

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
DISTRICT 6

S D-6,
Timber Surveys-Wallowa
Powwatka Ridge ¹

February 26, 1921.

The Forester,
Washington, D. C.

Dear Sir:

The office work on this project is now completed and I am sending you under separate cover a set of the maps which consist of an estimate sheet for T. 3N. and 4 N., R. 43 E. and of a topographic type map of T. 3 N., R. 43 E. A new topographic tracing and type map of T. 4 N., R. 43 E. was not made since the timber survey party this season covered merely a few isolated tracts therein and since there was already on file a grazing reconnaissance timber cover type map on the same scale which was found to be quite accurate and could not have been materially bettered with the scanty data which the timber survey party got this season.

There is enclosed a copy of the descriptive and cost reports prepared by the party chief, Mr. Conover. This office is very well satisfied with the execution of this project and believes that it was a useful piece of work well done. The cost, 12 cents per acre, is almost twice as much as work of this nature was costing six years ago, but this is inevitable with the wages of permanent and temporary men almost twice as high, with subsistence costing double what it used to, not to mention some added refinements in the execution of the work.

Very truly yours,
GEO. H. CECIL, District Forester
By E. N. _____ Acting.

Enclosure.

¹ This document was transcribed from a photocopy of the original, which is located in the Supervisor's Office Silviculture Library Archives. To the greatest extent possible, this version is an exact duplicate of the original text.

February 23, 1921

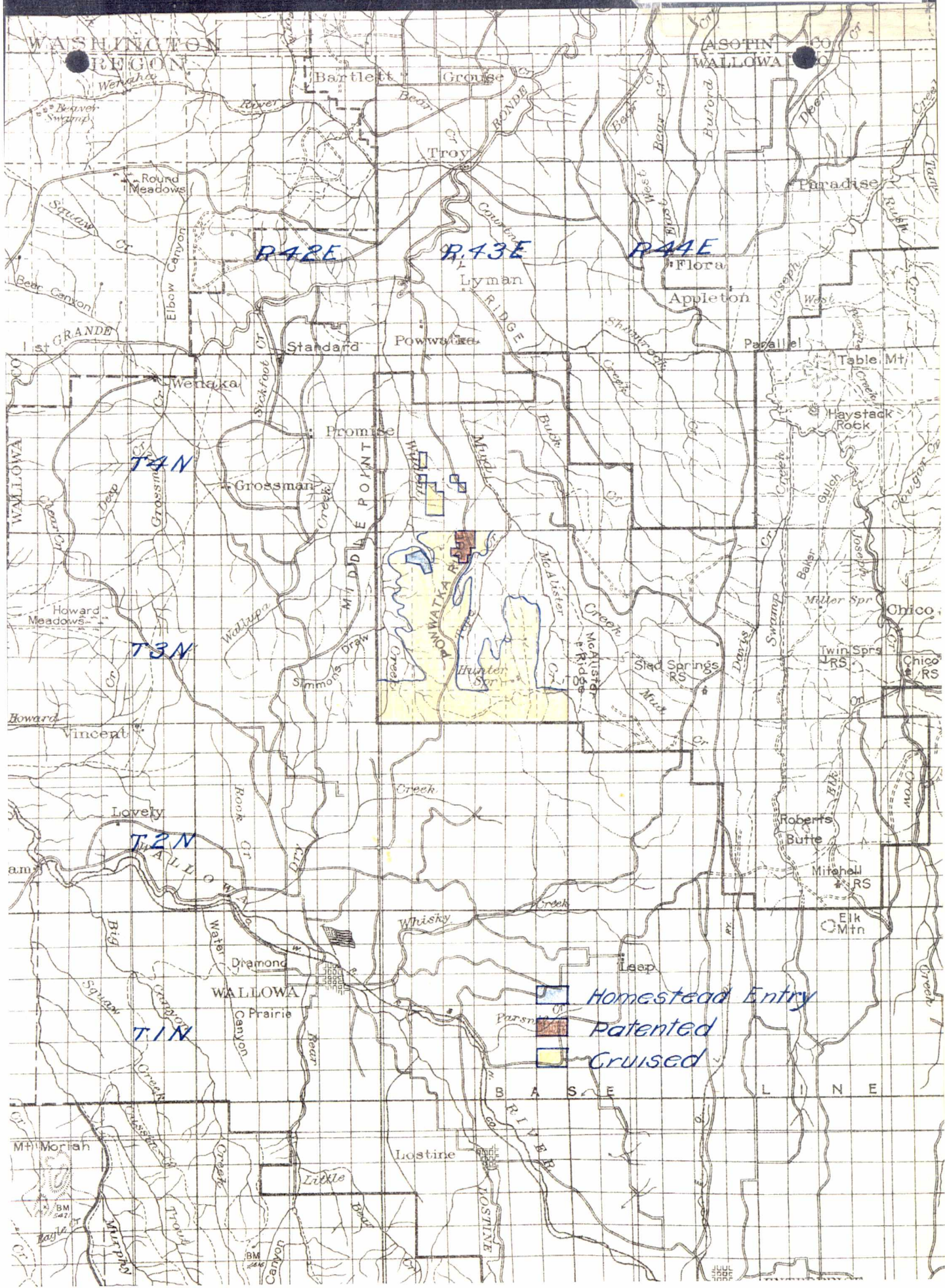
With letter of February 26, 1921.

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Timber Surveys, D-6,
Powwatka Ridge.

DESCRIPTIVE AND COST REPORTS
POWWATKA RIDGE TIMBER SURVEY PROJECT
WALLOWA NATIONAL FOREST
1920.

C. J. Conover
Chief of Party

I.	Introduction.	5
II.	Map	5
III.	Status and Ownership.....	5
IV.	Silvical description.....	6
V.	Logging data.	6
VI.	Management	8
VII.	Accuracy of Work.....	11



Homestead Entry
 Patented
 Cruised

I. Introduction.

The Powwatka Ridge timber survey project covers 12,766 acres upon the northwestern edge of the Wallowa National Forest in T. 3 and 4 N., R. 43 E., W.M. This area comprises the timbered public land covering the flat tops of the Powwatka and Washboard ridges and a strip across the upper end of the Tope creek canyon. Wallowa, Oregon, the nearest railroad point, is 12 miles distant from the southern edge of this tract by county road.

Of the stand of 82,903 M. feet found upon the area, 54% is yellow pine, 26% Douglas fir, 12% western larch and 8% white fir, with small amounts of Engelmann spruce and lodgepole pine.

The project was the result of an application by the Nibley Mimnaugh Lumber Company for a small block of timber at the edge of the area. The logging railroad of this company is now built to within a few hundred yards of the southern edge of the tract and is a good route for the logs to travel if the Powwatka ridge is to be logged by railroad.

A timber survey crew of five men in charge of Forest Examiner C. J. Conover started this project August 10 and the Chief of Party and one man finished it September 24, the remainder of the crew returning to school September 9. All areas were cruised according to standard instructions upon the 10% method. T. 3 N., R. 43 E., being unsurveyed, a transit line was run by solar attachment along the top of the ridge across the entire township.

II. Map

(attached)

III. Status and Ownership

T. 3 N., R. 43 E. is unsurveyed and contains only 3 homestead claims of about 160 acres each, all upon the Powwatka ridge. These are all meets and bounds surveys, two of them being patented and the other a bona fide homestead entry. All land adjoining this township on the south and west is in the ownership or control of lumber companies.

T. 4 N., R. 43 E. is surveyed and practically the entire ridge top has been homesteaded. The government timber cruised in this township consists of only 430 acres scattered in the poorest parts of the ridge. Practically the entire alienated area in this township still lies in the hands of small holders as the ranchers are making a fair living from the wheat and cattle raised. The majority, however, would be glad to sell their timber. There are a few fringes of timber along the brinks of the canyons still in public ownership which were not cruised.

IV. Silvical description.

57% of the area, or 7,274 acres, is covered with yellow pine, nearly all mature. The pine stand is not always pure, however, the best timber growing in mixture with Douglas fir and western larch. Upon the poorer sites yellow pine stands alone becoming a short twisted growth of little timber value around the openings. Upon 10% of the total area the soil is so shallow and dry that no tree growth takes place. These areas are covered with a sparse growth of grass and short sage brush which also covers most of the rocky sides of the canyons.

Typically the yellow pine trees are short boled and rather limby, running about 5% No. 1, 20% No. 2 and 75% No. 3 logs. In the transition type, however, where the stand is mixed, the trees are tall, straight and clear. This is especially true upon the Washboard Ridge, where the yellow pine is scattered singly or in groups among the trees of inferior species, notably Douglas fir.

Inferior species cover nearly one third of the tract, generally upon the pronounced northern exposures and in the draws. These stands are of all ages and mixtures from young pure lodgepole pine or western larch to mixed mature stands. Western larch and Douglas fir predominate in the upper story and often in the reproduction, while white fir (*Abies grandis*) forms the understory and furnishes a few fungous eaten specimens in the mature stand. Engelmann spruce grows only upon the cold sites in the deeper draws and seldom attains a diameter of 24 inches.

V. Logging data.

Powwatka and Washboard ridges lie between V shaped canyons from 500 to 2000 feet deep draining north into the Grand Ronde river. The natural outlet, however, for the timber is the Wallowa Valley to the south on account of the railroad connections which can be made there. There is no railroad down the lower Grand Ronde river. In railroad logging an adverse grade must be made up the ridges until the divide is reached and then there is a drop of about 1300 feet to the Wallowa valley. The ridge tops are slightly rolling and are tilted with the higher sides to the east. Thus the top drainage is to the northwest and any railroad grade installed for downhill logging must wind around the lower ends of these drainages near the western edges of the plateaus.

The timber is scattered, averaging only about 4 M. feet of yellow pine per acre over the timbered areas or 6.6 M. feet per acre upon the yellow pine type. The stand of all species averages only 8 M. per acre over the area of mature timber. Thus, if the stand were logged by railroad, as much as possible of all species would need to be cut to reduce unit costs of operation. At the present market value such a large proportion of inferior species would reduce the stumpage value of yellow pine considerably, as the inferior species would be logged at a loss.

The soil is a smooth textured light brown residual loam of varying depth. It probably averages 6 feet or more in depth upon the timbered areas while upon the grass covered knolls bedrock is only about 2 feet below the surface. The latter are known as "scab rock ridges" and show numerous fragments of the underlying basaltic rock in varying stages of decomposition. This light soil is very easy to work when dry and logging railroad grading is done for from \$15 to \$25 per station of 100 feet. When wet, however, the soil is very sticky and unstable as a roadbed.

Rock is entirely basaltic, resulting from successive lava flows, and is fairly easy to work with powder. It is well decomposed near the surface and shows its formation best along the sides of the canyons where the crumbling "rims" may be followed for miles.

Undergrowth is thick only in the young Douglas fir-larch-white fir type, consisting mostly of huckleberry and white fir-larch-Douglas fir reproduction. Alder, dwarf maple, cottonwood and hawthorn grow in the creek bottoms.

A county road traverses the length of Powwatka ridge, running north from Wallowa to Troy, in the Grand Ronde valley. The grade on the Wallowa side at the present time is located very poorly and is dangerous for heavy hauling when wet. A new grade has been surveyed which will make the hauling of lumber from this ridge to Wallowa a much cheaper proposition. Much of the timber could probably be logged and sawn upon the area much more efficiently than it could be taken out by a costly railroad operation. There is a small local demand for lumber by ranchers of the ridge which would absorb some of the inferior grades and species. In the past a small mill in Sec. 4 has furnished this demand and hauled lumber by truck to Wallowa.

A normal amount of insect damage takes place in the timber, probably fostered by the habits of the ranchers of girdling trees several years before cutting for firewood. Lightning also furnishes many breeding places for insects, there being hundreds of struck trees upon the area. These trees have sound heartwood for many years after dying and many are logged in adjoining operations.

The fall of snow hinders logging for only a short time each year, the stage road being open practically all winter to horse drawn vehicles.

The timber is not deteriorating rapidly and may safely be held until a more favorable market exists. Some of the trees show spike tops but rot does not run down the trunk from these points of infection. Butt rot is prevalent in Douglas fir and shake in larch.

VI. Management

Much of the area, especially that upon the Washboard ridge, contains a large proportion of nearly worthless inferior species. These should be discouraged as much as possible by heavy marking. It is doubtful if much can be done to change the composition under present labor and market conditions, but this effort should always be made. Excellent yellow pine timber will grow upon the sites now occupied by inferior species.

Strick provisions for fire protection should be inserted in the sale contract as this is an area of high inflammability. During the progress of cruising work there were several large fires upon cutting areas to the south of the tract and one incipient fire was found and extinguished upon the area by the survey crew. Brush should be piled and burned regularly every fall or winter. Truck or caterpillar logging to a local mill would cause less fire risk than would a railroad proposition. Snag falling will not cost much money as there are only about three per acre of 120 per forty and many of these are mistletoe killed western larch poles below 20 inches D.B. H.

T. 3 N., R. 43 E.

Estimate by Species and Sections—M. feet B. M.

Section No.	Acres	Y	D	W.L.	W.F.	E.S.	LP	Total, All Species By Sections
3	96	63	2					65
4	318	1,183	266	130				1,579
5	573	1,394	422	220	49			2,085
6	159	610	103	10				723
7	252	1,385	614	36				2,035
8	640	3,430	1,418	709	137	5		5,699
9	293	1,419	407	77				1,903
13	88	126	81	6				213
14	640	1,960	462	84				2,506
15	60	140	33					173
16	492	1,477	280	185	4			1,946
17	600	2,079	454	178	12			2,723
18	182	278	81	70	8			437
19	143	628	466	122	82			1,298
20	590	2,741	1,810	799	345	34	11	5,740
21	367	1,435	725	202	347	19	13	2,741
22	160	631	258	132	23			1,044
23	537	2,132	1,560	360	553	4	22	4,631
24	103	608	109	119	6			842
25	19	18	3					21
26	614	1,794	1,417	724	1,095		77	5,107
27	452	2,346	1,054	391	564		11	4,366
28	309	1,594	769	191	259	1	20	2,834
29	518	2,301	1,006	299	314	9	2	3,931
30	269	738	395	249	51	5	2	1,440
31	662	2,334	736	230	87	8	16	3,411
32	640	2,534	707	370	142		1	3,754
33	640	2,598	1,122	622	539	3	35	4,919
34	640	1,475	1,088	864	63			3,490
35	640	1,692	1,460	842	825		34	4,853
36	640	1,411	1,620	1,241	625	1	8	4,906
Total	12,336	44,554	20,928	9,462	6,130	89	252	81,415

T. 4 N., R. 43 E.

Estimate by Species and Sections—M. feet B.M.

Section No.	Area	Y	D	W.L.	W.F.	E.S.	LP	Total, All Species By Species
20	80	5						5
28	30	45	8	15				68
29	160	313	32	40	4			389
32	160	714	211	82	19			1,026
Total by Species	430	1,077	251	137	23			1,488

Summary by Townships—M. feet B.M.

Township and Range	Area	Y	D	W.L.	W.F.	E.S.	LP	Total, All Species By Townships
3 – 43	12,336	44,554	20,928	9,462	6,130	89	252	81,415
4 – 43	430	1,077	251	137	23			1,488
Total by Species	12,766	45,631	21,179	9,599	6,153	89	252	82,903
% by Species		54.4	25.8	11.7	7.7	0.1	0.3	100.0

VII. Accuracy of Work

Control

The only primary control run was the chained solar transit line across unsurveyed T. 3 N., R. 43 E. This line checked with the G.L.O. plats of the township lines within 18 links for alignment and 4.60 chains for distance. The measurement was done carefully with a 2 ½ chain tape using the double topographic abney method of chaining. Secondary control was run by compass and tape but no closing was made.

Strip Surveying

Averaging the closing errors of strips results as follows:

Alignment	1.8 chains
Pacing	.86 chains
Barometer elev.	32.4 feet

These strips averaged 1.7 miles in length and the closing errors were corrected by the compassmen before the data were entered upon the field map.

Strip Estimating

The estimators were all men with several years' experience at this line of work and aside from field supervision by the chief no checks were made upon them. Check cruises were not made on account of lack of time and personnel.

Office Work

All computations were fully checked and corrected by a second person before inclusion in the records. Sketches of the canyon drainage were used to adapt the grazing map of these untimbered areas to the full township timber survey map. The map was corrected in a few minor details from information obtained in running tentative railroad locations by the logging engineer and chief of the timber survey party. Except in these few minor details the work checked well. Elevations upon the contour map obtained by grazing reconnaissance were found to be about 200 feet high when checked with the logging railroad bench mark at Summit Springs.

COST REPORT

The costs upon this project may be considered standard for a timber survey crew boarding at a ranch or logging camp. Board was furnished for 3 weeks at 60¢ per meal, including lunches, and the crew was transported to work in a light aviation truck. For the remainder of the time the crew did its own cooking, supplies being hauled from Wallowa by truck or stage.

The crew personnel were well trained and good workers. The cooperation of the Supervisor and his force was unusually helpful, complete arrangements having been made for the start of work before the arrival of the party. Rains and sleet storms caused some loss of time in the field but as a rule the work progressed steadily.

The costs may be subdivided as follows:

Field Work

Area cruised 10% -- 12,766 acres
Control-transit and tape – 6 ½ miles
Control-compass and tape – 9 miles
Volume cruised – 82,903 M. feet

Total man days labor – 221
Actual extent of work – 46 days
Average size of crew – 5 men
Wages, total (incl. increased compensation) \$782.17
Average daily wage -- \$3.539

Expenses

Subsistence supplies	\$335.08
Travel	124.25
Hauling	39.37
Equipment	<u>6.95</u>
Total	\$505.65
Average per man day	\$2.288

Subdivided Field Costs

Primary control – Man days 24	
Salary	\$84.95
Expenses	<u>54.91</u>
Total	\$139.86

Secondary Control – Man days 10	
Salary	\$35.40
Expenses	<u>22.88</u>
Total	\$58.28

Strip cruising – Man days 83	
Salary	\$293.75
Expenses	<u>189.90</u>
Total	\$483.65

Camp office – Man days 23	
Salary	\$81.40
Expenses	<u>52.62</u>
Total	\$134.02

Moving and chores – Man days 23	
Salary	\$81.40
Expenses	<u>52.62</u>
Total	\$134.02

Job to job travel – Man days 12	
Salary	\$42.47
Expenses	<u>27.46</u>
Total	\$69.93

Sundays and holidays – Man days 34	
Salary	\$120.33
Expenses	<u>77.80</u>
Total	\$198.13

Supervision – Man days 12	
Salary	\$42.47
Expenses	<u>27.46</u>
Total	\$69.93

Total field work – Man days 221	
Salary	\$782.17
Expenses	<u>505.65</u>
Total	\$1,287.82

Volume cruised 82,903 M. feet
Area cruised 12,766 acres
Cost of field work per acre -- \$0.101
Cost of field work per M.ft. – 0.015

Office Work

	<u>Topography</u>	<u>Estimate</u>	<u>Reports</u>	<u>Total</u>
Man days	25	15	7	47
Salaries	125	75	35	235
Blueprinting	5	4		9
Typing			<u>5</u>	<u>5</u>
Total	\$130	79	40	\$249

Total Costs

Field work	\$1,287.82
Office Work	<u>249.00</u>
Total	\$1,536.82
Cost per Acre	
Field	\$0.101
Office	<u>0.019</u>
Total	\$0.120
Cost per M. feet	
Field	\$0.015
Office	<u>0.003</u>
Total	\$0.018

Charles J. Conover
Chief of Party

Approved

Forest Supervisor.