or recreation.

But in every case the person or persons so traveling, camping, etc., must obey the rules established by the Department for forest reserves, and particularly will they be expected to refrain from doing anything which may result in injury to the forests. See information concerning fires.

GRAZING IN FOREST RESERVES.

The Secretary of the Interior, in being charged with the proper protection of the forest reserves, has the right to forbid any and all kinds of grazing therein.

Whenever the grazing appears to do no marked damage to the forests of the reserve, grazing is allowed by the Department; but until the Secretary has decided that it will do no harm, and that a certain number of either sheep and goats or cattle and horses may graze in a reserve or part of a reserve, the grazing of stock is prohibited; and all parties responsible for its presence in the reserve prior to such decision by the Secretary of the Interior, are liable to criminal and civil suits for trespass and damage.

The grazing is generally governed by the following conditions :

1. Only citizens of the United States, or those who have declared their intention to become citizens, are entitled to the grazing privilege.

2. Stock owned by residents of one State or Territory is not allowed to graze in a forest reserve in another State or Territory.

3. The grazing of sheep, goats, and horses in herds is generally prohibited. If allowed, it is only in those reserves or in parts of reserves where special conditions warrant special privileges.

4. Cattle are generally allowed to graze in all reserves, and excluded only in cases where unfavorable conditions make all grazing undesirable.

5. The few head of horses of prospectors and travelers are not considered in matters of grazing, and require no permit.

6. When the grazing has been allowed by the Secretary, all persons who desire the grazing privilege must make application on a blank form furnished by the Department and to be had of the forest supervisor. These applications must cover no more nor no less stock than the applicant actually owns and intends to graze in the reserve.

7. The applications for sheep grazing are handled in two ways:

(a) Where a woolgrowers' association exists, which includes a majority of the persons who are interested in the use of the reserve, the association may allot the range and sheep among the applicants, the allotment being to individual applicants, except when circumstances make necessary the allotment of joint ranges; but in no case is the reserve to be used in common, regardless of such allotments. The applications for the allotted ranges and the number of sheep allowed each applicant are then to be approved by the association and forwarded to the supervisor. The application, together with the recommendations of the supervisor, is then submitted to the Department, where it is approved or refused, and where the necessary permits are issued.

(b) Where such an association does not exist, or does not care to assume responsibility, all applications are made to the forest supervisor direct, who acts upon and forwards the same

to the Commissioner of the General Land Office, with his approval or other recommendation.

8. No stock of any kind is allowed to graze in a reserve without a permit based on the the application made. All permits, except those for 100 head or less of cattle and horses owned by persons who live in the reserve, are issued by the Department.

9. The supervisor may issue permits himself for not more than 100 head of cattle and horses combined, to any one person who actually lives in the reserve and who does not own more than 100 head; but the permit must not cover more stock than he owns, be it few or many, up to 100. These reserve residents or farmers must make application, the same as outsiders, before the supervisor will issue the permit.

10. The applications of all reserve residents who have more than 100 head of cattle and horses are to be forwarded to the General Land Office the same as the applications of outsiders, and the Department will issue the permits thereon.

11. Reserves in which grazing is allowed by the Department will be divided into sheep and cattle ranges whenever this can be done without injury to either interest; but such division must first be determined by the Department. At the end of each grazing season the supervisor should report fully on any such existing divisions, and recommend any changes or further divisions which are warranted by existing conditions.

12. Sheep are always herded and restricted to the limits fixed by the Department.

13. Cattle and horses need not be herded, and may roam at large.

14. When the owner of cattle or horses who has a permit, is ready to drive in his stock, he should notify the supervisor, stating the number and brand.

15. Cattle and horses of persons who graze on the reserve only part of the time, some days off and some days on, require a permit; but such cases should be fully explained by the supervisor when he makes his recommendations and estimates.

16. Applicants for the grazing privilege are given preference in the following order:

(a) Persons residing within the reserve.

(b) Persons owning ranches within the reserve, but not residing thereon.

(c) Persons living in the vicinity of the reserve owning what may be called neighboring stock.

(d) Persons living at a distance from the reserve who have some equitable claim to use the reserve.

17. Class (b) under paragraph 16 should not be construed so as to allow large stock owners to obtain the preference therein given, by simply buying or obtaining small ranches inadequate for their business. This will not be tolerated.

18. All persons holding grazing permits pledge themselves to assist in protecting the reserve and in preventing and fighting fires.

19. All persons who violate any of the reserve rules, or the terms of their applications and permits, will be debarred from the use of the reserve.

20. Persons who own, or who have leased from owners, lands within any reserve which they desire to use for grazing purposes, and who must cross the reserve lands with their stock to reach such private holdings, must make application to the supervisor for the privilege of crossing. The application must be accompanied with an abstract of title showing the ownership of the land, and, if leased from an owner, a certified copy of the lease, and must state the number of stock to be taken in, the length of time required to cross the reserve land, the route over which the stock is to be driven, and the date of starting, and the time when the stock will start out again; also how much stock the owned or leased lands will carry during the period it is proposed to keep the stock thereon. When any such application is made to the supervisor, he will examine it with care, and, if he finds it reasonable and just and made in good faith for the purpose of utilizing such private holdings only, he will approve the same and forward it to the Commissioner of the General Land Office. After the Secretary approves the application, due notice thereof will be given the applicant, through the supervisor, and he may then take his stock in; but owners of lands within a reserve where grazing is allowed, may avail themselves of the grazing privilege under paragraph 16 of this circular.

21. The total number of cattle and horses or sheep that may be allowed in a reserve is fixed by the Secretary of the Interior for the following year at the end of each grazing season. At the end of each season the supervisor should, therefore, go

over the grazing grounds and examine into the effect the grazing has had on the reserve and make a full report thereon, with such recommendations as to changes in the number to be allowed the following year, and such changes as to the areas to be opened to grazing, as are warranted by the season's experience.

For forms of grazing applications and permits see p. 80.

FREE USE OF TIMBER AND STONE.

1. *The matter is a privilege, and not a right. It may be refused to any person.*

2. *Who can get timber under free-use provisions of law:* It is usually granted to settlers, farmers, prospectors, and others residing within or in the neighborhood of a forest reserve.

3. *Who can not get it:* It is refused to corporations, companies, sawmill parties, and owners of large establishments, who require larger quantities and are expected to purchase; and to nonresidents of the State in which the reserve is located.

4. *How much is given, and by whom:* Permits for an amount not exceeding \$20 in stumpage value may be granted by the forest supervisor. Permits for a larger amount, and within the stumpage value of \$100, are granted only by the Secretary of the Interior.

5. *How often the same person can apply:* Not oftener than once a year.

6. *How long a permit holds good:* Six months from the date when it was issued; or less time, in the discretion of the forest supervisor.

7. *What can be obtained:* All kinds of timber; generally dry firewood, dry poles and logs; also, if really needed, green timber.

8. *How obtained:*

(a) Application must be made to the forest supervisor.

(b) Blank form of application is furnished by the forest officers, and is filled out and signed by the applicant. (If necessary, the forest officer will lend assistance in filling out the blank application.)

(c) The timber must be located by a forest officer before any cutting is done.

9. *Terms of this privilege:*

(a) Only the timber applied for can be cut. For instance, no green timber may be taken if dry wood is applied for.

(b) Only so much can be cut as was applied for; and it must be measured, either standing or in the pile, before being hauled away.

(c) No unmarked live timber can be cut.

(d) There must be no cutting across the line of the area assigned. Cutting across the line is trespass.

(e) The rules about cleaning up tops and brush must be obeyed. The cutting area must be left in good, clean condition.

(f) The rules, generally, governing forest reserves must be observed.

(g) The wood, timber, or material derived from it is to be used only at the place stated in the application. The use of it elsewhere, and especially the sale of it, makes the cutting a trespass, and the applicant becomes liable to suit and *is always debarred thereafter from the privilege of free use.*

(h) The cutting of the timber by a local mill is permissible; but the sawing must be paid for in cash, and *can not be done on shares.* Moreover, the sawing and hauling of the lumber must be done in a manner required by the forest officer, and in such way as to enable him to determine whether or not the timber and lumber are really used in the place and manner promised in the application.

(i) In placing a valuation on timber given under the "free-use" act, \$1 per M for timber, green or dry, and 25 cents per cord for fuel wood will be the minimum price considered.

(k) Applications for "shakes," etc., involving a wasteful use of timber, will be refused wherever a more economical utilization and satisfactory cleaning up of the tops and lops is not guaranteed.

10. In case of emergency, where needy persons require immediate relief in the form of a load of dry firewood, the supervisor has authority to grant such privilege without marking or measuring the material beyond assigning to the applicant the particular area where to cut this material; all cases of this kind to appear in the usual monthly report.

11. The "free-use" permit being considered a very important one, forest officers will not fail to deal with these cases promptly and justly, and will at all times lend assistance in making out applications and otherwise assisting deserving applicants.

SALE OF TIMBER IN FOREST RESERVES.

GENERAL.

1. Timber will be sold, both live and dead, wherever the removal of such material will be beneficial, or at least not detrimental, to the forest reserves.

2. In the disposition of this material the local demand will have preference, and, in localities where this local demand is so great that all available timber is likely to be needed, applications involving the export of the material to distant points will be refused.

HOW THE TIMBER MAY BE PURCHASED.

1. The applicant who wishes to purchase timber will apply, in person or in writing, to the supervisor of the reserve, stating—

- (a) How much timber he wishes to buy;
- (b) The kind of material desired;
- (c) Where the timber is located.

2. As soon as practicable the supervisor or his assistant will go over the ground with the applicant, and determine whether the timber may be sold, under what conditions, and at what price.

3. After an agreement is reached the applicant should sign a definite application, prepared on the regular form, with the assistance of the forest officer.

4. After this, the forest officer marks out the block or area where the timber may be cut, maps it, and estimates the amount of timber on the whole, and also the particular kind applied for. He also makes a general forest description of the tract, block, or quarter section.

5. Then the application, together with the forest officer's description and recommendation, is sent to the Department at Washington.

6. If approved, the timber will be advertised in a local paper for thirty days (sixty days in California). This advertisement will be waived only in cases where the amount involved in the sale is of \$100 stumpage value, or less.

7. Bids on this timber will then be in order. These bids, together with a deposit (insuring the good faith of the bid-

der), should be sent by the bidders to the receiver of the local land office, and the bid will be forwarded from that office to the Department.

8. At the end of thirty days (sixty days in California), the timber will be awarded to the highest bidder; and if the applicant is the successful bidder, the deposit is credited on the sale; if not, the money will be refunded.

9. When the timber is awarded the applicant will sign a contract containing the specifications contained in the original application, as to manner of cutting, scaling, and cleaning up, etc., and, if the case seems to justify it, he will be asked to give a bond, usually in an amount double the value of the timber, to secure the proper fulfillment of the contract.

10. Cutting may then begin.

11. The material will be skidded or piled in the customary manner, and the purchaser is required to mark the tops of the logs to facilitate scaling.

12. The scaling will be done in the customary way by the old Scribner rule, by which the contents of a 16-foot log are as follows:

Diameter inside of bark.	Contents.	Diameter inside of bark.	Contents.	Diameter inside of bark.	Contents.	Diameter inside of bark.	Contents.
<i>Inches.</i>	<i>Feet B. M.</i>	<i>Inches.</i>	<i>Feet B. M.</i>	<i>Inches.</i>	<i>Feet B. M.</i>	<i>Inches.</i>	<i>Feet B. M.</i>
6	9	17	185	28	582	39	1,120
7	16	18	213	29	609	40	1,204
8	25	19	240	30	657	41	1,272
9	36	20	280	31	710	42	1,343
10	49	21	304	32	736	43	1,396
11	64	22	334	33	784	44	1,480
12	79	23	377	34	800	45	1,518
13	97	24	404	35	876	46	1,587
14	114	25	459	36	923	47	1,656
15	142	26	500	37	1,029	48	1,728
16	159	27	548	38	1,068		

This rule applies to saw timber and mining timber. Logs of 24 feet and over in length, are scaled at more than one point; so that a log 24 feet long, for instance, is scaled at 16 feet and at the top. In other words, long pieces are treated as 16-foot logs and fractions thereof.

Square-hewed goods are measured like sawed timber, as solid pieces. Thus, an 8 by 12 inch 16-foot timber contains 128 feet B. M.

Railway ties are simply counted, and

30 ties, 8 feet in length, equal 1,000 feet B. M.

40 ties, 6 feet in length, equal 1,000 feet B. M.

Cordwood is measured in the ordinary way. Where green timber, 8 inches and over in diameter, is cut into cordwood, it is charged as timber, and two cords are considered equal to 1,000 feet B. M.

13. The scaling will be done according to the conditions of the case. If the cutting is on a sufficiently large scale, it will be done in such a way as to keep up with the work; otherwise, the scaling will be done at set times.

14. All timber must be marked with the United States stamp before it may be removed.

The following blank forms for application and contract, filled in as samples, will be used in all timber sales:

4—178

No. 123.

PUBLIC TIMBER SALE.

Black Hills Forest Reserve.

APPLICATION.

I hereby make application for the sale and purchase of timber located and described as follows: 100 M feet B. M., saw timber, green or dry; no M feet B. M., mining timber, green or dry; no railroad ties, ——— green, ——— dry; 250 cords cordwood, ——— green, and dry———; and is located *SW. ¼, SW. ¼, S. 25, T. 3 N., R. 3 E.* To be used at *mines near Deadwood.*

I promise to deposit with the receiver of public moneys at the United States land office at *Rapid City, S. Dak.*, such sum as may be required at the time of filing my bid for the above-described timber, and I further promise that in case my application is favorably considered I will deposit with the said receiver such sum as may be required to cover the cost of advertising for bids for the purchase of this timber, and in

the event that the timber is awarded to me as the successful bidder I promise to pay to the said receiver the amount covered by my bid. [Here insert the condition of payment, whether full cash payment or one-third down and the balance in thirty, sixty, and ninety days, as the case may be.] *Cash in advance, at price of: \$2.50 per M. ft. B. M. for timber; 30 cents per cord for cordwood of all kinds; credit being given for the sums heretofore deposited with the said receiver by me in connection with this sale and purchase; which, otherwise, will be refunded to me.*

And I further agree and promise to conduct the work of cutting and removing said timber in accordance with the following specifications:

1. I will comply strictly with the laws and the regulations governing forest reserves.

2. Submit all timber and wood to measurement by the forest officer before the same is removed.

3. Pay in advance for all timber before cutting the same.

4. To cut only timber on the area agreed upon and blazed and marked, and not to cut any of the live trees bounding this area.

5. To leave no logs, ties, lagging, or other material in the woods, and to pay double the agreed price for any material thus left in the woods.

6. To pay for all material used in shanties or buildings of any kind; also for material used in the construction of skidways, corduroy, log roads, bridges, and other improvements.

7. To cut only marked timber, and to cut all marked timber.

8. To leave no trees lodged in process of felling.

9. That all material is marked on skidway or in pile, the amount to be placed in plain figures at top or on blaze near by, and that no material will be piled on such skidway or pile after the scaling has been finished.

10. All felling and cutting with saw, *except firewood.*

11. Stumps ——— high; none higher than *18 inches.*

12. Shaft of tree to be used to diameter of *6 inches,* ———.

13. Cordwood to be cut from all tops down to a diameter of *3 inches.*

14. Tops to be dragged bodily into openings ready for burning. *See 15.*

15. Tops to be lopped and brush piled *on entire area.*

16. No hewing, except at skidways in openings ———.
17. No cutting of timber in summer season between month of ——— and ———. *Waived in this case.*
18. Cut all dead material sound enough for fuel ———.
19. Cut only standing dead material. *See No. 18.*
20. Cut only and all dead material. *Dead and green allowed.*
21. Build camps at place agreed upon, located ———, as per map ———. *No camps allowed in this case.*
22. Construct dam at point agreed upon, located at ———, as per map ———. *No dams allowed in this case.*
23. To pile or skid all material before measuring ———.
24. Scaling to be done [once a week or month, continuously, to keep up with cutting] *once a week*, the maximum to be not over 20 M feet B. M., and 25 cords, ——— ties per day or week, *per week.*

I further agree that in case my bid for this timber is accepted I will execute a contract embodying the above provisions for the purchase of said timber, and deliver therewith a bond which shall be satisfactory to the forest officers for the faithful performance of the conditions imposed in said contract; and I further agree that in case of failure on my part to fulfill, all and singular, the requirements of said contract I will forfeit the said bond and all moneys paid to the receiver of public moneys herein mentioned.

JNO. DOE.

Dated at *Hill City, S. Dak., Jan. 15, 1902.*

—————
4—179.

No. 123.

PUBLIC TIMBER SALE.

—————
Black Hills Forest Reserve.
—————

CONTRACT.

This contract is hereby entered into by and between *Jno. Doe*, party of the first part, and the Secretary of the Interior

for the United States of America, party of the second part, for the purchase of certain public timber in the *Black Hills* Forest Reserve, based upon the bid of the said *Jno. Doe* for said timber, submitted in pursuance of a duly advertised proposal to sell said timber, which bid has been accepted by the Secretary of the Interior, said bid and advertisement being made a part of this contract.

Approximately 100 M feet B. M., saw timber, green or dry; no M feet B. M., mining timber, green or dry; no railroad ties, ——— green, ——— dry; 250 cords cordwood, ——— green, and dry. All timber to be removed within one year from date of this contract, and is located S W. $\frac{1}{4}$ of S W. $\frac{1}{4}$, S. 25, T. 3 N., R. 2 E. To be used at mines near Deadwood.

In consideration of the sale of this timber to me I, *Jno. Doe*, promise to pay the Receiver of Public Moneys at the United States Land Office at *Rapid City, S. Dak.*, the sum of *three hundred and twenty-five* dollars (\$325), being at the rate of \$2.50 per thousand for timber and 30 cents per cord for cordwood, entire sum cash in advance, credit being given for the sums heretofore deposited with the said Receiver by me in connection with this sale and purchase.

And I further agree and promise to conduct the work of cutting and removing said timber in accordance with the following specifications:

1. I will comply strictly with the laws and the regulations governing forest reserves.
2. Submit all timber and wood to measurement by the forest officer before the same is removed.
3. Pay in advance for all timber before cutting the same.
4. To cut only timber on the area agreed upon and blazed and marked, and not to cut any of the live trees bounding this area.
5. To leave no logs, ties, lagging, or other material in the woods, and to pay double the agreed price for any material thus left in the woods.
6. To pay for all materials used in shanties or buildings of any kind; also for material used in the construction of skidways, corduroy, log roads, bridges, and other improvements.
7. To cut only marked timber, and to cut all marked timber.
8. To leave no trees lodged in process of felling.

9. That all material is marked on skidway or in pile, the amount to be placed in plain figures at the top or on the blaze near by, and that no material will be piled on such skidway or pile after the scaling has been finished.

10. All felling and cutting with saw, *except firewood*.

11. Stumps ——— high; none higher than 18".

12. Shaft of tree to be used to diameter of 6 inches, ———.

13. Cordwood to be cut from all tops down to a diameter of 3 inches.

14. Tops to be dragged bodily into openings ready for burning. *See No. 15.*

15. Tops to be lopped and brush piled *on entire area*.

16. No hewing, except at skidways in openings ———.

17. No cutting of timber in summer season between month of ——— and ———. *Waived in this case.*

18. Cut all dead material sound enough for fuel ———.

19. Cut only standing dead material. *See No. 18.*

20. Cut only and all dead material. *Dead and green allowed.*

21. Build camps at place agreed upon, located ———, as per map ———. *No camps allowed in this case.*

22. Construct dam at point agreed upon, located at ———, as per map ———. *No dams allowed in this case.*

23. To pile or skid all material before measuring ———.

24. Scaling to be done [once a week or month, continuously, to keep up with cutting] *once a week*, the maximum to be not over 20 M feet B. M., and 25 cords, ——— ties per day or week, *per week*.

And as a further guarantee of a faithful performance of the conditions of this contract, I have executed and deliver herewith a bond in twice the amount of the purchase price named in this contract, which bond shall be forfeited, together with all moneys paid or promised under this contract, upon failure upon my part to fulfill, all and singular, the conditions and requirements herein set forth or made a part hereof.

Given under my hand at *Lead, S. Dak.*, this 20 day of *Feb.*, 1902.

JNO. DOE.

Given under my hand at Washington, D. C., this 15 day of *March*, 1902.

—————, Secretary of the Interior.

SPECIAL CONSIDERATIONS.

The following considerations are of special importance:

1. Applications will be considered and attended to in the order in which they are received; but exceptions to this rule will occur, with special local conditions, such as isolation of particular cutting, great distances, insufficient force of workers, etc.

2. All applications in any reserve will be held up and delayed whenever it becomes evident that the reserve force, for any reason whatever, fails to carry out the work according to the prescribed regulations.

3. The timber purchased is not in every case the amount called for in the application, but the amount actually found on the cutting area as located and marked out by the forest officer. If there is less timber on this area than the applicant desires he must make a new application, but is never allowed to cut over the original line as laid down for his case.

4. The following violations of the regulations will be regarded as trespass, and will lead to a suspension of all operations until the case is settled:

- (a) Cutting across the line surrounding the cutting area;
- (b) Cutting of unmarked timber;
- (c) Removal of any material before it is properly scaled and stamped or marked.

5. Since a considerable time is necessarily required in attending to any case of timber sale, and the law positively forbids any short-cut methods, the public is earnestly requested not to delay applications of this kind.

6. When the applicant fails to hear of his application in a reasonable time, say thirty days, he should address letters both to the supervisor and to the Commissioner of the General Land Office, Washington, D. C.

7. Any incivilities, or evident neglect on the part of the forest officers which hinders the purchaser in his work or endangers his case by giving to it the appearance of willful or negligent trespass, should be reported to the supervisor, and, if not promptly corrected, should be reported to the Commissioner of the General Land Office.

8. Trespassers, in the absence of a proper settlement for the trespass, will not be awarded timber.

9. It is a common mistake on the part of applicants and forest officers, to suppose that any kind of timber under any circumstances must be sold whenever any one wishes to purchase. Such is not the case. Timber will be sold only—

(a) If it may be spared without injury to the reserve.

(b) If it is really in demand to supply local needs, either by being used in the vicinity or by maintaining local industries.

(c) If the demand is such that applicant can afford to and is willing to make clean work of his cutting, and thus leave the forest in a satisfactory condition, and not merely to pick out some particularly desirable material or to leave it a mere "slash."

RELINQUISHMENT OF CLAIMS.

The law provides that where a tract within a forest reservation is covered by an unperfected bona fide claim, or by a patent, the settler or owner may, if he so desires, relinquish the tract to the United States and select in lieu thereof a tract of vacant public land outside of the reservation, open to settlement, not exceeding in area the tract relinquished. No charge is to be made for placing the new entry of record. This is in consideration of previous fees and commissions paid. Where the entry is in lieu of an unperfected one, the necessary fees in the making of final proof and issuance of certificate will be required. Where the entry is based on an unsurveyed claim, all fees and commissions attending entry must be paid, none having been paid previously.

Where an application is made for change of entry under the above provision, it must be filed in the land office for the district in which the lieu selection lies. The application must describe the tract selected and the tract covered by the unperfected entry, and must be accompanied by a formal relinquishment to the United States of all right, title, and interest in and to the tract embraced in said entry. There must also be filed with the application an affidavit, corroborated by at least two witnesses cognizant of the facts, showing the periods and length of claimant's residence on his relinquished claim; as credit for the time spent thereon will be allowed under the new entry in computing the period of residence required by law. Residence and improvements are requisite on the new entry, the same as on the old, subject only, in respect to

residence, to a deduction of the period covered by the relinquished entry.

Where final certificate or patent has issued, it will be necessary for the entryman or owner thereunder to execute a quitclaim deed to the United States, have the same recorded on the county records, and furnish an abstract of title, duly authenticated, showing chain of title from the Government back again to the United States. The abstract of title should accompany the application for change of entry, which must be filed, without the affidavit therein called for.

In case a settler on an unsurveyed tract within a forest reservation desires to make a change of settlement to land outside of the reservation and receive credit for previous residence, he should file his application, including the affidavit as to residence therein required, and describing his unsurveyed claim with sufficient accuracy to enable the local land officers to approximately determine its location.

All applications for change of entry or settlement must be forwarded by the local officers to the Commissioner of the General Land Office for consideration, together with report as to the status of the tract applied for.

Where land has been relinquished to the Government, the supervisor will be informed as soon as the transaction is completed by the acceptance of the quitclaim deed or its equivalent on the part of the Government.

The supervisors will make diligent effort to ascertain the status of all lands within their reserves, and record the same in their books, so that a complete report may be made on this subject at any time.

This record should also be shown on one of their maps.

RESTRICTIONS AND PENALTIES.

FIRES IN FOREST RESERVES.

The law of 1900 says—

That any person who shall willfully or maliciously set on fire, or cause to be set on fire, any timber, underbrush, or grass upon the public domain, or shall leave or suffer fire to burn unattended near any timber or other inflammable material, shall be deemed guilty of a misdemeanor, and upon conviction thereof in any district court of the United States having jurisdiction of the same shall be fined in a sum not more than five thousand dollars or be imprisoned for a term of not more than two years, or both.

That any person who shall build a fire in or near any forest, timber, or other inflammable material upon the public domain shall, before leaving said fire, totally extinguish the same. Any person failing to do so shall be deemed guilty of a misdemeanor, and upon conviction thereof in any district court of the United States having jurisdiction of the same shall be fined in a sum not more than one thousand dollars or be imprisoned for a term of not more than one year, or both.

That in all cases arising under this act the fines collected shall be paid into the public-school fund of the county in which the lands where the offense was committed are situated.

This law is perfectly clear in forbidding two things:

(a) To *set fire* to the woods.

(b) To *leave a fire*, such as a camp fire, etc., without extinguishing the same.

To inform and warn the public, "fire-warning notices" are freely distributed. To tear down such a notice is a willful and malicious trespass, punishable by a fine of \$500.

PENALTIES FOR THE VIOLATION OF THE FOREST RESERVE LAWS.

To violate the laws and the rules and regulations established for the protection of reserves is forbidden, and the law says that such a violation shall be punished according to the act of June 4, 1888, which provides that—

Every person who unlawfully cuts or aids, or is employed in unlawfully cutting, or wantonly destroys, or procures to be wantonly destroyed, any timber standing upon land of the United States * * * reserved for military or other purposes * * * shall pay a fine of not more than five hundred dollars or be imprisoned not more than twelve months, or both, in the discretion of the court.

This law applies to any willful or malicious trespass, whether in timber, by grazing, destruction of property, or otherwise.

ORDINARY TIMBER TRESPASS.

Of this trespass there are a number of distinct forms.

A person trespasses in a forest reserve by—

(a) Cutting and removing timber without permit.

(b) Cutting and disposing of *more* timber than is necessary to develop his mining claim.

Thus the claimant of a placer claim may cut timber on his claim to develop it, to erect buildings, construct flumes, etc. But when no more such structures are needed, or he ceases to

build such structures he can cut only so much timber as is actually necessary to work the claim or develop it. If for purposes of digging away the ground, or similar necessary work, it is required to clear part of the claim of timber, such timber may be taken from the claim and used elsewhere or even sold. But where a forest officer finds that timber is being removed without such legitimate use and without such necessity to the carrying on of the work of the claim, and especially where he finds that timber removed in this illegal way is being sold, it becomes his duty to interfere, report the matter as trespass, and give notice to stop the work.

(c) Trespass is committed if the settler on an agricultural claim cuts more timber than must be cut in the actual clearing of the land for cultivation. But the settler has a right to sell logs which he cuts in actual clearing for cultivation. Forest officers will take care in dealing with such cases not to overstep their power and cause unnecessary hardship.

(d) Trespass is committed by violating the principal rules in cases of "Free use of timber" and "Sale of timber."

Timber trespass is punished according as it is committed willfully or by mistake.

The following is the decision of the United States Supreme Court:

1. Where the trespasser is a knowing and willful one, the full value of the property at the time and place of demand, with no deduction for labor and expense of the defendant, is the proper rule of damages.

2. Where the trespasser is an unintentional or mistaken one, or an innocent purchaser from such a trespasser, the value of the timber at the time when first taken by the trespasser, or if it has been converted into other material, its then value, less what the labor and expense of the trespasser and his vendee have added to its value, is the proper rule of damages.

3. Where a person or corporation is a purchaser without notice of wrong from a willful trespasser, the value at the time of purchase should be the measure of damages.

Generally, then, the willful trespasser pays what the material is worth at the lumber yard, mine, etc., where it is found, while the unintentional trespasser pays simply the stumpage price.

Forest officers report a trespass according to the blank provided for this purpose, taking care to have dates, names, amounts, and places determined with care.

TRESPASS BY GRAZING.

Any person grazing stock, cattle, horses, sheep, and goats in forest reserves without permit; and any person driving herds of stock across such reserves, *without permit*, commits trespass. A person committing this kind of trespass is guilty of violating the rules of forest reserves and of destroying timber, by damaging and destroying the seedlings and young growth of forest trees.

UNLAWFUL INCLOSURE.

This form of trespass is forbidden by special law (act of 1885), which should be enforced in every case.

The manner of reporting on this subject is prescribed by the form on p. 73.

SETTLEMENT IN FOREST RESERVES.

Trespass of this kind almost invariably involves trespass in timber, which in this case must be regarded as willful.

MISCELLANEOUS TRESPASS.

Trespass is committed in forest reserves by doing any of the following acts without permit:

- (a) Building of roads, trails, and railways.
- (b) Construction of ditches, canals, and reservoirs.
- (c) Erecting telephone and telegraph lines.

(d) Erecting, occupying, and conducting hotels, stores, saw-mills, power plants, and other manufacturing enterprises, and carrying on any kind of work except as permitted by law and regulations, unless performed on patented land or land held under some form of valid title. Any kind of trespass should be stopped and reported, and the failure to discover, stop, and report trespass will be considered one of the most serious deficiencies in a forest officer.

For more exact and detailed information as to the several laws and rules concerning forest reserves, see *Compilation of Laws and Regulations and Decisions Thereunder*, relating to

the Creation and Administration of Public Forest Reserves, which may be obtained by applying to the forest supervisor or to the Commissioner of the General Land Office.

DUTIES OF FOREST OFFICERS.

The work of forest officers, supervisors, and rangers may be enumerated as follows:

1. Protective duty, guarding against fire and trespass, fighting fires and stopping trespass, as well as assisting the State authorities in the protection of game.

2. Care and propagation of the forest by a judicious management of timber sales and cases of "free use" of timber, and actual propagation by seeding and planting.

3. Special work in attending to grazing, to the supervision of the construction of roads and other improvements, and in examining into and reporting upon the numerous claims and applications for special privileges, etc.

4. Permanent improvements carried out by the reserve force, such as making surveys of land and timber, and the construction of trails, cabins, bridges, and other improvements.

PROTECTIVE DUTY.

1. PREVENTING AND FIGHTING FIRES.

It is expected that every ranger and other forest officer is constantly on the lookout for fires.

Fire notices.—An ample supply of fire-warning posters will be furnished at all times, and it is imperative that the reserves be thoroughly "posted" with these useful notices. The fact that, in a few rare cases, malicious persons destroy them, is no excuse for neglecting this important preventive effort. In many cases the warning can be combined with some useful information, such as a signboard to indicate the trail or distance to nearby or important points, to indicate the reserve line, limits of districts, or excluded parts in grazing ranges, etc. The destruction of the notices is willful trespass.

Camp fires.—Forest officers should inform transients and others concerning the rules and regulations governing camp and other fires. This should be done cheerfully and politely; and an officer who is unable to talk with persons who, from ignorance concerning the rules, or from lack of experience in

camping, appear to do wrong, without losing his temper or without using improper language, fails to that extent in one of his principal duties. In cases where inexperienced persons build a fire against a large rotten log merely to cook a cup of coffee, or where a fire is built in a mass of dry duff, etc., and where the work of putting out such a fire is beyond ordinary effort, a forest officer should call their attention to such mistake and instruct them in the proper way of building and handling fires. The two main points in this connection are always:

(a) Do not start a fire where it will be difficult to put it out.

(b) Never leave a fire without putting it out. This is law.

The puerile desire to see a fine balsam or spruce burn and show like a huge candle in the night, which has so often been expressed and carried out, must, of course, never be tolerated. It is malicious burning, and may bring a fine of \$5,000.

Lightning fires.—Fires from this source are not rare, especially in our dry mountain regions, and it is necessary after every electric storm to make a special effort to locate and extinguish any such fires before they are well under way.

Fighting fires.—When once a fire has spread over an acre or more, especially on difficult ground where a large amount of dead and down material makes it a real hot fire, the matter is frequently beyond the possibilities of one ranger alone. In such cases it is often best to seek for help.

In fighting fires of this kind the character and conditions of the woods, the weather, and even the time of day have so much to do with the case that a set of general directions has little value, and the experience and good judgment of the ranger mean everything.

Generally, it may be said that the proper tools to fight the fire are the shovel, mattock, and ax.

For this reason the ranger should always carry at least shovel and ax during all the dangerous season, so that he is never unarmed against this archenemy of the woods.

In humid, heavy timber the fire usually travels slowly, and a few men, if persistent, can keep it in check by trenching, though they can never extinguish it, and must therefore watch it until a rain helps them out.

In dry, open pine woods the fire travels faster, and it is often best to go some distance and hunt the most open and clean ground, trench, and *back fire* from there.

In handling back fires great care is required to avoid the useless burning of forest.

In all kinds of fires, the night or the early morning hours are the best time to work, whenever any choice of time exists; for nearly all forest fires die down more or less during the cool of the night, and then flare up again during the heat of the day.

Generally, we may say:

(a) Protect the valuable timber rather than the brush or waste.

(b) Never leave a fire unless driven out, or until it is put out.

(c) Young sapling thickets suffer more than old mature timber.

(d) A surface fire in open pine woods, though not dangerous, does great harm in destroying the seedling growth.

(e) A fire rushes up hill, crosses a crest slowly, and is more or less retarded in traveling down. Therefore, if possible, use the crest of the ridge and the bottom as your lines of attack.

(f) A good trail, a road, a stream, an open park, check or "bring down" the fire. Use them whenever possible.

(g) A bit of thinking often saves labor and makes work successful. Ill-planned efforts suggested by haste and excitement rarely lead to success.

Expenses.—While the Government is willing and anxious to prevent and fight fires, and is willing to go to considerable expense therefor, it is unreasonable to suppose that an unlimited amount of money is to be devoted to this effort. Experience has proven conclusively that in most cases a reasonable effort is all that is justified, and that a fire which can not be controlled by 20 to 40 men will run away from 100 or even more men, since heat and smoke in such cases make the direct fight an impossibility.

Unusual expenditures will not be tolerated. They are unnecessary, wasteful, and even mischievous. For it is claimed, in not a few cases, that the fire was started and thrived because of the opportunity for a job. In and about nearly every reserve it is possible to enlist the coöperation of the better citizens, and thus to have such an agreement that in time of need there can be had a sufficient number of men, and men of the proper kind. A crowd of men hastily gath-

ered about the taverns, etc., of a town, without organization, without interest, and without experience, is usually a poor makeshift with which to battle a fire.

Accounts.—Every person who is entitled to compensation for services rendered at a forest fire must sign duplicate vouchers for the amount received for such services. The original voucher is transmitted with the forest officer's (supervisor or superintendent) regular monthly account for the month in which the expense of the fire was incurred. The duplicate should be retained for future reference by the officer submitting the account.

Full directions for preparing vouchers and accounts will be found in circular of March 1, 1900, regulating the traveling expenses and other allowances of field employees of this office.

Government employees and parties who have been granted grazing permits or other privileges within a forest reserve, are not entitled to compensation for services rendered in extinguishing a forest fire.

2. GUARDING AGAINST TRESPASS.

Every kind of trespass, but particularly trespass in timber, must be prevented, or reported and stopped.

Whenever a ranger or supervisor passes by a place where timber cutting is in progress, whether under permit or not, he should, if possible, take the time to examine the cutting. He should see that the timber, if cut under permit, is marked; that the block is blazed and marked; that the logs being hauled away are stamped; in general, that the cutting is done according to the rules of the Department set forth in the following pages.

If the cutting is without permit, the ranger should ascertain by what authority the timber is being cut; and if the authority is sufficient he should ascertain if the lines limiting the area are clear, and that no cutting is being done across such lines.

If he finds that the cutting is without permit or without authority, or finds irregularities or violation of the rules, he should at once collect the facts as required by the form of report on trespass in timber and prepare such a report. This report he will transmit to the supervisor. If the case appears to be unquestionably a trespass, the ranger will notify the persons to stop cutting and hauling, taking care to note time

of day, date, and place of such notice, giving such notice, if possible, only in presence of a witness.

Where the case requires prompt action the supervisor will seize all material cut under trespass and invoke such assistance as appears necessary.

If the nature of the case warrants such procedure, the trespasser is asked to settle, and his offer of settlement can accompany the report. In all offers of this kind a *certified check* for the amount offered should accompany the report.

Forest officers will note the above enumeration of trespasses and will guard against all of them. In no case should the officer pass any work, etc., without ascertaining whether or not it is done under proper authority. In reporting the different trespasses the form for general trespass, on page 75, is to be followed.

In all cases of trespass, the supervisor has the right to administer the oath in taking testimony in the case.

CARE AND PROPAGATION OF THE FOREST.

In dealing with cases of timber sales the following instructions should be followed, and should be amplified wherever experience and future study indicate such improvement.

INSTRUCTIONS IN CASES OF SALES AND ALSO IN CASES OF "FREE USE" OF TIMBER IN FOREST RESERVES.

Forest reserves have two chief functions: Continued production of timber and regulation of the water supply; and since timber constantly grows scarcer and in greater demand, and as the industries which depend upon a sure and sustained water flow are certain to increase, the future capability of the reserves is of even greater importance than their present condition. For this reason all questions concerning their management must be decided with regard for future effects as well as immediate results.

The relative importance of the functions referred to varies in different reserves. Protection of the water supply should never be lost sight of, even in the regions of heavy rainfall where lumber production is most important; in mountainous reserves of the arid States it is paramount. It can only be insured where the ground is covered by vegetation, which prevents rapid run-off, and is best attained by a dense growth of vigorous timber.

For this reason, the first question to arise when the removal of any timber is discussed is whether or not it can be spared, and to decide this question, the forest officer must know whether another growth of timber will replace the one removed or whether the land will become waste.

The foremost point to be studied in this connection is the reproduction of the forest under various conditions. The number of small trees, their kind, their vigor, the seed-bearing capacity of those which would be left after cutting, the possible destruction of the young growth by logging or fire—all these points must be considered fully. The growths on similar areas which have been burned or logged afford the best guides in this study.

If it seems certain that the timber may be cut safely, the best method of cutting must be decided—whether the trees below a certain diameter should be left to form the next crop, whether a number of seed trees should be left, whether the surrounding timber will furnish enough and the right kind of seed, whether the cutting may be unrestricted or confined to strips—or, in other words, what system will be surest to bring about satisfactory reproduction.

In unsurveyed territory no attempt to follow the regular square-mile section system need be made. The block should conform to the lay of the land and the conditions which regulate cutting. Ridges and streams should indicate boundaries wherever practicable, and at least one boundary or corner, serving as a starting point, should be identified with some easily found natural object. Roads or streams should be used as base lines where possible. The boundary lines need not run north and south by east and west, but may take such angles as may be necessary to follow the natural outlines referred to. The compass bearing and length of each line must be recorded to admit of proper mapping of the block. All corners must be marked by posts and witness trees bearing the marks of the district and the block; as D-3, B-1, meaning district No. 3 and block No. 1. The boundary lines must be clearly blazed and reinforced by the marking hammer.

The sketch map of the block must include such details as buildings, roads, and trails, fences, mill sites, and mining or other claims. Each block should be mapped on a separate sheet, and all maps must be made on a scale of 12 inches to the mile.

DESCRIPTION AND ESTIMATE.

Complete information concerning each block must be recorded on the blank form, as indicated in the following imaginary case:

Division 3.

District 8, Block 5.

(In case of surveyed land, description by township, range, meridian, section, and quarter.)

1. Topography. *Steep slope on north side of Cougar Creek.*
2. Surface. *Rough, rocky, difficult to log.*
3. Soil. *Compact loam.*
4. Acreage. *Total, 180; timbered, 155; logged, 120; burned, 5.*
5. Character of timber. *Dense stand of pure bull pine except narrow strip along creek in which spruce forms half.*
6. Condition of timber. *Pine unusually sound, except along north edge, which was injured by fire in 1899. Spruce badly ground-rotten and falling constantly. Little dead material of any value on block.*
7. Reproduction. *Pine seedling growth sparse, but there are about 50 trees to acre just under merchantable size. Spruce reproduction good throughout a 10-rod strip along creek. On the whole, second crop is well assured.*
8. Accessibility. *Block lies $\frac{1}{4}$ miles from nearest mill, which is at Red Dog, on the railroad. Good down-hill road all the way, and creek could be made drivable at small expense. The mill referred to is apparently permanent and timber will always be in demand. Can be logged and hauled for \$5 per thousand.*
9. Old cuttings. *About 20 acres in extreme northeast corner was cut in 1899 under sale case No. 40. This cutting is in poor condition, covered with rubbish, and reproduction is poor.*
10. Private interests. *Nothing of the kind but one placer claim on creek near southwest corner of block, apparently abandoned. Practically no timber on this claim.*
11. Proposed cuttings. *(This space is to be used when blank accompanies application.)*
12. Additional information and recommendations. *The burn which touches the north side of the block is covered with rubbish and apt to burn at any time. The prevailing winds are from the north. For this reason believe it safer to cut the block as soon as possible in spite of the good condition of the*

timber. Since there is a heavy stand of small trees, advise reducing the diameter limit from 12 to 10 inches, and do not think it necessary to leave any trees above this size for seed. The cutting should be made with special precaution against fire.

If different portions of the block vary so greatly in character that a single description is impracticable, two or more sections may be indicated on the map by dotted lines and each described on a separate blank.

All estimates of timber, whether for entire blocks or fractions thereof, should be submitted upon the following form, and the method of estimating must be stated.

ESTIMATE SHEET.

Estimated stand per acre on Block 5, District 8, Division 3—
[Here state whether for entire block, portions of block, or tract applied for only.]—Covers entire block.

LIVING TIMBER.

Species. (To be written in).....	Bull Pine.				TOTAL.
Number of trees above 8 inches, per acre.....	70				70
Average height of trees.....	55				55
Average number of trees per M.....	16				16
Average stand, B. M., per acre.....	4400				4400
Per cent deduction for defect.....	5%				5%
DEAD TIMBER SOUND ENOUGH FOR USE.					
Number of trees above 5 inches per acre.....					2
Average stand, B. M., per acre.....					
Cords down timber, per acre.....					1
Cords standing timber per acre, suitable for fuel only.....					1

What per cent of total was actually estimated and what system was used? 10 per cent of the timbered area (155 acres). $\frac{1}{4}$ -acre circle method.

JOHN DOE,
Head Ranger.



HANDLING OF APPLICATIONS.

If, after examining a tract applied for, the forest officer decides to recommend the sale, he explains to the applicant all the requirements which will be demanded of him by the regulations, adding such as he may think necessary in the instance at hand, and these are agreed to in the signed application. To avoid misunderstanding later, it is important that all points concerning the proposed cutting be discussed fully before the application is submitted. Following are a number which must be included in all applications, and the forest officer is expected to add others when advisable:

1. To what minimum diameter on the stump will cutting be allowed?

2. How many seed trees per acre shall be left?

3. To what diameter in the tops must trees be utilized?

4. Should the brush be piled, and in what manner?

5. Will any extra work, such as cleaning up down stuff not cut by the purchaser or burning brush, etc., be required of him?

6. How high are the stumps to be (usually not higher than the tree is thick, and in valuable stuff not above 18 inches)?

7. Should felling be done with saws?

8. Will hewing be allowed except at skidways and openings?

9. Will cutting be allowed throughout the year?

10. What material may be used for skidways, road material, and camps, and shall it be paid for?

11. Where will applicant be allowed to locate camps, roads, dams, etc.?

CASE OF DEAD TIMBER.

This includes only *wood*, standing or down, which is actually dead, and in no case trees which are apparently dying. In the case of evergreen species, all trees having any green leaves are classed as living timber. Since deciduous species, such as tamarack and most hard woods, have no foliage in winter, special attention must be given during this season. Trees dead at the top and green below, generally called spike-topped trees, are classed as living, and must never be cut under dead-timber permits. The dead portion may, however, be scaled and charged for as dead timber.

In considering applications for dead timber, the following

points should be discussed in addition to those enumerated above:

1. Should all, or only standing, dead timber be taken?
2. Should all sound enough for fuel be taken? ^a
3. Should all above a given size (what size?) be given?
4. Should purchaser pile the unsound portions of down trees from which he uses the sound parts?

4—178.

No. —.

PUBLIC TIMBER SALE.

— Forest Reserve.

APPLICATION.

I hereby make application for the sale and purchase of timber located and described as follows: — M feet B. M., saw timber, green or dry; — M feet B. M., mining timber, green or dry; — railroad ties, — green, — dry; — cordwood, — green, — dry; and is located —. To be used at —.

I promise to deposit with the Receiver of Public Moneys at the United States Land Office at — such sum as may be required at the time of filing my bid for the above-described

^a NOTE.—The purchaser shall not be bound to cut timber which may die after the date of sale, or to dispose of unsound material which was sound at that time; unless it is shown that reasonable diligence on his part would have prevented the loss.

If the applicant agrees to the conditions of cutting, as explained to him by the head ranger or other forest officer who has made the preliminary examination, such officer must at once prepare, upon the proper blank form, a report embodying a description of the tract in question, an estimate of the timber upon it, and his recommendations regarding the proposed sale or permit. The application will not be considered unless accompanied by this report, and in most cases it will be desirable to defer filling that portion of the application blank devoted to the amount and location of the desired timber until the forest officer has completed his examination and estimate. With this definite information, the applicant can state exactly the amount and situation of the timber, make his offer of price, and sign the application.

timber, and I further promise that in case my application is favorably considered I will deposit with the said Receiver such sum as may be required to cover the cost of advertising for bids for the purchase of this timber, and in the event that the timber is awarded to me as the successful bidder I promise to pay to the said Receiver the amount covered by my bid [here insert the condition of payment, whether full cash payment or one-third down and the balance in thirty, sixty, and ninety days, as the case may be] ———, credit being given for the sums heretofore deposited with the said Receiver by me in connection with this sale and purchase; which, otherwise, will be refunded to me.

And I further agree and promise to conduct the work of cutting and removing said timber in accordance with the following specifications:

1. I will comply strictly with the laws and regulations governing forest reserves.

2. Submit all timber and wood to measurement by the forest officer before the same is removed.

3. Pay in advance for all timber before cutting the same.

4. To cut only timber on the area agreed upon and blazed and marked, and not to cut any of the live trees bounding this area.

5. To leave no logs, ties, lagging, or other material in the woods, and to pay double the agreed price for any material thus left in the woods.

6. To pay for all material used in shanties or buildings of any kind; also for material used in construction of skidways, corduroy, log roads, bridges, and other improvements.

7. To cut only marked timber, and to cut all marked timber.

8. To leave no trees lodged in process of felling.

9. That all material is marked on skidway or in pile, the amount to be placed in plain figures at the top or on blaze near by, and that no material will be piled on such skidway or pile after the scaling has been finished.

10. All felling and cutting with saw ———.

11. Stumps ——— high; none higher than ———.

12. Shaft of tree to be used to diameter of ——— inches,

13. Cordwood to be cut from all tops down to a diameter of ——— inches ———.

14. Tops to be dragged bodily into openings ready for burning ———.

15. Tops to be lopped and brush piled ———.

16. No hewing, except at skidways in openings ———.

17. No cutting of timber in summer season between months of ——— and ———.

18. Cut all dead material sound enough for fuel ———.

19. Cut only standing dead material ———.

20. Cut only and all dead material ———.

21. Build camps at place agreed upon, located ———, as per map ———.

22. Construct dam at point agreed upon, located at ———, as per map ———.

23. To pile or skid all material before measuring ———.

24. Scaling to be done ——— [once a week or month, continuously, to keep up with cutting], the maximum to be not over ——— M feet B. M., and ——— cords, ——— ties per day or week ———.

I further agree that in case my bid for this timber is accepted, I will execute a contract embodying the above provisions for the purchase of said timber, and deliver therewith a bond which shall be satisfactory to the forest officers for the faithful performance of the conditions imposed in said contract; and I further agree that in case of failure on my part to fulfill, all and singular, the requirements of said contract I will forfeit the said bond and all moneys paid to the Receiver of Public Moneys herein mentioned.

Dated at ———, ———, 190—.

ESTIMATE, DESCRIPTION, AND REPORT.

Unless part of such information has been previously secured, the examination of the tract by the forest officer must include:

1. Surveying, mapping, and blazing out the block or blocks on which the cutting will be located.

2. Locating definitely enough to permit estimate, description, and locating on map, of cutting area itself.

3. Measuring and estimating of timber on proposed cutting area, and on entire block when practicable.

4. Description of block and cutting area.

5. Recommendations concerning proposed sale, with reasons for them. These should embrace such points as the probable effect on the future composition of the forest and the water-flow of the region; the condition of the timber in so far as it affects the policy of holding it for advance in price; the need for the timber applied for; the possibility or difficulty of getting it in some better place; the reliability of the applicant, and the price which should be obtained. The latter point is one of great importance, and should be decided, not by general precedent in the region, but by the actual value of the timber as determined by its character, difficulty to log, and distance from market. Timber on a gentle slope and near a mill or drivable stream may be worth more than twice that made inaccessible by canyons or distance. The forest officer should determine the cost of marketing all material and recommend prices which will make it approximately equally desirable.

The report upon the foregoing points must be made upon the blank for block description already described. If it provides insufficient space, additional matter may be affixed. If the tract applied for is less than a block, and the estimate for the latter can not be relied upon for the small area in question, a separate estimate should be made and submitted upon another blank.

MARKING AND CUTTING.

If the application is approved, the head ranger or supervisor (with assistance, if necessary) will mark at once all trees to be cut. This is imperative in all cases involving living timber. Where only dead timber is purchased, and there is no danger of confounding it with timber in various stages of injury or disease, the marking of individual trees will be dispensed with. In such instances the forest officer may simply blaze and mark the boundary of the cutting area and instruct the purchaser in the manner of cutting.

The marking of standing timber must be done with the "U. S." stamping hammer, and all trees must be marked near the ground in order that the stumps may afford positive evidence of the marking. Where snow may conceal such marking from the cutters, it will be necessary to mark each tree at a point several feet from the ground also.

Unless an emergency is declared by the Secretary of the

Interior, no cutting shall be permitted until the advertisement of sale has run its course and the district ranger has been notified by the supervisor that the successful bidder has made the required advance payment and is entitled to the timber. Upon receiving this notice the ranger will permit cutting, and as soon as it begins will report the date thereof to the supervisor. This statement will be upon the regular scale-report blank and will begin the ranger's periodical report upon the cutting.

The head ranger will visit the cutting as often as possible, and will report fully upon its condition (using blank No. 4-484).

It is the duty of the ranger to see that the cutting is confined to the least possible area and not distributed here and there over the entire tract; also, that, so far as reasonable, all branches of the logging operations keep pace with each other. In no instance will the brush piling be allowed to fall behind the manufacture and removal of logs, ties, and other material. The ground must be cleared as fast as the work proceeds.

The manner of piling brush may be varied according to conditions, but the object is always to insure ready and clean burning, as soon as possible, with the least injury to standing timber and seedlings. The piles should be compact and large enough to kindle easily and burn clean without repiling. When possible, they should not be nearer than 15 feet from standing green trees or dead trees having many branches or a covering of moss which might be ignited. Where the density of the standing timber makes the above rule impracticable, openings should be made by cutting, or, if this is not feasible, the piling should be near the least valuable trees and where there is least danger of the fire spreading. All chunks, knotty sections, or other unutilized portions of trees, as well as the branches, must be piled, and as much of such material as possible should be piled together to insure clean burning. Where the contract does not oblige the purchaser to utilize the trees into the extreme tops, all the remaining portions must be cut up and piled or dragged full size into openings where large piles may be burned safely.

SCALING.

When possible all timber should be scaled at skidway or landing, and not as it lies in the woods. In all reserves the

Scribner rule will be used for lagging and saw logs, and each stick must be scaled and stamped separately. Hasty methods of averaging different sizes will not be allowed.

Railway ties are rated as follows:

8-foot ties, 33½ feet B. M. each.

6-foot ties, 25 feet B. M. each.

Posts, poles, and piles are measured by linear feet, the valuation per foot increasing with the length and size of the stick.

Shake and shingle-bolt material is measured by the cord.

Square material is scaled like lumber, at its actual contents B. M., making no allowance for saw kerf. Thus, an 8 by 12 inch 16-foot stick contains 128 feet B. M.

Where green logs 8 inches and over in diameter are made into cord wood, they are paid for as saw timber at the rate of 2 cords to the 1,000 feet B. M.

All wood and timber must be scaled before removal from the tract or landing, and every stick of timber and pile of wood must be stamped with the "U. S." marking hammer.

In cases of "free use" of timber the same precautions are necessary as in the cases of sale of timber.

Every application, whether approved by the supervisor or by the Department, should be accompanied by a definite report giving sufficient information to enable a proper decision. The blank form provided for such report (see p. 62) should be followed.

The sowing of tree seeds has been carried on experimentally in some of the reserves in California. There are many places where an expenditure of money for that purpose may, at some future time, be warranted. Generally, however, the great extent of the reserve forests, the limited market, the uncertainty of success in the very places where this method is most called for, indicate a conservative attitude, and not until a far more liberal appropriation of money is assured is there reason for introducing seeding and planting methods on more than an experimental scale.

SPECIAL INSTRUCTIONS IN TIMBER SURVEYING AND SCALING.

The system of subdivision and description of reserve timber herein outlined is designed to enable purchasers and forest officers to conduct sales with certainty and dispatch. Not

only does ability to refer accurately to the location, character, and amount of any timber applied for save much time in the handling of the application by those in the field, but it is of the utmost importance in order that the central office may be prompt in final action upon the proposed sale.

For this reason all land within the reserves which bears commercial timber applied for, is to be surveyed into "blocks" and "districts" and mapped, estimated, and described in a systematic manner. This work is to be done by the supervisors or head rangers, with such assistance from the ranger force as is necessary.

Compasses, chains, blanks, and other necessary equipment will be supplied the supervisors or head rangers, who will be held responsible for them in case of loss, but not for unavoidable wear or breakage. In case the supervisor is not able to do the required surveying and mapping, or has no rangers who can do it, he should promptly inform the central office and request the provision of a competent assistant.

DISTRICTS AND DIVISIONS.

The chief object in the creation of districts, is to simplify specifications relative to the location of the blocks, each to contain approximately 160 acres, the reference to which, without classification into larger divisions, would entail unnecessary numbering and confusion. The district should seldom contain more than 100 blocks, except when the region has been legally subdivided into townships and sections, in which case the district will consist of one township, 6 miles square, containing 144 blocks of a quarter section each.

In the case of unsurveyed land the form of the block should be determined by the topography of the region. Valleys or drainage basins usually form the best limits, not only because they are easily mapped and referred to, but because all blocks thus included are apt to be reached by the same road or driving stream. For instance, one of the simplest and most desirable forms is that of a district 2 or 3 miles wide from rim rock to rim rock, and about 10 miles long, the stream running longitudinally through the center. Should the valley be much wider than this, it is better to make a long district on either side the stream, each comprising one slope from stream to top of ridge, than to attempt to make the districts

reach entirely across the valley by shortening their length. In much-broken country, however, where small ravines are numerous, several may be included in one district. In such cases the natural outlet of the timber must be considered, and canyons leading away from each other should not go into the same district.

As a rule, districts should not be less than 2 miles wide or more than 10 miles long, and, except in the case of surveyed land, when townships are considered districts, should not contain more than 25 or 30 square miles.

In order to insure permanence and ease in finding them, as well as to save work in blazing, wherever possible, streams, roads, bare ridges, cliffs, or burns should form the boundaries of both blocks and districts. Where, however, the uniformity of the region makes artificial lines necessary, they should be plainly blazed and all blazes stamped with the United States marking hammer, to identify them as the work of forest officers.

In all cases corners must be marked by posts or monuments and witness trees. The side of the post toward each district should be faced and marked with the initial and number of the district, viz, "D-20." The witness tree bears the same mark.

The areas of the districts need not be computed, nor the boundaries actually measured, although for the purpose of mapping it may often be necessary to record the compass direction of the latter. When a fairly accurate map of the reserve already exists it will be sufficient to outline the districts upon it, accepting the correctness of the streams and ridges forming the natural boundaries. The surveyed and blazed boundaries may be drawn from their recorded distance and compass direction from some known point on the map. If, for instance, a district is bounded on the east by a stream and on the west by the summit of a parallel ridge, both of which features are shown upon the map, the north and south boundaries should be run by compass and located by measurement to some object, such as a fork or bend of the stream, or a road or building, also shown on the map. If no good map of the region exists, a map must be made for each district. Measurement of distances will not be required, but approximations should be made with great care, and triangulation should be done wherever possible.

In reserves containing great areas of unsurveyed timber land it is necessary, in order to prevent multiplicity and confusion in the number of districts, to combine these into still larger areas, called divisions. These have been determined and numbered by the central office, and each supervisor will be furnished with a map of his reserve, showing their outlines. All applications, reports, and other correspondence referring to timber on land not legally subdivided into townships and sections, therefore, must mention division, district, and block by initial, as Div. 3, D-1, B-6.

BLOCKS.

The district and division are merely combinations of blocks, and will never be described or estimated as a whole. The block constitutes the unit of measurement, and must be mapped, estimated, and described accurately, for this information will guide the central office in approving or rejecting applications of all kinds.

In surveyed land each quarter section constitutes a block, and the only surveying required will be the occasional reblazing of obliterated section lines, remarking of corners, and division into quarter sections by blazed lines from quarter post to quarter post. In the center of the section should be set a post having the side toward each quarter faced and marked with the number of the quarter, as NE. $\frac{1}{4}$ sec. 2.

These quarter sections, while considered as blocks, will be described by land-survey nomenclature, as NE. $\frac{1}{4}$ sec. 2, T. 3 N., R. 5 W., etc. (See sample map, fig. 1.)

In unsurveyed land the blocks need not be of uniform shape or size, although, as a rule, they should not contain more than 160 acres. They should conform to the lay of the land and the conditions which regulate cutting. Ridges, roads, and streams should form boundaries wherever practicable, and at least one boundary or corner should be identified with some easily-found natural object. Boundary lines need not run north and south or east and west, but may take such angles as are necessary in order to follow the natural outlines referred to. It is desirable to avoid including in one block greatly differing classes of timber or timber which, by reason of ridges or canyons, will not have the same outlet.

Squads of four men, consisting of compassman, two chain-

men and axman, will usually be found most convenient in laying out blocks. Since the work does not require absolute accuracy no rodman is necessary, the axman simply being kept in line as he blazes ahead of the others.

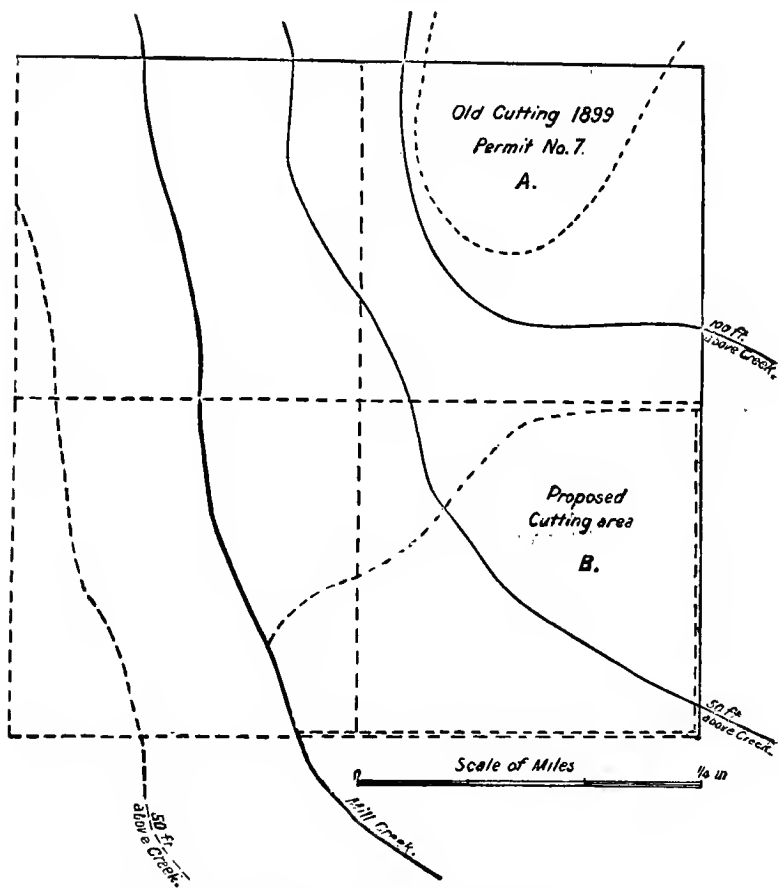


FIG. 1.—Black Hills Reserve. NE. $\frac{1}{4}$ sec. 14, T. 2 N., R. 3 E.

In chaining boundaries the chain need not be broken in order to secure horizontal measurement, as in ordinary land and railway surveying. In most cases it will be sufficient to allow it to drag loosely on the ground, although more care must be taken in exceedingly steep or rocky places.

In the absence of a surveyor's chain a strong cord may be used, the quarters and halves being marked by knots or bits.

of cloth. Whether full chains (66 feet) or half chains (33 feet) should be used depends largely upon the character of the region.

In emergency cases, when receipt of an application makes it necessary to lay out a block at once, two men may do the work, running and blazing the boundaries first and measuring them later.

As a rule, the method of surveying each block will be as follows:

Select a beginning point which can be accurately located, preferably the corner of some previously surveyed block, or, if such is wanting, a point on some stream, road, trail, or cutting which can be definitely described or located on already existing maps. Forks of roads or streams, or intersections of such, afford simple means of location. If no such features exist within or on the boundary of the block, the distance and direction of one given corner of the block from some known point outside should be established. The object of this care in location is not only to facilitate finding the block in the woods, but to allow accurate mapping. The beginning point will usually form one corner of the block, and should be distinctly marked by post and witness tree.

From this point run, chain, and blaze around the tract, noting the length and direction of the line between each corner and the distance to the crossing of all roads, streams, cliffs, and similar features; also the positions of buildings, clearings, or other objects which should appear on the map. Where the boundary of the block follows irregular lines, such as roads, streams, or ridges, the line must never curve, but may be meandered by as many angles and offsets as necessary to follow the general direction. Boundaries formed by roads, streams, open ground, or other unmistakable objects need not be blazed, but in such cases the corners must be clearly marked. (See sample map, fig. 2.)

All blazing must be reenforced by the United States mark. Block corners will be marked by posts, monuments, and witness trees, as in the case of districts, except that the marking must show the number of both block and district, as D-1, B-3.

Since, in many instances, it will be impossible to subdivide an entire district at one time, and the laying out of blocks will follow the receipt of applications, there will be considerable

difficulty in numbering them by any definite system. For instance, application for timber in the southern end of a district, and the consequent survey of the block from which it is

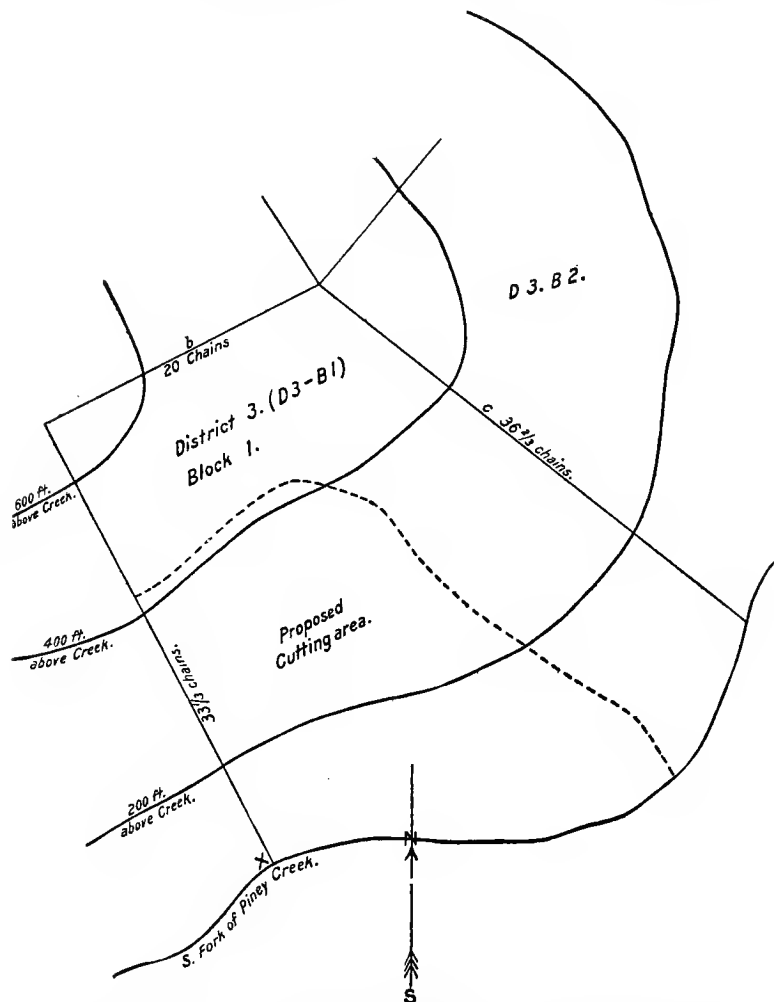


FIG. 2.—Big Horn Reserve. Piney Creek Drainage Basin, valley of South Piney, District No. 3, Block No. 1.

to be taken, may be followed by a similar requirement in the north end, while the intermediate portion remains unsurveyed. In such a case it will be necessary to number the blocks as

they are surveyed, without reference to their position in the district. If, however, there is an opportunity to subdivide the whole district, it is desirable that the numbering commence in the north end and proceed southward in regular order.

For this reason, and also to utilize the advantage of a complete surveying squad as long as possible, before other reserve work requires the breaking up of the party, the work of districting and blocking should be pushed as fast as practicable. The mapping, estimating, and description may be left for a time when fewer men can be spared. The districting may proceed independently of the blocking and should, preferably, keep well ahead of it, though a district may be established before all of its boundaries are run out and marked.

MAPPING.

Block maps should include such details as buildings, roads, trails, streams, cuttings, fences, and mining or other claims. The topography may be shown by dotted contour lines, of which, to avoid confusion, there should never be more than four in one block. This rule will prevent the use of a regular interval between them, and the height of each should be marked, the lowest portion of the block representing zero.

If the block is surveyed especially to enable description of a tract covered by application, the proposed cutting area must be outlined on the map.

Block maps should be drawn with a hard, sharp pencil upon ruled sheets furnished for the purpose by the Department. In the absence of this, plain 8 by 10 paper may be used. A scale of 12 inches to the mile should be adhered to in all cases, and only one block is mapped on one sheet.

The original map will be forwarded, through the supervisor, to the central office, where copies will be made for the use of the supervisor and rangers.

ESTIMATING.

No forest officer will be considered competent who can not estimate standing timber. All work of this kind in the reserves will be required to be done systematically and accurately, and in all cases estimates must be accompanied by a description of the method used.

Most systems require knowledge of the contents, in cords

and in board feet, of trees of any given height and diameter. The estimator should be able to approximate at a glance the number of logs of any length in a tree, the average diameter of these logs, and the number required to make 1,000 feet B. M. Where the timber is to be used for sawed lumber, he should note the probable proportion of the tree which will furnish clear material. In all cases the probable percentage of cull or decay should, at least, be approximated. Forest officers should familiarize themselves with the condition of each species within their district, and endeavor, by observations at mills and logging camps, to learn the average proportion of unsound in each. Little timber will cull less than 10 per cent., and 30 to 40 per cent. is not uncommon in certain species. The outward signs of defect, such as "conks," "punk knots," exudations of resin, etc., should be carefully studied.

While officers, familiar with some particular methods of estimating, may often do more accurate work by them than if they attempt to learn entirely new systems, they should at least acquaint themselves with as many as possible. Since for many species of reserve timber the Government has prepared volume tables based on height and diameter at breast-high ($4\frac{1}{2}$ feet from ground), it is important to be able to estimate the latter dimension readily. Given the number of trees of each diameter upon a tract and a table showing the average contents in board feet for these diameters, accurate computation of the stand is simple.

When these tables are not available, the breast-high diameter may still be used by estimating the number of logs and allowing a taper of about 1 inch in diameter to every 10 feet in length. This taper varies slightly with the height and species of timber, and the estimator should verify it by measurements of fallen trees.

Assuming, for illustration, that the estimator finds his tract averages to the acre 25 14-inch trees, 13 16-inch trees, 14 18-inch trees, etc.; also that all trees below 18 inches have an average log length of 22 feet, and those above 18 inches a log length of 26 feet, and, allowing a 2-foot stump and a taper of 1 inch to 8 feet, he finds that the average 14-inch tree contains a 22-foot log $11\frac{1}{2}$ inches in diameter (outside bark) at the small end. Or, if he wishes to reckon by smaller logs, it will make

one log 12 feet long by $12\frac{1}{2}$ inches at the small end and one 10 feet by $11\frac{1}{2}$ inches. By deducting the probable thickness of bark and scaling these logs by the rule, he obtains the board-foot contents of the average 14-inch tree, and, multiplying this by 25, has the total contents of all trees on the acre in the 14-inch class. By using the same process for the other diameters and adding the results, he has the total stand per acre.

The forest officer should know the probable yield of cord wood from the tops of trees of given diameter; also the amount from the tops and lops of 1,000 feet of saw logs or mining timber. In many cases where an estimate of both cord wood and logs is required, it will be sufficient to find the amount of logs and reckon the wood at the rate of so many cords to the 1,000 feet.

Given ability to judge of the contents of single trees, the estimator has choice of several methods for ascertaining the number of trees on his tract and therefore the total stand. The simplest of these, known as the quarter-acre circle method, which may be used when time does not permit more accurate work, is as follows:

The estimate is made on circles of 20 yards radius, each of which contains quarter of an acre. These are taken at regular intervals throughout the tract and should actually cover as large a portion of it as possible. Less than 5 per cent. of the area is not worth doing at all.

An experienced man can determine at a glance the area included within a 20-yard radius. An officer unfamiliar with the method will insure accuracy by placing a stick in the ground and pacing 20 yards in several directions until the size of the circle is learned. He then counts all trees within the circle which are of merchantable size, estimates the contents of the average tree or the number of trees to the thousand feet board measure, and notes the condition of the timber, per cent. clear and defective, etc. If he is familiar with breast-high measurements this system should be used, in which case he tallies separately the trees of different diameters, entering them in 2-inch classes, as 12-inch, 14-inch, etc. He can then compute the stand later according to the system previously described.

The figures for each circle should be kept separate, and, with a diagram showing the location of the circles in the tract, be forwarded with the total estimate upon the regular blank.

A more accurate method than the above, but which requires more work, is the estimating by strips about 4 rods wide taken at frequent intervals entirely across the tract. The counting and estimating of the trees is done in the same way as before. These strips should always run across, not parallel with, ridges and ravines, and their location on a diagram of the tract is similarly required.

When practicable, the entire-area method is preferable to either of the above. In this system the entire tract is estimated by going through it a sufficient number of times to see all the timber. To work to the best advantage, there should be two men—one to keep a straight line with the compass and to pace the distances and the other to estimate and tally the trees. This method is especially desirable in case of surveyed land, where the estimate should be made by “forties.”

In ordinary practice it is usual to cross each “forty” four times, tallying by the strip method already described. It is better, however, to go through each block (in the case of surveyed land a quarter section) on lines not over 100 yards apart, making a halt at every 100 yards, and estimating the 100-yard square around this station. The figures for each square should be kept separate, and the location on the diagram will permit the averaging to be made for the entire block, or for each “forty,” as desired.

The circle method first described should never be used in large timber, or where the trees stand far apart, since the area is too small to get a fair average of the number of trees on an acre.

Estimates of all tracts, whether entire blocks or areas covered by applications, should be reduced to average acres and entered upon the blank form furnished for this purpose. The size of the tract is stated in the space at the top of the blank and the total stand may be computed in the office. The diagram of the circles, strips, or squares, and the figures for each, forwarded with the total estimate on the blank form will enable the office, should it subsequently be desired, to obtain the stand on any portion of the tract which may differ from an average of the total.

SCALING.

Each stick of saw logs, timbers, poles, and lagging must be scaled separately. Hasty methods of averaging diameters or

lengths will not be allowed. The Old Scribner rule will be used in all cases.

Ties need only to be counted; and are reckoned as follows:

8-foot ties, standard face, $33\frac{1}{2}$ feet B. M., each;

6-foot ties, standard face, 25 feet B. M., each.

Posts, poles, and piles are measured by linear feet, the valuation per foot increasing according to the length and size of the stick.

Shake and shingle-bolt material is measured by the cord.

Squared timbers are scaled by their actual contents in board feet with no allowance for saw kerf. Thus, an 8 by 12 inch 16-foot stick contains 128 feet B. M.

Unsound or crooked logs should be scaled down to represent their actual contents of merchantable material. In order, however, to restrain purchasers from unnecessary waste, all partially unsound but merchantable stuff should be scaled, whether removed or not. In ground-rotten timber, butts which, though decayed at heart, contain good lumber toward the outside are frequently left in the woods. Where such material will pay for sawing, the forest officer will scale it at what he considers its true value and include it in the amount purchased.

Logs with elliptical cross section should be scaled on the average diameter; flats and lagging on the widest diameter. All scaling is inside of bark.

In the absence of a log rule, or where the position of logs in the pile makes its use difficult, the diameters and lengths may be tallied and the contents figured from a scale table later.

When possible the purchaser shall be required to mark top ends of logs to avoid question when they are scaled in the pile. The forest officer should insist on having one end of piles or skidways even, so that ends of logs may be easily accessible. Where there is difficulty in ascertaining lengths of piled logs, two men should work together.

When scaled, each stick of saw logs, timbers, ties, lagging, posts, poles, or piles must be stamped with the United States mark on at least one end, and on both when possible. Cord material, such as wood or bolts, must be stamped at both top and bottom of piles and at least 12 pieces in each cord must be stamped.

When green logs 8 inches and over in diameter are made into cordwood they are paid for as saw timber at the rate of 2 cords to the 1,000 feet B. M.

The butt diameter of a 16-foot log is usually from an inch to 2 inches greater than that of the top end; yet if this log is sawed into lumber the amount of material obtained depends entirely upon the smaller diameter, because there is generally no way of utilizing the wedge-shaped slabs. For this reason logs are scaled at the small end, and in ordinary practice the same method is applied to logs of all lengths.

While this is approximately just in the case of short logs, it does not give fair valuation on long ones. By most rules a log 48 feet long measuring 12 inches at the small end is credited the same as three 16-foot logs of 12 inches diameter, or, taking the Scribner rule, 192 board feet. In reality, the 48-foot stick can be cut into three 16-foot logs of 12, 14, and 16 inch diameters, respectively. These will scale, by the same rule, 64, 100, and 144, or a total of 308 board feet, which is 51% more than is given by scaling the whole log. A mill man buying a 24-foot by 20-inch log pays for 420 board feet. But by cutting it in two he has a 12-foot log of 20 inches diameter and one of about 22 inches. These two logs contain 461 feet by the Scribner rule, and they are of an ordinary and profitable stock length. Again, he can saw the 24-foot log full length, but by taking 1-inch slabs which can be trimmed and edged into 12, 16, or perhaps 18 foot boards, still get more than the log scaled.

For this reason, in forest reserves, only logs 18 feet or less in length may be scaled at the small end alone. For those above that length the following system is prescribed:

A 20-foot log.....	{	1 10-foot log with top diameter.
		1 10-foot log with top diameter + 1 inch.
A 22-foot log.....	{	1 10-foot log with top diameter.
		1 12-foot log with top diameter + 1 inch.
A 24-foot log.....	{	1 12-foot log with top diameter.
		1 12-foot log with top diameter + 1 inch.
A 26-foot log.....	{	1 12-foot log with top diameter.
		1 14-foot log with top diameter + 1 inch.
A 28-foot log.....	{	1 14-foot log with top diameter.
		1 14-foot log with top diameter + 2 inch.
A 30-foot log.....	{	1 10-foot log with top diameter.
		1 10-foot log with top diameter + 1 inch.
		1 10-foot log with top diameter + 2 inch.

Longer lengths may be computed in the same way, dividing the stick into 10-foot lengths, as near as convenient, and allowing about an inch taper to each 10 feet. This may vary somewhat, and if a greater taper is required the scaler must use his own judgment.

When a log is sawed there is a large waste in the form of sawdust and the proportion thus wasted depends both upon the thickness of saw used and the number of pieces made. It is clear that there is twice as much waste in cutting 1-inch boards as in sawing 2-inch planks.

It is also evident that for these reasons there can be no scale showing accurately how much lumber will be cut from any given log. Consequently there are a great number of scales, each devised for a special class of logs or for the manufacture of a special kind of stock. For the present the Old Scribner scale will be used in all reserve work.

Where the scale or stick is too short the contents of a sound log are figured according to the formula of the much-used Scribner-Doyle rule, which says:

Contents in board feet = $(\text{Diameter} - 4)^2$; for example, an 18-inch log 16 feet long is computed thus:

Contents = $(18 - 4)^2$ or $14 \times 14 = 196$ feet B. M.

Wherever the purchaser desires, timber will be sold by the cubic foot, which is an absolutely impartial measurement. In this case the area of each end of the log is found and the average of the two multiplied by the length of the stick in feet. This process gives the contents of the log in cubic feet. Tables giving areas of circles with any given diameter are easily available.

4. SPECIAL WORK.

This includes work incidental to grazing by sheep and cattle; examination of rights of way for roads, railways, canals, reservoirs, telephone and telegraph lines; the examination of agricultural claims, mining claims, sawmills, and other plants, and examinations necessary in attending to cases of special privileges, such as hotels, stopping places, stores, etc.

Generally, work of this kind is ordered specially, or arises in connection with special applications. It is important that examinations be thorough, complete, and correct in matters of detail, and that the report be full and clear. Mistakes, omis-

sions, and unsatisfactory reports are sure to result in delay, and lead, in many cases, to a refusal in what is really a meritorious case. The forest officer should ever remember that the Department, generally, has no information in the premises save his report.

5. PERMANENT IMPROVEMENTS.

Under this head falls the work of timber survey, outlined in connection with instructions in the matter of timber sales. The laying out of every block is a permanent improvement, useful as long as the landmarks and map are in existence.

This kind of work is supposed to be carried on whenever circumstances permit, as, for instance, during damp weather in summer, when danger from fire is small; also, during fall, winter, and spring, whenever other work is not too pressing. In judging this it may be said generally that the importance of the several kinds of work is as follows:

- (a) Protection against fire.
- (b) Protection against trespass.
- (c) Special orders.
- (d) Regular work in timber (sales and "free-use" cases).
- (e) Trail work, etc.
- (f) Survey work.

In many localities the work of timber survey is carried on fully as well on snowshoes in winter as on dry ground in summer, and forest officers will act accordingly.

The construction of trails, placing of signboards, and similar work must necessarily depend on conditions which the forest officers alone can know.

In any case a random blazing through the woods should be avoided. If the trail is worth making it is usually worth doing well, and should therefore be properly planned, laid out, and then cut out and worked. The custom of leaving trails "hidden," as it were, by avoiding to mark their terminal points and by leaving off signboards is considered inadvisable. Every improvement of this kind should be made with a view to doing as much good as possible.

The construction of shelters, cabins, etc., should be done economically, and should, like all work of this kind, be done only with the approval of the supervisor. All work done should be reported promptly and intelligently.

6. PROTECTION OF GAME.

In the protection of game the forest officer acts as an assistant to the game wardens of the State or Territory in which he is located. It is his duty to discover violators of the game laws and help to stop their depredations.

Reports on violations of the game laws are made to the central office and to the local or State game warden, and if the case seems to warrant, a copy of such report is sent to the governor of the State.

REPORTS.

A proper management of the reserves demands that all conditions, all work, and all occurrences which affect the reserve in any way should be properly reported and recorded. Without a fairly complete knowledge of the character of land and timber it is impossible to regulate properly the utilization of the reserve.

In nearly all cases a mere general information is of very little value. For instance, an application for a million feet of timber can not possibly be properly considered simply upon a showing that there exists an abundance of timber in the reserve, or even in the particular township. The conditions and amount of timber on the particular quarter section, canyon, or hillside is what is needed.

Accordingly, every forest officer should learn to report, and, in order to report well, should learn to observe and record fully and correctly. Clearness, completeness, and brevity should be combined in reporting as far as possible; long dissertations and reference to irrelevant matters must be avoided.

The different reports are classified as follows:

RANGERS' REPORTS.

(1) Report of service. This report is made at the option of the supervisor, and its form and details are determined by that officer. Regular blank forms are furnished for this report.

(2) Reports on regular work, such as timber survey, forest description, "free-use" applications, inspection of timber cutting, burning of brush, building trails, etc.

All reports of this kind are made according to the regular forms, and on regular blanks, where such are furnished. In making the report the ranger should never have more than one subject on a sheet of paper. Thus, he should not report the results of an inspection of a timber cutting on the same sheet with a report on a "free-use" application, but should use a separate sheet for each report. The reports may be made with a hard pencil or in ink, but where rain is likely to spoil a manuscript in ink the pencil is preferred.

(3) Reports on miscellaneous matters, such as grazing, saw-mills, agricultural claims, mining claims, mining mills; applications for right of way of roads or railways, canals, ditches, reservoirs, telephone and telegraph lines; for special privileges, such as hotels, road ranches, stores, whether isolated or in hamlets, villages, or towns, and reports on all forms of trespass. These reports are made whenever the case arises or the report is specially ordered. Like the preceding, reports of this kind are made according to the prescribed forms.

REPORTS OF SUPERVISORS.

A.—MONTHLY REPORTS.

These reports must include regularly:

- (1) Daily service report of supervisor (regular blank).
- (2) Service sheet of forest rangers (regular sheet).
- (3) Reports of timber survey, on regular blanks. Each "block" or quarter section forms a separate report, consisting of:
 - (a) Map.
 - (b) Estimate sheet, or sheets.
 - (c) Description sheet, or sheets.
- (4) Reports on scaling and cutting of timber. Every cutting is reported, on regular blank form, twice every month from the time the cutting is started until the case is closed, whether work is going on or not.
- (5) Miscellaneous work, such as burning of brush, working on trails, construction of cabins, cutting fire lines, seeding or planting, etc. Each kind of work is reported separately, on separate sheet, according to the prescribed form.
- (6) Report on fires.
- (7) Plan for the coming month. A brief statement as to

what work will be carried on, giving estimates of amount of work, probable expense, and reasons for extraordinary changes or enterprises.

(8) Reports on "free use" of timber. Made at end of every quarter.

(9) Report on grazing. Regular blank form. This report is made at the end of the grazing season and should contain the following information, in addition to the information contained on the regular sheet:

(a) Condition of the stock as they left the range, whether poor or in good flesh.

(b) Condition of range, whether good, too closely fed down, or seriously injured. State particular areas and not mere generalities.

(c) Whether the same number and distribution of stock (cattle and sheep) should again be adopted for the coming year or whether changes should be made in:

The total number.

The number in any district.

The size and limits of the different grazing districts and the parts of the reserves closed to sheep or to grazing altogether.

B.—SPECIAL REPORTS

These reports treat of :

- (1) Agricultural claims or farms.
- (2) Sawmills.
- (3) Mining mills, power plants, and other manufacturing plants.
- (4) Mining claims, referring only to claims investigated for some special reasons.
- (5) Hotels, road ranches, stores, etc., located in forest reserves, whether isolated or in hamlets.
- (6) Rights of way of roads, railways, telegraph lines, irrigation, and other canals, reservoir sites.
- (7) Trespass in timber or any other kind of trespass, and such other reports as will be required from time to time.

Until all agricultural claims or farms, all sawmills, road ranches, or stopping places, hotels, stores, mining and manufacturing establishments existing within the reserve have been duly reported and recorded on the books of the supervisor and

located on his maps, every monthly report will be accompanied by reports on these farms and establishments as time and opportunity exist for gathering the necessary information. While it is not intended that a special series of tours or journeys should be made to obtain this information, it is expected that every ranger will take every opportunity to collect data of this kind, so that the existence and location of every farm, mill, etc., be properly recorded and reported to the central office.

This class of special reports then comes under two heads:

(a) Reports transmitted with monthly reports and pertaining to information gathered as opportunity offers and time permits.

(b) Reports occasioned by applications for timber or grazing, by trespass, etc., or ordered by the central office, such as reports on rights of way of roads, telegraph lines, irrigation ditches, etc., which are forwarded as soon as possible.

When a farm, sawmill, etc., is once reported according to the forms here prescribed it will not be reported again unless some important changes have taken place, as, for instance, if the farm is abandoned or the mill removed from the reserve.

In transmitting the reports of ordinary rangers, the original (usually in lead pencil) is copied either on regular blank forms, sheets, or separate paper.

Inspectors, superintendents, and head rangers furnish the monthly reports of their daily service and make such special reports on inspections, investigations, and other work as occasion requires or as they are ordered from time to time.

In using the following blank forms for reports, it must not be understood that only the particular questions need be answered, but all information necessary to a full understanding of the case is desired.

RECORDS OF THE SUPERVISOR.

The supervisor is required to keep record of the principal affairs of his reserve. These records, except that on the free use of timber, are kept in a book made of separate blank sheets furnished by the Department, showing:

- (1) Service of rangers.
- (2) Free use of timber (kept in separate book).
- (3) Sale of timber.

- (4) Survey work.
- (5) Miscellaneous work.
- (6) Planting and seeding work.
- (7) Grazing.
- (8) Agricultural settlements.
- (9) Sawmills.
- (10) Special privileges, hotels, stores, etc.
- (11) Special reports.
- (12) Timber trespass.
- (13) Trespass other than in timber.
- (14) Fires.
- (15) Accounts.

Every report of ranger or supervisor, regular or special, is entered in this record. This record enables the supervisor at anytime to see how many agricultural claims, sawmills, etc., are within his reserve and where every one of these is located. It will serve the supervisor, as well as superintendent and inspector, to see where and what kind of work is under way, and also to facilitate the work of preparing the monthly report which for the most part will be a mere excerpt from or copy of the records of the several items. Where special circumstances make it desirable to keep additional records, temporarily or permanently, there is, of course, no objection to such additional record.

MAPS OF RESERVE.

In every supervisor's headquarters there should be kept at least two maps of the reserve on which important work and other data are noted for convenient reference. One of these maps should indicate all cuttings. Every cutting is marked on the map by the number of its case: It appears, therefore, as (67) if it is sale No. 67, etc. To keep sale and free-use cases apart the former are noted in red ink, the latter in green. Where the cases are too numerous, an enlarged sketch map of the particular district should be used.

On the second map all alienated lands, i. e., lands owned or claimed, and therefore not vacant, are shown. The ordinary mining claims need not be thus indicated as they are usually too small; but where large groups are held or a large part of the land is in mineral locations it should be indicated.

In addition, this map shows sawmills, mining mills, and all roads, trails, telegraph lines, etc.

Wherever sheep grazing is allowed or definite ranges are established, a range map is also maintained and kept up to date.

REPORT ON SERVICE OF FIELD FORCE, RANGERS, AND OTHER HELP.

This report forms part of the monthly report and is made on the blank sheets furnished for this purpose. On this sheet there appears, for every ranger, the following: Name of ranger; number of days spent during the month at the following kinds of work:

(a) Patrol duty.

(b) Timber work, including the marking and scaling of timber in cases of sale and free use.

(c) Forest survey, laying out districts and blocks, estimating timber, and doing map work.

(d) Special work, such as looking after grazingmen, making investigations and reports on rights of way, agricultural claims, etc.

(e) Miscellaneous work, such as the construction of trails, cabins, fire lines, seeding, and planting.

(f) Fighting of fires.

(g) Time spent off the reserve.

A *total* for each kind of work is given at base of column.

REPORT ON FIRE.

This form is used by the ranger in reporting fires, and it also appears on a regular sheet furnished for this purpose to be used in recording the fires by the supervisors.

The sheet contains the following information:

(1) Location of fire.

(2) Kind of fire. The fires are divided into three classes, as follows:

(a) Camp fires and other small fires covering not more than a few square rods.

(b) Small forest fires, extinguished without any extra expense or help and generally not covering over 5 acres.

(c) Large fires, requiring extra help and expense.

(3) Damage done by fires:

(a) Number of acres burned over.

- (b) Number of acres of real timber burned.
- (c) Number of feet B. M. of:
- | | | |
|-----------------|---|--------------------|
| 1. Green timber | } | destroyed by fire. |
| 2. Dry timber | | |
- (d) Value of all timber destroyed.
- (4) Probable cause of fire.
- (5) By whom was fire discovered?
- (6) When was it discovered?
- (7) When was it brought to notice of forest officer?
- (8) When was the work of checking the fire begun.
- (9) When was the work finished.
- (10) How many extra men were employed.
- (11) Cost of fire:
- | |
|------------------------------------|
| (a) For help (outside of rangers). |
| (b) For material, tools, etc. |
| (c) Total cost. |

REPORT ON THE FREE USE OF TIMBER.

A report is transmitted quarterly (every three months) with the monthly report, on the regular sheet furnished for this purpose, accompanied by the original applications, and copies of permits.

The following is the regular report made by the ranger and accompanies the application for the privilege:

REPORT ON APPLICATION FOR "FREE USE OF TIMBER."

This report should be made by the ranger or other forest officer on every application, and it should be sent with every case submitted to the Department.

_____ Reserve,
_____, _____, 190—.

1. Name and address of applicant: _____.
2. Does the undersigned forest officer know the applicant personally?
_____.
3. Is the undersigned forest officer familiar himself with the applicant's farm or claim on which the timber is to be used? _____.
4. Does the undersigned forest officer know the statements in the application to be true? _____.
5. Is there any danger of collusion between the applicant and a neighborhood sawmill owner or operator, or other person interested, to obtain this timber? _____.
6. What precautions are taken to avoid this? _____.
7. If the application is for more than the ordinary amount of fuel, fencing, etc., the undersigned forest officer will state what he knows concerning this extra demand for material on the part of the applicant: _____.
8. Location of timber applied for: _____.
9. Kind of timber applied for: _____.

10. Description of timber: _____.

(This description is to be given on the regular blank forms provided for forest descriptions and estimates.)

_____ _____, *Ranger.*
 _____ _____, *Supervisor.*

REPORT ON SCALING AND CUTTING OF TIMBER.

In all cases of timber sales the case is reported twice in every month, according to the following blank form. This is necessary, whether any cutting is going on or not, and the report is never omitted until case is closed or finished.

4-484.

DEPARTMENT OF THE INTERIOR,
 GENERAL LAND OFFICE.

FOREST OFFICERS' REPORT OF TIMBER CUT.

Public timber sale _____ _____, } Case No. _____.
 _____ Forest reserve, }

Report of _____ _____, forest ranger, of timber cut by _____ _____, purchaser of the timber sold in the above-entitled case under order of the Department of the Interior, dated _____ _____, 190—, for the _____ ending _____, 190—.

GREEN TIMBER:			
Saw logs, feet board measure			
Railroad ties, feet board measure			
Piling, feet board measure			
Mining timbers, feet board measure.....			
Fence posts, number			
Wood, cords, number			
DEAD TIMBER (STANDING):			
Saw logs, feet board measure.....			
Railroad ties, feet board measure.....			
Piling, feet board measure.....			
Mining timbers, feet board measure.....			
Fence posts, number			
Wood, cords, number			
DEAD TIMBER (DOWN):			
Wood, cords, number			
MISCELLANEOUS, NOT ENUMERATED ABOVE:			
.....			
.....			

Has every piece of the above-mentioned timber been scaled according to official rule? _____.

Has every piece of the above-mentioned timber been stamped with a United States marking hammer? _____.

Has all of the above-mentioned cordwood been stamped, according to official rules, at time of measurement? _____.

1. Are the boundaries of the cutting area clearly outlined and marked?
_____.
 2. Have all trees cut been marked? _____.
 3. Did the trees marked include all (excepting seed trees) above a certain diameter? _____.
 4. What was this diameter? (If both dead and live timber were cut, give minimum diameter in both cases.) _____.
 5. Is the purchaser making clean work, cutting all marked trees as he proceeds? _____.
 6. Are the tops being utilized? _____.
 7. Down to what diameter? _____.
 8. Is any timber being cut into cordwood which is suitable for more valuable products? _____.
 9. Has any timber been utilized for purposes not stated in the application? _____.
 10. If so, how? _____.
 11. Is all brush and débris made in this cutting piled so it may be burned easily and without danger to standing timber? _____.
 12. Has the use of timber for camps, bridges, and road material been restricted to unsalable material? _____.
 13. If not, has the timber used for such purposes been scaled and reported? _____.
 14. Does the yield per acre overrun or underrun the original estimate?
_____.
 15. Is cutting in progress on the tract at present? _____.
 16. On what part of the area is the cutting in progress? _____.
 17. If not, give reasons for the suspension: _____.
 18. How many men are employed in cutting? _____.
 19. Has any material been removed from the tract during the time covered by this report? _____.
 20. Does the removal of material keep pace with the manufacture?
_____.
 21. If not, give the approximate amount of manufactured material on the tract. _____.
 22. Has the purchaser in any way failed to observe the terms of his contract or the instructions of the forest officers; and if so, how? _____.
- Signed _____.
- Dated at _____.

REPORT ON MISCELLANEOUS WORK.

This forms part of the monthly report of the supervisor.

All work of this kind must be definitely located. Each trail should have its definite terminal points and appear on the map with definite name or number.

_____ Reserve.

(1) Kind of work, whether trail, cabin, fire line, telephone line, etc.

(2) Location of work; name or number of trail. (If necessary this statement is accompanied by a map.)

- (3) When laid out or planned.
- (4) By whom laid out.
- (5) By whom the work was done (name the rangers).
- (6) Amount of such work, length of trail, size of cabin, inclosure, extent of fire line, or brush burned.
- (7) What was the cost for:
 - (a) Material purchased.
 - (b) Extra help.
 - (c) Total.

REPORT ON PLANTATIONS OF TREES.

All cases of seeding and planting should be reported at the end of each season in connection with the monthly report for October. Every plantation, if successful at all, should be reported for three years in succession, to show its condition for the first three seasons. In the second and third report of any plantation, only its condition need be indicated, but, of course, its location is stated, and reference is made to the first report.

————— Reserve.

- (1) Plantation by seeding, planting.
- (2) Kinds of trees.
- (3) Locality, division, district, block, or section.
- (4) When executed.
- (5) By whom work was performed.
- (6) What method used.
- (7) Number of acres seeded or planted.
- (8) Number of trees set out.
- (9) Cost of—
 - (a) Material, seed, trees, etc.
 - (b) Extra help.
- (10) Success; whether trees died or lived, seed came up, and seedlings lived, etc.

REPORT ON GRAZING.

This report is made at the end of the grazing season. A blank sheet, used also for the permanent record of the supervisor, is furnished by the Department.

The report covers the following:

1. Name and address of applicant.
2. Number of permit.
3. Kind of stock, whether cattle, sheep, etc.
4. Number of head.
5. Name of herder.

6. Date when stock enters reserve.
7. Locality where stock ranges on the reserve.
8. Date when stock leaves reserve.

PLAN OF WORK FOR COMING MONTH.

This accompanies the monthly report of supervisor.

- (1) Patrol duty:
 - (a) How many men needed for this purpose exclusively.
 - (b) What are the principal dangers and danger points?
- (2) Regular work:
 - (a) Number of cases of "free use" under way.
 - (b) Number of cases of sales under way.
- (3) Special work on hand.
- (4) Survey and miscellaneous work planned for coming month:
 - Survey.
 - Estimates.
 - Trails, etc.

REPORT ON GRAZING OF SHEEP.

(This report is made by the ranger whenever he meets a band of sheep not before reported.)

_____ Reserve.

Date of report: _____ day of _____, 190—.

1. Name and address of owner: _____.
 2. Name and address of herder: _____.
 3. Name and address of foreman: _____.
 4. Number of sheep in band: _____; by actual count or by statement of herder: _____.
 5. Kind of sheep (regular stock herd, lambing herd, yearlings, wethers): _____.
 6. Number of goats with band: _____.
 7. Condition of sheep (whether scabby or clean): _____.
 8. When did the band enter the reserve? _____.
 9. Where is their present camp? _____.
 10. How long camped there? _____.
 11. When does herder intend to move? _____.
 12. To what camp or range does he intend to move? _____.
 13. Date when seen by ranger: _____.
- Any additional information: _____.

Signed: _____,

Ranger.

This same form, properly modified, is used in reporting actual herds (not loose stock) of any kind, grazing or in transit, with or without permit, on the reserve.

REPORT ON AGRICULTURAL CLAIM, SETTLEMENT, OR CATTLE
AND SHEEP RANCH.

_____ Reserve,
Dated the _____ day of _____, 190—.

1. Name and address of claimant: _____.
2. Married or single: _____.
3. Location of land (add a sketch map, if necessary): _____.
4. Land is held as (patent, agricultural claim, placer claim, mere squatter): _____.
5. When settled on by present occupant: _____.
6. When filed on: _____.
7. Is it the actual and only residence of claimant? _____.
8. If he is the head of a family, is their actual residence on the land or elsewhere? _____.
9. What improvements: _____.
 House made of _____; approximate size, _____; _____ rooms.
 Barn of _____; approximate size, _____ by _____.
 Acres under plow: _____.
 Acres under ditch: _____.
 Acres under fence: _____.
10. Claimant raises mostly: _____; and raised the past season: _____.
11. Character of land claimed: _____.
 (a) What proportion is timbered? _____.
 (b) Kinds and quality, and approximate stand of timber: _____
 (c) What proportion is open ground without timber? _____.
 (d) Was the field or cultivated land cleared or was it open park? _____.
 (e) What proportion of claim is tillable? _____.
 (f) Does the land need irrigation? _____.
12. Is this a stock ranch? _____.
13. How many head of—
 (a) Cattle: _____.
 (b) Horses: _____.
 (c) Sheep: _____.
 (d) Goats: _____.
 _____ belong with this farm or claim? _____.
14. Where are they grazed? _____.
15. Has permit been obtained for them to graze on public land? _____.
16. Has claimant sold or negotiated for the sale of any timber? _____.
17. Additional information in the knowledge of forest officer: _____.
18. If the claim or entry is believed to have been made at the instance or in the interest of any others, or believed to be in any way fraudulent, give name, residence, and post-office address of reliable witnesses, and abstract of their testimony: _____
19. When and by whom examined: _____
20. Recommendation as to action that should be taken: _____

Signed: _____,

Ranger.

_____, *Supervisor.*

FORM OF APPLICATION FOR SPECIAL PRIVILEGES.

When it is desired to occupy and use public lands in the reserve for a schoolhouse, church, store, hotel, road ranch, public stopping place, sawmill, and other purposes.

_____, _____, 190-

The Honorable the SECRETARY OF THE INTERIOR.

SIR: I, the undersigned, have the honor to apply for permit to—

1. Erect and occupy _____.
2. To be located on the _____ Forest Reserve at: (Describe situation by land survey, or along a road or stream, and by distances from well-known points.) _____.
3. Demand for this exists for the following reasons: _____.
4. The amount of land to be occupied will not exceed _____ acres.
5. The character of the land is: (State if covered by forest growth, or whether it is open park, burn, brush land, rough, dry, desert.) _____.
6. The timber needed for construction will amount to: (Number of board feet and kind of timber—whether pine, spruce, etc., and whether green, dead, etc.) _____.
7. State additional facts pertinent to the case: _____.
8. In case of permit obtained, I promise to obey all rules and regulations governing forest reserves, and to execute such contract and bond as will be required in this case.

Very respectfully,

FORM OF REPORT UPON THE PRIVILEGE OF "ROAD RANCH,"
PUBLIC STOPPING PLACE, HOTEL, STORE, ETC.

[For sawmill report see special form.]

_____ Forest Reserve.

_____ day of _____, 190—.

1. Name and address of applicant: _____.
2. Is he a citizen of the State or Territory? _____.
3. Married or single? _____.
4. Present employment or business of applicant and place of same: _____.
5. Location of hotel, etc: (On what road, etc.; state how far from a certain well-known point, and in what sectional legal subdivision of survey.) _____.
6. Proposed buildings, dimensions of same, and material of construction: _____.
7. How much ground is to be occupied? _____.
8. Each feature of the business to be conducted. State by usual trade classification. _____.
9. Is the land open park or timbered? _____.
10. Is the land patented, or claimed; and, if so, under what form of claim and by whom? _____.

11. What improvements are there on the ground now? (Number and size of buildings; amount of ground under fence, under plow, under ditch.) _____.
12. What kinds, and how much timber will be cut in building and clearing? _____.
13. How near is the nearest place where such business as that named in the application is conducted? _____.
14. What need is there for the privilege applied for? _____.
15. Who will be the people benefited by such a place at this point? _____.
16. What is the applicant's reputation? _____.
17. What is his financial standing? _____.
18. If the location is at shore of lake or bank of stream, will the granting of this privilege involve any monopoly of specially desirable camping grounds or place of resort, and will it otherwise enable the applicant to hinder other persons in the use and enjoyment of the reserve? _____.
19. Will the establishment add materially to the difficulties of caring for the reserve, and in what way? _____.
20. Is there a trail or road over this ground, and where does the trail or road lead to, and what is its condition? _____.
21. If it is the purpose of leasing the ground under the act of February 28, 1899 (30 Stat., 908), what is its value? _____.
22. What special qualification has applicant for keeping this place? _____.
23. When and by whom was the ground examined? _____.
24. Other information and recommendation of forest officer: _____.
(Signed): _____.

REPORT ON SAWMILLS.

_____ Reserve.

Date: _____ day of _____, 190—.

- (1) Owner of sawmill: _____ P. O. address: _____.
- (2) Location of mills: (Whether on patented or vacant public land, or on mining claim, etc., and where, on what stream, road, etc.) _____.
- (3) Kind of sawmill: (Steam, water, circular, sash, band.) _____. Daily capacity: _____; extra machinery: (Edger, trimmer, lath or shingle saw, planer, etc.) _____.
- (4) Operated by: (Owner, other person.) _____.
- (5) Number of men usually employed about the mill: _____.
- (6) When was mill located? _____.
- (7) Since when operated? _____.
- (8) About how long in each year does the mill run? (Months.) _____.
- (9) Where are the logs now obtained for the mill? (Give distance from mill and locality of timber.) _____.
- (10) What is the value of the logs at mill? _____.
- (11) Does the miller do his own logging, or is it done by contract? (Give price, if by contract?) _____.
- (12) What is the timber mostly cut into? (Boards, square timber, mining timber, railway ties, etc.) _____.

(13) Is the material piled and seasoned at the mill, or is it hauled away green? _____.

(14) Is the material usually sold at the mill, and at what prices? _____.

(15) Is the material hauled to market to sell? Where to? How far? (Name of place, distance in miles.) _____.

(16) What is the cost of hauling from mill to market? (\$_____ per M ft. b. m.) _____.

(17) What is the material worth at market point where sold? _____.

(18) In what manner is the sawdust, edgings, slabs, and other refuse taken care of? _____.

(19) Is there any pollution of the stream by sawdust or other refuse? _____.

(20) Are proper precautions taken to prevent fire? _____.

(21) Is the owner or miller financially responsible? _____.

(22) What is the owner's or miller's reputation in the community? _____.

(23) When was the permit granted for this mill? _____.

(24) Has the mill in the past given trouble of any kind, and has miller obeyed readily the reserve regulations and orders of forest officers? _____.

(25) When was this mill inspected last, and by whom? _____.

(26) Recommendations of forest officer are: _____.

Signed: _____

GENERAL REPORT ON LANDS IN FOREST RESERVE.

[This form is used in examining lands with a view to elimination from reserves, or for other purposes.]

FOREST RESERVE.

The forest officer will proceed and go over every section of this land and, unless ordered otherwise, describe the same by quarter sections, stating, for each quarter section, the following:

1. Location of land: _____.
2. Topography: (Is the ground steep, etc., and what is the approximate height of the highest above the lowest point?) _____.
3. Surface: (Whether even, smooth, or covered by ravines, draws, etc. Also, whether stony or not.) _____.
4. Soil: (Loam, sand, color, depth.) _____.
5. What proportion is covered by timber, burns, park, or open prairie ground? _____.
6. What kinds of timber? _____.
7. Condition of timber: (Mature, thrifty, defective, damaged by fire, etc.) _____.
8. Amount of timber, estimated.) _____.
9. How many acres of damp meadow land? _____.
10. How many acres of tillable land? _____.
11. Does land require irrigation? _____.
12. Is there sufficient water accessible to irrigate this land? _____.
13. What crops can be raised on the land? _____.

14. If the land is on the shores of a lake, or bank of stream, state: ———.
 (a) Will the settlement tend to monopolize the shore line and prevent the public enjoying the water and scenery of the locality? ———.

(b) Will settlement interfere with the removal of timber from the portions more remote from the water, and thereby hinder the use of the forest? ———.

15. If there is any settlement in existence, report the same according to the form prescribed for this purpose. ———.

16. State what you know concerning the motives leading to the petition for elimination, inclusion, or reservation, etc., as the case may be. ———.

17. Recommendation of forest officer: ———.

—————,
Forest Ranger.

Approved: ——— ———, 190—.

—————,
Forest Supervisor.

REPORT ON RIGHT OF WAY OF WAGON ROADS, RAILROADS, CANALS, DITCHES, RESERVOIRS, TELEPHONE AND TELEGRAPH LINES.

The forest officer, if not furnished by this office with a sketch map of the proposed wagon road, ditch, etc., can use the map of the company as base or skeleton to copy from. With this map he will follow the survey as far as it extends through the reserve. In examining the land he will sketch in his note book all points of importance, mapping them on a scale of 6 inches to 1 mile.

A sketch map and a description may be made for every half mile; but if the survey runs for a mile or two through forest of practically the same kind, or through a barren burn, the description of the first or preceding half mile may answer for the second or all following half miles; and the note will then simply be: "Same as last half mile," etc.

In his report the forest officer will answer the questions in the same order as adopted in this form and give to each answer the same number that the question has.

The report will, in form, be as follows:

Report on right of way: (Wagon road, railroad, ditch, etc.) in ———
 Reserve.

(Month and date.) ——— ———, 190—.

1. Name and address of applicant (person or firm proposing to build and use the road, ditch, canal, etc.) ———.

For every half mile, state:

2. Lay of land, level, slope, bluff, both on right of way and on each side; whether the way runs in a narrow valley, on hillside, etc.

3. Surface: Whether smooth or broken, rocky, bare, waste, grassy park, timber.

4. Soil: Whether gravel, loam, sand, rocky, deep, or shallow.

5. Timber on right of way and on each side. This is to be indicated by map and description.

As the maps are numbered in the order in which the examination is conducted, the description will refer to the map at every point.

In describing the timber, note:

(a) Condition of timber: Old or young growth; green or dead; defective or sound; injured by fire or a mere "burn."

(b) Kinds of timber: Name the different kinds and give their proportions, as, for instance: Mixed growth of fir 40, cedar 10, hemlock 35 per cent., with some balsam and spruce.

(c) Size of timber, as, for instance: Fir trees run generally from — to — inches, and are about — feet high. Cedar is from — to — inches, etc.

(d) Amount of timber per acre, as per estimate according to — method.

Red fir: — M. ft.

Cedar: — M. ft.

Hemlock: — M. ft.

Others: — M. ft.

(e) How much timber will be cut on right of way? —.

(f) Value of timber to be cut on right of way. —.

6. If railway should be built, will there be great danger of fire from it; and, if so, what can be done in cleaning or clearing near the right of way to lessen this danger? —.

7. Any roads, trails, fields, bridges, on right of way? —.

For report on the whole right of way, state:

8. If railway, canal, etc., will hinder the use of existing road or trail or other public improvement or convenience, and otherwise interfere with travel, with future logging, etc., at this point: —.

9. What is the necessity for the right of way? —.

10. Is the proposed enterprise likely to be a benefit to the reserve or a damage; and, in either case, why? —.

11. Will the proposed construction benefit the settlements in and near the reserve, and in what way? —.

12. Will it increase the danger of trespass? If so, in what way? —.

(a) If there are signs of this now, state what they are. —.

13. Has any work been done on this right of way, ditch, etc.? —.

(a) If so, has it been reported, and when? —.

(If the right of way is for a canal, ditch, or reservoir, report, in addition to the foregoing, on the following points):

14. Will the water from the ditch or canal do damage to the land and timber below the ditch? —.

15. Are there any old ditches used in this enterprise? —.

16. Concerning the reservoir site, what is the—

(a) Area of the reservoir site: —.

(b) Surface: (Whether rough, broken, even, etc.) —.

(c) Soil: (Whether sandy, loam, rocky, etc.) —.

(d) Timber: (What kind of stand, what species, what size, how much by estimate.) —.

17. Are there any water rights on this stream involved here? ———.

(a) If so, name the persons, or the number of them approximately, and the capacity of their ditches and their claims, singly or in the aggregate. ———.

18. Does the stream furnish all the water needed by these claimants at all times of the year? ———.

19. If all the water is not used by them, is it likely that the ditch considered in this application will interfere with existing rights, at least during dry seasons? ———.

20. Is the canal or ditch to be used to provide water for power purposes? ———.

If so, state:

(a) Whether the site for buildings and other improvements is well chosen or not. ———.

(b) How much land will thus be occupied? ———.

(c) How much timber will be removed in constructing and maintaining these improvements? ———.

(d) Will the presence of these improvements specially endanger the timber of the reserve? If so, in what way, and to what extent? ———.

(e) Will the operation of the plant in any way affect the character of the water in the streams, and to what extent? ———.

(If the right-of-way is for a telegraph or telephone line, the description of topography, surface, and soil need not be stated in such full detail as above indicated. A general statement will suffice.)

In addition to the information outlined above concerning timber, state:

(a) If the line follows a road or trail: ———.

(b) If along a road, is it a public highway as the word is used in the law of the State or Territory? That is, is it a recorded county road, or is it merely a neighborhood road? ———.

(c) What kind of timber is to be used for the poles? ———.

(d) Of what size are the poles to be? ———.

(e) Where are the poles to be obtained? ———.

(f) Under what authority or permit are they to be obtained? ———.

—————, *Ranger.*

—————, *Supervisor.*

RECOMMENDATION.

The forest officer, in his letter transmitting this detailed report, will make such recommendation for approval or rejection of the application as the case seems to require, and give his reasons for such recommendation?

REPORT ON UNLAWFUL FENCING.

————— Reserve,

Date: — day of ———, 190—.

1. Name and address of party using the fence: ———.

2. Location of fenced land: ———.

3. How many rods of fence are there? ———.

4. What kind of fence—barbed wire, rail, brush, etc.—including bluffs and other natural barriers? _____.
5. When was the fence built? _____.
6. By whom was it built? _____.
7. Is all inclosed land vacant public land? _____.
8. If not, what other kinds of lands—railway, State, etc.—are included, and how much of each? _____.
9. In what condition is the fence now? _____.
10. Are there a sufficient number of gates to accommodate people in travel through the district? _____.
11. Does the fence work hardship and annoyance to the people of the district, and in what way? _____.
12. Do the parties maintaining the fence hinder settlers and travelers, or otherwise make themselves disagreeable? _____.
13. What attempts have been made to obtain title to the public lands within the inclosure? _____.
14. Have parties been notified to remove the fence? When, and by whom? _____.
15. Other information and recommendations of forest officer: _____.
16. When and by whom examined? _____.

Signed: _____.

REPORT ON MINING CLAIM.

_____ Reserve,
Date: ___ day of _____, 190—.

1. Name and address of claimant: _____.
2. Location of claim: (By legal subdivisions or natural landmarks; preferably use description given in register of mining claims as filed in district recorder's office.) _____.
3. Has it been recorded? (If so, state where, by whom, and under what designation.) _____.
4. Topography of land or claim: (State whether level, steep slope, rough, broken ground; whether in valley, on hillsides, or on top of ridge or butte.) _____.
5. Surface: (State whether even or rough and broken, smooth or strewn with rocks.) _____.
6. Soil: (State whether coarse sand, clay or loam, whether stony, gravelly, fertile, or useless for agricultural purposes.) _____.
7. Is there water on or near the claim which may be used in working this claim? _____.
8. Is there now a ditch or other means of bringing water on this claim for prospecting or mining purposes? _____.
9. If not, what has claimant done in the past to supply water for this work? _____.
10. Is the claim clearly staked out by posts or marks? _____.
11. Kind of claim: (Placer, etc.) _____.

12. Kinds of mineral alleged to exist on claim: (Gold, silver, lead, etc.) _____.
13. When located: _____.
14. Has assessment work been performed every year requiring an expenditure of not less than \$100, and what evidence is there to substantiate this? _____.
15. What improvements are there on the claim?
 (a) Buildings: _____.
 (b) Excavations: (Extent and depth, length of shaft, etc.) _____.
16. Is there timber on the claim? If so, what kinds and how much? _____.
17. What evidence is there to show that there is mineral enough to make the claim a valid mining claim? _____.
18. Has the claim been thoroughly examined by an expert prospector, or miner employed to ascertain the character of the claim? If so, what is his name and finding? (Use extra sheet, if much information is added.) _____.
19. When and by what forest officer was claim inspected? _____.
20. Opinion of forest officer, and reasons for such opinion: (Do you think claim a valid one, or one merely located to hold the land for business location, town-site uses, or to obtain timber, or for other purposes?) _____.
21. Recommendation of forest officer: _____.
- _____, *Supervisor*. _____, *Ranger*.

REPORT ON TRESPASS.

(This form is used in trespass other than in timber.)

_____ Reserve.

Date: _____ day of _____, 190—.

1. Name and address of trespasser: _____.
2. Trespass has been committed by: (Grazing; fencing; building of houses, mill; excavation of ditch, canal; construction of road, railway, etc.) _____.
3. Here follows a report according to the nature of the case, and made out in agreement with the scheme laid down for the particular kind of report; for instance, if it pertains to unlawful construction of fences, see report on this subject, etc.: _____.
4. In every case add:
 - (a) When, how, and by whom was trespass discovered? _____.
 - (b) When and by whom was it examined? _____.
 - (c) How long did trespass continue? _____.
 - (d) What damage was done by trespass? _____.
 - (e) Is there any damage done now by the existence, occupation, or use of the works, structures, etc., constructed in this trespass? _____.

(f) What steps have been taken to stop trespass? _____.

(g) Was it willful? _____.

(h) Has there been effort at settlement; and if so, what offers have been made? _____.

NOTE.—Any offer of settlement must be accompanied by certified check.

(i) Additional information and recommendation of forest officer: _____.

Signed: _____, *Ranger*.

Witnessed: _____.

(Form No. 4-478 A.)

REPORT OF TIMBER TRESPASS.

_____ Forest Reserve,
Dated at _____,
_____, 190—.

1. Name of trespasser: _____.
2. Occupation of trespasser: _____.
3. Residence and address of trespasser: _____.
(a) Has trespasser timber on his own land or claim? _____.
4. Was the trespass committed on—
(a) Vacant public land? _____.
(b) Homestead claim? _____.
(c) Mining claim? _____.
5. Describe land trespassed upon: (If *unsurveyed*, indicate by streams and other natural objects distance and direction from nearest surveyed lands, towns, etc. If *surveyed*, describe as indicated by the following sample: In township 7 N., range 13 W., Boise Mer., Idaho, NE. $\frac{1}{4}$ of NW. $\frac{1}{4}$, and W. $\frac{1}{2}$ of NE. $\frac{1}{4}$ of section 4.)
6. If trespass occurred in connection with—
(a) "Free use" permit: (Give name and residence of permit holder.) _____.
(b) Timber sale: No. of sale case: _____. Name of party in sale case: _____.
7. Kind of trespass:
(a) Did trespasser simply cut? _____.
(b) Did he cut and also remove? _____.
(c) Did he violate any of the regulations of the "free use" permit? If so, which? _____.
(d) Did he violate contract of sale? If so, how? _____.
(e) If the trespass was on a homestead or settlement claim, did the trespasser cut more than was necessary in clearing for cultivation? _____.
(f) If the trespass was on a mining claim, did the trespasser cut more than was necessary to develop that mining claim? _____.

8. What kind of material was cut? (Dead, live, standing, or down; pine, spruce, etc.) _____.
9. Amount of material cut in trespass: (Number feet B. M. of logs, or timber; number of ties, posts, poles.) _____.
10. When was trespass committed? (Date of cutting, hauling, etc.) _____.
11. Who did the cutting? _____.
12. Who did the skidding, hauling, scaling, etc.? _____.
13. Where was it sawed into lumber, and by whom? _____.
14. Is there any manufactured material—logs, ties, etc., on the cutting area or claim? If so, what, and how much of each? _____.
15. Was any of the material cut in this trespass found at other places—at sawmills, along the road, at streams, landings, etc.? If so, where, what kinds, and how much? _____.
16. Has any of the material been seized? If so, where, by whom, and how much? _____.
17. How is this material guarded? _____.
18. What was the material cut in trespass used for? _____.
19. Where was it used? _____.
20. Is any or all of the timber sold? _____.
21. If any is sold, give name and address of purchaser: _____.
22. What price was paid or agreed upon in this sale? _____.
23. Where was the timber delivered? _____.
24. Amount delivered to purchaser: _____.
25. Did purchaser make this purchase innocently or with knowledge of the trespass? Give reasons for your statements: _____.
26. What is the value of the material?
- (a) On the stump: _____.
- (b) After being cut into logs, poles, posts, cordwood, ties, etc.: _____.
- (c) After sawing and at sawmill yard: _____.
- (d) At nearest lumber yard or other market point: _____.
27. Names and addresses of witnesses, and brief of testimony. (The testimony must be as to *facts*; mere inferences, opinions, and hearsay evidence will not suffice. The parties involved in the trespass should always be requested to submit a statement as to the facts in the case.) _____.
28. On what date did the forest officer examine the land trespassed upon? _____.
29. What facts did the forest officer himself find; that is to say, what is his own testimony? _____.
30. Was the trespass willful or unintentional? (State carefully all the facts and circumstances that lead you to think it either willful or unintentional.) _____.
31. Is the trespasser financially responsible, and to what extent? _____.
32. Has the trespasser offered to settle, and on what terms? _____.
- NOTE.—All applications for settlement must be accompanied by certified check for amount of money offered.
33. Action recommended by the forest officer: _____
- Signature of officer who examined the land and case: _____.
- Report examined by: _____, *Forest Supervisor*.

CONTRACT FOR SPECIAL PRIVILEGES.

—————
 ————— Forest Reserve.

No. ———.

CONTRACT.

This contract is hereby entered into by and between ———, party of the first part, and the Secretary of the Interior for the United States of America, party of the second part, for the privilege of occupying ——— acres of land, situated in the ——— Forest Reserve, and located as follows: ———. And to erect thereon (number) ——— buildings, as follows: (Here give size, number of stories, and material of each.) ——— to be constructed from timber to be obtained from (claim or reserve) ——— under (sale or free use) ———. The buildings to be used as (hotel, store, shop, mill, post-office, dwelling, etc.) ———, in agreement with my application.

To maintain a (boat, steamboat, ferryboat, or other special privilege—here describe same) ——— on (here describe location of operation of privilege—lake, river, etc.) ———.

In consideration of this permit so granted to me, I (name), promise and agree to observe and obey the following conditions and requirements:

1. To commit no trespass on timber or otherwise.
2. Never to assist or encourage trespass of any kind by keeping or assisting trespassers, or by purchasing timber or other material obtained in trespass.
3. To assist forest officers in the execution of their duties by furnishing information and actual help in cases of emergency.
4. To do all in my power to prevent forest fires and to assist in fighting the same, without waiting to be called upon to do so by the proper officer.
5. Never to kill game out of season or otherwise violate the game laws.
6. Not to purchase game, pelts, or skins when there is good reason to believe that the game laws have been violated in the capture of these articles.
7. To obey cheerfully, and at all times, the rules and regulations prescribed by the Department for the government of forest reserves.
8. To conduct my business in a proper, honest manner, satisfactory to the public which is to be served thereby.
9. To refrain from excessive charges.
10. To keep a clean and orderly place.
11. To keep a satisfactory stock of goods, so that there may exist no reason for additional establishments of this kind at this place.
12. Never to harbor evil-minded persons, or persons of bad repute.
13. That I will pay the United States for any and all damage sustained by reason of my use and occupation of said forest reserve, regardless of the cause or circumstances under which such damage may occur.

4. To (Here add as the case requires: If for a hotel, such clauses as pertain to the sale of liquors, gaming devices, etc.) _____.

I further agree to execute a bond, running to the United States, with approved sureties, in the sum of _____, conditioned for the payment of any and all damage, as aforesaid, and for the faithful performance of this agreement and strict compliance with the laws and regulations aforesaid; and in the event of failure on my part to do and perform any of the requirements hereinbefore set forth, then, in such event, said bond is to be declared forfeited and the permission hereinbefore granted and all privileges thereunder shall cease and terminate. It is further agreed and understood that the permission herein granted is subject to revocation by the Secretary of the Interior, in his discretion, at any time, notwithstanding the period for which this agreement is approved may not have then expired.

Dated at _____,
 _____, 190—.

DEPARTMENT OF THE INTERIOR,
 Washington, D. C., _____, 190—.

This contract is approved and entered into for the period of _____ from _____, 190—; and is executed in duplicate, the original to be retained in the General Land Office and the duplicate to be delivered to the applicant.

Secretary of the Interior.

4—180.

CONTRACT FOR SAWMILL PRIVILEGE.

_____ Forest Reserve.

This memorandum of agreement witnesseth: That in consideration of permission hereby granted by the Secretary of the Interior, authorizing me to erect a sawmill on [describe here location and kind (steam, water, etc., circular or band), and also daily capacity, etc.] _____.

I, the undersigned, agree and promise:

1. To conduct the business of such sawmill in an orderly manner.
2. To abstain from any illegal cutting of timber.
3. To refuse to saw or handle any timber or lumber where I am not assured that it is procured according to the rules prescribed by the Department of the Interior.
4. That I will take all necessary precautions against fire, and will obey all orders issued and directions given by the officers in charge of said reservation for the better protection of the forest reserve.
5. That the disposition of the sawdust and other refuse will be made in such manner as not to violate the rules of the Department guarding the

purity of the streams, and that any orders issued or directions given by forest officers pertaining to a proper disposition of such sawdust or refuse will be promptly obeyed.

6. That I will comply with the laws and all rules and regulations of the Department now or hereafter in force during the continuance of this agreement governing forest reserves, and will do every act and submit to every requirement necessary to the promotion of the interests involved in the creation of said forest reservation.

7. That I will pay the United States for any and all damage sustained by reason of my use and occupation of said forest reserve, regardless of the cause or circumstances under which such damage may occur.

I further agree to execute a bond, running to the United States, with approved sureties, in the sum of _____, conditioned for the payment of any and all damage as aforesaid, and for the faithful performance of this agreement and strict compliance with the laws and regulations aforesaid; and in the event of failure on my part to do and perform any of the requirements hereinbefore set forth, then in such event said bond is to be declared forfeited and the permission hereinbefore granted and all privileges thereunder shall cease and determine. It is further agreed and understood that the permission herein granted is subject to revocation by the Secretary of the Interior, in his discretion, at any time, notwithstanding the period for which this agreement is approved may not have then expired.

Dated at _____, 190—.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., _____, 190—.

This contract is approved and entered into for the period of _____ from _____ 190—, and is executed in duplicate, the original to be retained in the General Land Office and the duplicate to be delivered to the applicant.

_____,
Secretary of the Interior.

APPLICATION FOR SHEEP-GRAZING PRIVILEGE.

No. _____.

State of _____.

_____, 190—.

I, _____, of _____, being a citizen, or having declared my intention to become a citizen, of the United States and a resident of the State of _____, do hereby make application for the privilege of pasturing not more than _____ head of sheep, actually owned by me, within the _____ forest reserve: *Provided*, That there shall be excepted, and on which the animals shall not intrude, the following-described areas, localities, and tracts, to wit: _____

It is my desire to graze said animals upon that part of the reserve bounded and described as follows, to wit: _____ exclusive of any of the said excepted areas, localities, and tracts which may fall within said bounds.

This application is made for my own exclusive use and benefit, and not directly or indirectly for the use of any other person; and not for the purpose of obtaining a permit to be sold or relinquished in any manner or for any consideration, and if the pasturing is permitted hereunder, I do hereby agree that it shall not begin earlier than ———, 190—, and that it shall end not later than ———, 190—, and that the animals shall not be corralled within five hundred (500) yards of any running stream or living spring, and that they shall not intrude on any of the said excepted areas, or on any well-known places of public resort or reservoir supply.

Further: If this application is granted, I do hereby agree to fully comply with all and singular the requirements of any law of Congress now or hereafter enacted relating to the grazing of live stock in forest reserves, and with all and singular the requirements of any rules or regulations now or hereafter adopted in pursuance of any such law of Congress.

I also hereby bind myself and employees engaged in caring for the animals while on the reserve to extinguish all fires started by any of said employees before leaving the vicinity thereof, and to aid in extinguishing all camp and forest fires within the territory occupied by me or said employees, and to cooperate generally with the forest officers and rangers in protecting the reserve from fires and depredations, if possible to do so, and to give timely information thereof to the said forest officers and rangers.

I also further agree that as soon as my animals enter the reserve, and thereafter, to notify the forest supervisor in charge of the reserve of their specific location, and to give a description of the range occupied, to the end that their exact location at all times, while in the reserve, may be known to the forest officers.

This application is also made with the understanding and full agreement thereto that penalties will be imposed for a violation of rules, as follows:

PERMITS CANCELED AND REFUSED.

1. For obtaining or attempting to obtain a permit on false representations.
2. For willful trespass upon areas where not permitted, either on closed areas or the ranges of others.
3. For setting out fires to clear range.
4. For *willful* negligence in leaving camp or other fires.
5. For refusing to observe promptly any direct order from the Department requiring an observance of any rule.

OTHER PENALTIES.

The number of sheep covered by a permit to be materially reduced for the following-stated causes, viz:

1. For crowding onto a neighbor's range without the consent of said neighbor.
2. For bedding sheep more than six nights in succession in any one place, except when bedding bands of ewes during lambing season.
3. For entering the reserve prior to the date authorized.
4. For remaining in the reserve after the permit has expired.

5. For corraling within five hundred yards of a running stream or living spring.

6. For gross carelessness in leaving camp fires.

7. For failure to aid in extinguishing a fire occurring within the range occupied when possible to do so.

8. And for such other minor violations of the rules as may occur.

9. For failure to remove sheep promptly upon order of forest officer when damage is being done to the range.

10. For failure of herder to corral for count, upon order of forest officer or ranger, when number of sheep appears to be greater than the number covered by permit.

I also agree to forfeit the permit for a violation of any of its terms or of the terms hereof, or whenever an injury is being done the reserve by reason of the presence of the animals therein.

_____,
(P. O. address): _____.

Witnessed by—

_____,
(P. O. address): _____.

Examined and recommended _____, 190—.

_____,
Forest Supervisor.

Application approved _____, 190—.

_____,
Commissioner U. S. General Land Office.

APPLICATION FOR CATTLE AND HORSE GRAZING PRIVILEGE.

No. _____.

State of _____,
_____, 190—.

I, _____, of _____, being a citizen, or having declared my intention to become a citizen, of the United States and a resident of the State of _____, do hereby make application for the privilege of pasturing _____ head of cattle and _____ head of horses within the _____ forest reserve: *Provided*, That there shall be excepted, and on which the animals shall not intrude, the following-described areas, localities, and tracts, to wit: _____

It is my desire to graze said animals upon that part of the reserve bounded and described as follows, to wit: _____

This application is made for my own exclusive use and benefit, and not directly or indirectly for the use of any other person, and not for the purpose of obtaining a permit to be sold or relinquished in any manner or for any consideration, and if the pasturing is permitted hereunder I do hereby agree that it shall not begin earlier than _____, 190—, and that it shall end not later than _____, 190—, and that the animals shall not intrude on any of the said excepted areas or on any well-known places of public resort or reservoir supply.



Further: If this application is granted, I do hereby agree to fully comply with all and singular the requirements of any law of Congress now or hereafter enacted relating to the grazing of live stock in forest reserves, and with all and singular the requirements of any rules or regulations now or hereafter adopted in pursuance of any such law of Congress.

I also hereby bind myself and employees engaged in caring for the animals while on the reserve to extinguish all fires started by any of said employees before leaving the vicinity thereof, and to aid in extinguishing all camp and forest fires within the territory occupied by me or said employees, and to cooperate generally with the forest officers and rangers in protecting the reserve from fires and depredations, if possible to do so, and to give timely information thereof to the said forest officers and rangers.

I also further agree that as soon as my animals enter the reserve, and thereafter, to notify the forest supervisor in charge of the reserve of their specific location, and to give a description of the range occupied, to the end that their exact location at all times, while in the reserve, may be known to the forest officers.

I also agree to forfeit the permit for a violation of any of its terms or of the terms hereof or whenever an injury is being done the reserve by reason of the presence of the animals therein.

(P. O. address): _____.

Witnessed by—

_____.

(P. O. address): _____.

Examined and recommended _____, 190—.

Forest Supervisor.

Application approved _____, 190—.

Commissioner U. S. General Land Office.

SHEEP GRAZING PERMIT.

No. —

Act of June 4, 1897.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
Washington, D. C., _____, 190—.

Under Department regulations of December 23, 1901, M. _____, of _____, is hereby authorized to pasture _____ head of sheep within the _____ forest reserve from _____, 190—, to _____, 190—: *Provided*, That the animals shall not be corralled within five hundred yards of any running stream or living spring, nor intrude upon (to which this permit does not extend) any place of public resort or reservoir supply, nor upon any of the areas, localities, and tracts described as follows, to wit: _____

This permit is issued on the conditions that said ——— has, by his application No. ———, dated ———, 190—, agreed to fully comply with all and singular the requirements of any law of Congress now or hereafter enacted relating to the grazing of live stock in forest reserves, and with all and singular the requirements of any rules or regulations now or hereafter adopted in pursuance of any such law of Congress, and that he or his employees engaged in caring for the animals while on the reserve will extinguish all fires started by himself or any of said employees before leaving the vicinity thereof, and to cooperate generally, so far as possible, with the forest officers and rangers in protecting the reserve from fires and depredations; and that as soon as said animals shall enter the reserve, and thereafter, to notify the forest supervisor in charge of their specific location, giving a description of the range occupied; and that the said application was made with the understanding, and full agreement thereto, that penalties will be imposed for a violation of rules as follows:

PERMITS CANCELED AND REFUSED.

1. For obtaining or attempting to obtain a permit on false representations.
2. For willful trespass upon areas where not permitted, either on closed areas or the ranges of others.
3. For setting out fires to clear range.
4. For *willful* negligence in leaving camp or other fires.
5. For refusing to observe promptly any direct order from the Department requiring an observance of any rule.

OTHER PENALTIES.

The number of sheep covered by a permit to be materially reduced for the following-stated causes, viz:

1. For crowding onto a neighbor's range without the consent of said neighbor.
2. For bedding sheep more than six nights in succession in any one place, except when bedding bands of ewes during lambing season.
3. For entering the reserve prior to the date authorized.
4. For remaining in the reserve after the permit has expired.
5. For corralling within five hundred yards of a running stream or living spring.
6. For gross carelessness in leaving camp fires.
7. For failure to aid in extinguishing a fire occurring within the range occupied when possible to do so.
8. And for such other minor violations of the rules as may occur.
9. For failure to remove sheep promptly upon order of forest officer when damage is being done to the range.
10. For failure of herder to corral for count, upon order of forest officer or ranger, when number of sheep appears to be greater than the number covered by permit.

This privilege is extended with no obligation or agreement to maintain an exclusive possession upon any part of said reserve to any one person or firm, nor as to adjustment of any conflict as to possession.

For a violation of any of the terms hereof, or any of the terms of the application on which it is based, or wherever an injury is being done the reserve by reason of the presence of the animals therein, this permit will be canceled and the animals will be removed from the reserve.

Approved, _____, 190—.

_____,
Commissioner.

_____,
Secretary of the Interior.

OFFICIAL STANDING AND DUTIES OF FOREST OFFICERS.

INSPECTOR OF FOREST RESERVES.

1. The forest inspectors are appointed only after having established special proficiency in timber surveying, measuring and estimating, and all kinds of work connected with forest reserves. Successful experience in forest-reserve service will count for much.

2. The salary of the inspectors will be determined by the Secretary of the Interior, but in all cases they will be allowed all necessary traveling expenses and \$3 per diem in lieu of subsistence.

3. The inspector is the superior officer in the field, wherever he is assigned to duty. He advises with all forest officers and has access to any books, reports, or other records at the headquarters of these several officers, and is assisted by the supervisors and superintendents in his work.

4. His duties are to inspect the different reserves, their condition, and the progress, condition, and execution of all work, and to report to the Commissioner of the General Land Office all facts necessary for a proper management of such reserves. He investigates special cases when assigned to him, and assists, by suggestion and advice, the central office as well as the superintendents and supervisors or other local officers.

5. He is authorized to hire men and purchase materials necessary in the performance of his duties, but not involved in his subsistence, but must obtain special authority from the Department in advance for such special expenditures in excess of \$50.

SUPERINTENDENTS.

1. Superintendents will only be appointed after having shown special proficiency in timber surveying, measuring,

and estimating and all other forest-reserve work. Successful experience in forest-reserve service will count for much.

2. The salary of forest superintendents will not be uniform, but will be fixed by the Secretary of the Interior in accordance with the importance attached to each jurisdiction, but in all cases necessary traveling expenses are allowed.

3. The forest superintendent acts as local inspector for the reserves under his charge. He has access to any books, reports, or other records of the several forest officers, and is assisted by the supervisors and rangers in work connected with their respective reserves.

4. His duties are to inspect the different reserves under his charge, their condition, and the progress, condition, and execution of all work, and to report to the Commissioner of the General Land Office all facts necessary for a proper understanding of existing conditions and for the management of such reserves. He assists, by suggestion and advice, the central office as well as the local officers, and consults with the supervisors and helps plan the work of the reserves.

SUPERVISORS.

1. Forest supervisors will only be appointed after demonstrating their ability to perform the duties of the office; and only men well grounded and experienced in forest survey, timber estimating, and timber business will be considered eligible. Successful experience in forest-reserve service will count for much.

2. The salary of supervisors will not be uniform, but will be fixed by the Secretary of the Interior in accordance with the amount of business in the reserve or reserves in each jurisdiction.

3. Each supervisor will be required to keep, at his own expense, one or more saddle horses, to be used under saddle or to vehicle, for his transportation in the reserve; and will only be allowed such necessary traveling expenses as are incurred when the urgency of the case requires some other means of transportation.

4. The supervisor will have full charge of the subordinate employees and the business of his reserve or reserves.

5. He will plan and direct all work, have entire disposition

of his rangers and other help, and will be responsible for the efficiency of the service.

6. He has authority to suspend any subordinate employee in his reserve, except head ranger, and to recommend his discharge from the date of suspension; and also to recommend such changes in the field force as the good of the service may demand.

7. No charge for services of a surveyor, scaler of timber, assistant, or extra help, nor for any other than ordinary and usual expenses will be allowed, unless specific official authority is first obtained therefor in each case, which will be granted only on such statement of facts as the Commissioner may decide to justify the authorization requested. However, in case of emergency clearly precluding prior authorization, he may employ the necessary assistants without first obtaining the required authority; but when the expense incurred in an emergency case is transmitted for payment, the expense account must be accompanied by a full and complete statement of the facts, showing why the case was one of emergency, and also, conclusively, that the expense was absolutely necessary and for the good of the service; failing in this, the charge will be disallowed.

8. In the case of forest fires the supervisor is authorized to hire temporary men, purchase materials and supplies, and to pay for their transportation from place to place to extinguish the fire; but when it is evident that the expense of any fire *in any such case* is liable to be over \$300.00 he must at once telegraph the central office for authority to incur the additional expense. No expense for fighting a fire outside of the reserve must be incurred unless the fire threatens the reserve.

9. The supervisor will advise with the forest inspector and superintendent whenever either calls upon him, or is on duty in his reserve or reserves. He will also consult with his head rangers on the work intrusted to their care, and whenever the importance of any case demands.

10. He must make general monthly reports to the central office concerning all matters of importance coming to his attention, embodying therein all information affecting the reserve coming from the rangers or from other sources.

**RULES GOVERNING THE APPOINTMENT, DUTIES, AND
STANDING OF HEAD RANGERS IN FOREST RESERVES.****APPOINTMENT.**

Head rangers will only be employed in forest reserves where their services, as such, are needed. They will be required to pass an examination tending to show their qualifications, experience, and efficiency in forest work, especially forest surveying, timber estimating, scaling, logging, the methods and principles of general forestry, and ready knowledge of our forest trees.

The salaries paid them will vary, and will be fixed by the Secretary in accordance with the services required and rendered in the reserve where employed.

They will be required to keep one or more saddle horses for their own transportation in the reserves, but they will be allowed traveling expenses wherever their work requires other means of transportation.

They will be suspended or removed by the Secretary of the Interior on established charges.

Examinations for appointment will generally be had at the office of the forest supervisor for the reserve where the head ranger is to be employed. A printed form of set questions, to be approved by the Department, will be furnished the supervisor from which to conduct the examination. Each applicant will be required to write out his answers to the questions in the examination papers in the presence of the supervisor, unaided, and to swear to the same. Upon direction of the Commissioner of the General Land Office, the forest supervisor will set convenient days for examinations.

Examinations may also be held, in the discretion of the Commissioner, in places to be designated by him.

DUTIES.

They will act as technical assistants to the forest supervisors, and, as such, will survey and map the reserve areas, and will be given charge of timber cutting in sales and "free use" cases, and will direct the marking, cutting, and scaling of timber, and the cleaning up of the cutting areas, and will inspect cuttings and attend to other reserve work. They

will also attend to cases of trespass; and will assist the supervisor in planning the distribution of the rangers and other workers; and, in the absence of the supervisor, will direct the work of the reserve.

STANDING.

Head rangers will be subordinate to the supervisor, but will have the right to advise with that officer, and to originate their own reports, which reports the supervisor will immediately transmit to the Commissioner of the General Land Office.

They will act as superiors to the ordinary rangers and other workers wherever assigned to duty by the supervisor, and will direct the work and movements of all ordinary rangers and workers who may be engaged upon work within the jurisdiction of the head ranger.

GRADES, APPLICATIONS, QUALIFICATIONS, PRIVILEGES, AND DUTIES OF ORDINARY FOREST RANGERS.

There will be three classes of forest rangers, exclusive of head rangers, as follows:

Class 1, with a salary of \$90 per month.

Class 2, with a salary of \$75 per month.

Class 3, with a salary of \$60 per month.

All applicants are required to make application on a form prepared by this office for that purpose, and to swear to the same. The application must be supported by two persons as vouchers for the applicant. Blank spaces in the applications are provided for the statements of the vouchers.

Rangers of class 1 are expected to be familiar with work in the woods, to be able to locate land and timber, to estimate and scale timber, to follow and run out survey lines, and to direct and report intelligently on the ordinary work of the reserve.

For rangers of classes 2 and 3 no special qualifications are required, but they must be able-bodied, sober, and industrious men, fully capable of comprehending and following their instructions.

Appointments to positions as rangers of classes 2 and 1 will be made by promotion from class 3 whenever the service of

the ranger of the lower grade warrants such promotion, to the end that good service may lead to better pay.

Rangers are required to keep one or two saddle horses to enable them to travel readily about the reserve. Where the conditions are such that the horse is of no service, the supervisor may waive this requirement. Rangers must also provide themselves with a pocket compass, a camp outfit, ax, shovel, and pick or mattock.

When appointed, they are to report direct to the forest supervisor for duty.

They may be suspended without pay by the supervisor, superintendent, or inspector for insubordination, improper conduct, or gross neglect of duty.

The cause of the suspension being established by report from the superior officer, the ranger will be disciplined or dismissed by the Department.

Rangers will not be allowed to be absent from the reserves, with pay, to obtain supplies, horseshoeing, mail, or for other purposes, for more than four days in any one month; and *any* absence from the reserve, not exceeding four days, will only be allowed in the discretion of the forest supervisor. The supervisor may also grant leave for a longer period, without pay, when urgent private business, family sickness, or an absolute necessity requires the ranger's absence from his field of duty; but in no case for more than thirty days, the leave in each such case to be no longer than is necessary for that case.

The supervisor will report all leaves granted at the end of each month, that the same may be considered in connection with the settlement of the ranger's account.

The ranger's *entire* time must be given to the service; he can follow no other occupation, such as keeping store, farming, stock raising, working for cattle and sheep owners, or being in the employ of others and at the same time be a ranger.

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