R 32

CROOKED, PACK AND UPPER PARSNIP RIVERS

Extensive Timber Reconnaissance

1929
Extensive Reconnaissance

of

CROOKED, PACK, and UPPER PARSNIP RIVERS

by

A.E. Collins

1929

Correspondence File 085319

R. Number 32
INDEX MAP
SHOWING
CROOKED PACK AND UPPER PARSNIP RECONNAISSANCE
Scale 31.56 MILES = 1 INCH
P.G.E. LAND GRANT BOUNDARY SHOWN — RECONNAISSANCE BDY.
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## Maps

One type and topography. Scale 4 miles = 1 inch.

Forest Survey's Office.
Extensive Timber Reconnaissance

Crooked, Pack, and Upper Parsnip Rivers.

Introduction.

The reconnaissance of the Crooked, Pack and Upper Parsnip rivers was commenced on February 17th and discontinued March 30th. The first part of this work was made from the camp of Mr. E.H. Burdon, B.C.L.S., who was in the field running a precise river traverse.

Commencing at the N.E. corner of Lot 3021 on Kerry Lake, the traverse follows the Crooked River and the East shore of McLeod Lake to the confluence of the Pack and Parsnip rivers, the final objective being a tie to the point of commencement via the Upper Parsnip river and Redrock Portage.

Thirty-eight miles of traverse line was complete at date of my departure from the survey parties' camp located at Fort McLeod on March 18th. At each mile along the line of traverse run, irrespective of latitude or departure, iron angle posts have been marked in numerical order and set with bearing
trees to mark their location. To facilitate the cruises of the country traversed, intermediate stations at every (40 chn) traverse distance have been established in the form of squared posts, scribed in the following manner:

\[
\text{Mile} \quad \frac{1}{1} \quad \frac{1}{40} \quad \text{Mile} \quad \frac{1}{2}
\]

All (40 chn) stations have been placed at right angles to the line of traverse.

Unusually adverse weather conditions prevailed during the months of February and March with poor snow and ice conditions for woods and river travel, and there being evidence of an early spring break-up I decided to proceed ahead of traverse parties camp and check for fire burned areas two reconnaissance reports of the upper Parsnip valley on file by Campbell, 1914, #210, and Copley, 1915, #214.

For this work the topographic maps made by Copley in 1915 were used and the timber volumes enclosed within his report extensively checked for fire burned areas and enclosed within the report. The large fire burned area to the south of Redrock Portage was ascertained from observation. The most southerly and westerly extent of this area being plotted in from
data furnished by trappers travelling this country.

Cruise methods employed.

Timbered areas of the lower Crooked and Pack rivers were reconnoitred from strip lines run from stations established by river traverse party. Extent of timbered and fire burned areas were ascertained by observation and compass reading from high vantage points. Sample \( \frac{1}{4} \) acre plots were taken at random throughout timbered stands and topographic features noted along strip lines run that might hamper or facilitate logging of watershed. Height classes of timbered stands were noted and different tree species cut into to determine age and soundness.

Location Description of Area.

Area reconnoitred is situated to the north and in the vicinity of Prince George; is bounded to the east by the Rocky Mountains; to the south by the Arctic divide; to the west by the Salmon River divide and to the north by the confluence of the Pack and Parsnip Rivers.
Area in Square Miles.

Total area approximately 3600 sq.miles

Merchantable timber..... 356 sq.miles 10%
Immature timber........... 600 " " 17%
Non-commercial " ....... 1542 " " 43%
Clean burned............. 658 " " 18%
Water.................. 142 " " 4%
Barren................... 302 " " 8%

Total ... 3600

General Drainage and Topography.

Flowing in a northerly and westerly direction the Crooked and Parsnip rivers both find their source in the Arctic divide. Their junction is at a point approximately 15 miles north of Fort McLeod.

The Crooked river finds its source in Summit Lake - elevation 2360' - forty miles north of Prince George. From its source the river with an average width of 100' meanders through a timbered valley bottom - average width 1½ miles - gently rising to the west to broken timbered slopes, terminating in a Lodgepole pine plateau to the almost imperceptible
Looking north-west from Summit Lake to "Teapot Dome" and lowland country that reaches to the Salmon River divide.

Hudson's Bay Post at Fort McLeod. Founded in 1806. Fort McLeod was the first post established in British Columbia.
divide of the Salmon river. To the East to the Tucheeda hills, which form the divide to the upper Parsnip, evenly surfaced but broken timbered lowlands are more general.

To the North of Redrock Lake the Crooked river valley floor narrows to an average width of approximately one-half mile. From this point north to Fort McLeod the land surface attains a slightly higher elevation. To the East gradually rising and broken timbered steeps to the Parsnip divide - average elevation approximately 3500'. To the West steep slopes break off to rolling plateau land - approximate elevation 3000'.

Fort McLeod, founded in 1806, the oldest Hudson's Bay post in British Columbia, is situated at the northern extremity of McLeod Lake - elevation 2225' - a fine stretch of water twelve miles long by approximately one mile wide. McLeod Lake empties into the Pack river, a short fast flowing stream - average width 100' - which with the waters of Tudyah Lake join the upper Parsnip fifteen miles north of Fort McLeod. The heavily burned country flanking this stream is of a spruce lowland and
Taken from a large muskeg near the head of the Parsnip River. Looking south through Kwaida Pass to the McGregor River watershed. It was through this Pass that Alexander McKenzie entered the Pacific slope during his memorial journey from Fort Chipewyan to Bella-Coola in 1793. Elevation of Pass 2890' approx.
Lodgepole pine benchland type from the Parsnip river west and north to the Salmon and Nation river divides.

The Parsnip river rising in the Arctic divide seventy miles east and north of Summit Lake, is approximately 140 miles in length, varies in width from 30 ft. near its source to 300 ft at its confluence with the Pack, has a moderately fast stream flow with an approximate drop of 15' to the mile; is fairly straight over a well defined bed; has no log jams or rapids and is navigable to Arctic Lake or Kwaida Pass - elevation by barometer reading 2890'.

Topographically the area drained by the upper Parsnip differs from the Crooked and Pack to the West. High barren mountains of the Rockies and Continental divide flank the north-eastern boundary of the watershed, with comparatively low broken timbered hills - approximate maximum elevation 4200' - forming the south-western boundary and divide to the Crooked river.

Tributary streams rising in the Rocky Mountains empty into the Parsnip in order named
as follows:

1. Mischinsinlika, 6. Wooyadalinya,
2. Misinchinka, 7. Table,
3. Colbourne, 8. Hominka,
4. Reynolds, 9. Missinha,

All the above tributaries will have an approximate average length of thirty-five miles and width of forty feet. Only one main tributary stream drains the lowland country to the west, namely, Wachaika Creek, which heads in the Tusheeda hills.

The Parsnip valley floor has an irregular average width of approximately 1 1/2 miles. Rising from the bottom lands of the valley proper and from all tributary streams fed by the Rocky Mountains, steep timber clad mountain spurs rising to barren divides are general.

Climate.

Sheltered to the North and East by the Continental divide and open to lowland country to the warm prevailing winds from the south-west, climatic conditions for this latitude will not be excessively
severe. Annual precipitation approximately 40 inches. Fall and Winter season - October 15th to April 30th. Spring and Summer season May to October 15th. Snowfall variable, average depth- Crooked river watershed 3 ft. upper Parsnip valley 4 feet.

Agriculture.

Snow conditions in the field would only enable me to very extensively determine what might topographically be suitable for tillage. The areas outlined on attached map and investigated under more favourable conditions by Copley in 1915, reconnaissance report #214, have been slightly revised for area, but would have to be further investigated to find the extent of arable land.

Land topographically suitable for tillage.

Crooked river valley 25600 acres approx.

Parsnip " 19200 " "

Total 44800 " "

Forest Description.

Forest cover of the Crooked, Pack and Parsnip rivers may be compared in composition to forest growth along the delta and adjoining the McGregor
river watershed. The timber will carry a lower average volume — approximately 6 M³ per acre through merchantable stands. Timber will not have such a uniform growth and larger waste areas of non-commercial cover are found. Spruce, Balsam, Lodgepole pine and Douglas Fir comprise the merchantable timber species.

Very little timber of commercial value was found on the Crooked and Pack river watersheds, what was found occurs in patches and is ununiform in growth. It is evident that preceding fires of approximately 120 years ago swept through this watershed, clean burning a large area of what was once a mature stand of Spruce, Balsam, and Fir, destroying the qualities of the soil to such an extent that the succeeding growth of Lodgepole pine has been retarded and does not exceed a larger average diameter than 8 inches.

To the west of Redrock Lake and extending along broken sidehill slopes and west to Lodgepole pine plateau land, a low grade of Spruce, Balsam Pine and scattered Fir is found, averaging 5 M. per acre. This stand ends in a clean burn eight miles north of Kerry Lake but continues again along
the north-west shore of McLeod Lake where a small stand of better grade timber of the same species is found averaging 10 M. per acre.

From Redrock Lake north to Fort McLeod and east to the Parsnip divide, a partially burned stand approximately 110 years old of Pine, Spruce, Balsam and Fir occurs. This stand is interspersed with the preceding mature stand of the same species, and has large waste areas of non-commercial cover. The mature Pine that remains in this area would make on an average of approximately 16 ties per acre throughout, has been included in estimates shown but would at present make a poor tie chance.

Timber along the upper Parsnip valley and tributaries has a more uniform stand of Spruce, Balsam and Pine, with a maximum volume of 15 M. and average volume of 7 M. per acre. The principal bodies of timber extend along the valley bottom from the Misinohinka south to the Hominka rivers and east along tributary streams to the lower mountain slopes of the Rockies extending to an approximate elevation of 3500 ft. at which elevation non-merchantable stands of Balsam are found to timber line - elevation 5000 ft. To the west of the
watershed a lower grade type of Spruce, Balsam and Pine is found along broken sidehill slopes extending to non-merchantable timbered ridges of the Crooked river divide. Along the valley floor numerous waste areas occur principally being found on river flats south of the Homika river, where large open muskegs extend to Kwaída Pass and the McGregor River.

**Reproduction.**

Reproduction under mature timber is sparse to moderate in density in 45% Spruce, 45% Balsam, remainder Poplar and Birch. Young growth attains an average height of 15 ft. and appears suppressed.

Even aged stands following burns are fully stocked and nearing maturity in 65% Lodgepole pine, 10% Spruce, 10% Balsam, remainder Poplar and Birch. Reproduction appears thrifty, average diameter 8 inches.

An old burn running north and west from Fort McLeod to the Nation and Salmon river divides, has restocked to Poplar, average height 20 ft. growing through scattered islands of immature Pips, Spruce and Balsam.

Vegetation on the forest floor throughout the entire area is moderate to dense in berry brush, alder and red willow.
Quality of Timber.

Spruce.
Is of a medium height class, has an average diameter of 14 inches and maximum growth of 26 inches D.B.H. On bottom land sites it has a clean stem, but is inclined to carry many limbs at higher elevations. Appears free of defect and could be utilised for saw-log material.

Balsam.
Average D.B.H. 14 inches, maximum D.B.H. 22 inches. Has a short to medium height class, is overmature in larger diameters - 20 inches and over, and is limby and defective with conical heartrot in small diameters.

Lodgepole Pine.
Average diameter 8 inches, maximum diameter 16 inches, is tall, straight and free of limbs to a high crown. In the larger diameters this species appears overmature but sound, and suitable for ties.

Douglas Fir.
Is negligible in quantity throughout the entire area and is generally found in the larger diameters to a maximum growth of 34 inches D.B.H.
This tree is decadent. Smaller diameters having an average D.B.H. of 16 inches are found throughout the forest, are of a medium height, appear sound, but are very scattered.
## Timber Estimates

Volumes shown in thousand board feet.

<table>
<thead>
<tr>
<th>Tributary</th>
<th>Area in Acres</th>
<th>Spruce</th>
<th>Balsam</th>
<th>Lodgepole Pine</th>
<th>Douglas Fir</th>
<th>Totals M.B.M.</th>
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<tbody>
<tr>
<td>Crooked &amp; Pack Rivers</td>
<td>25,600</td>
<td>64,000</td>
<td>32,000</td>
<td>35,700</td>
<td>6,400</td>
<td>138,100</td>
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<tr>
<td></td>
<td>31,400</td>
<td>153,900</td>
<td>54,900</td>
<td>11,000</td>
<td>1,100</td>
<td>219,800</td>
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<tr>
<td></td>
<td>31,200</td>
<td>15,700</td>
<td>5,600</td>
<td>1,100</td>
<td>22,400</td>
<td></td>
</tr>
<tr>
<td>Colbourne</td>
<td>18,600</td>
<td>91,100</td>
<td>32,600</td>
<td>6,500</td>
<td>130,200</td>
<td></td>
</tr>
<tr>
<td>Reynolds</td>
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<td>188,200</td>
<td>67,200</td>
<td>13,400</td>
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<td>Anzac</td>
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<td>52,400</td>
<td>19,100</td>
<td>3,800</td>
<td>76,300</td>
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<tr>
<td>Wooyidalinka</td>
<td>21,800</td>
<td>102,800</td>
<td>38,100</td>
<td>7,600</td>
<td>152,500</td>
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</tr>
<tr>
<td>Table</td>
<td>15,400</td>
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<td>26,900</td>
<td>5,400</td>
<td>107,800</td>
<td></td>
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<tr>
<td>Hominka</td>
<td>18,600</td>
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<td>32,500</td>
<td>6,500</td>
<td>130,100</td>
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<tr>
<td>Missinka</td>
<td>3,800</td>
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<td>1,300</td>
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<td>Hardtime</td>
<td>12,200</td>
<td>59,800</td>
<td>21,300</td>
<td>4,300</td>
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<td>Upper Parsnip</td>
<td>28,200</td>
<td>81,600</td>
<td>42,300</td>
<td>38,000</td>
<td>4,200</td>
<td>169,100</td>
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<tr>
<td>Parsnip River West</td>
<td>228,100</td>
<td>1,002,700</td>
<td>379,100</td>
<td>134,600</td>
<td>10,600</td>
<td>1,527,000</td>
</tr>
</tbody>
</table>

### Note

No estimate of timber volumes on areas averaging under 5,000 board feet have been included in the above estimates. Estimates should be considered conservative.
Logging.

Principal difficulties for logging the Crooked river watershed will be the irregularity of ground surface throughout timbered area. Other factors will not seriously affect winter logging, by skidding and sloping of logs via iced skid roads to deck landings along lake and river banks. With some stream improvements—principally the erecting of sheer booms at bends in stream—it would be possible to drive the Crooked between Redrock and McLeod Lakes. This would have to be done on a moderately high stage of water during usual light spring run-off—May 15th to June 30th. A good holding ground will be found in route at Kerry Lake.

Chief area to be logged throughout area examined will be upper Parsnip watershed, where conditions are ideal for winter logging. Throughout this watershed, the ground surface is more regular and evenly surfaced, timber land generally being located along river bottom land, level benchlands and lower mountain slopes. The main river flowing between high banks and comparatively straight would with small stream improvements be suitable for river driving to good mill sites north of stream confluence.
with the Pack during heavy spring run-off from the Rocky Mountains - May 15th to July 30th.

A. E. Collins,
Junior Forester.
APPENDIX.

General Information.

With a view to a further investigation of the forest resources of areas tributary to Peace River, the following information may prove of value.

Periods most suitable for field work - Summer and Fall seasons - June 15th to October 30th. Winter season - February 1st to April 15th.

Prince George is the principal point of supply for country north of the Arctic divide. Supplies may then be transported via good automobile road forty miles to Summit Lake. Supplies purchased from points north of Summit Lake are high, an approximate average of 8¢ a pound being charged for freight.

Other source of supplies are as follows: Summit Lake, McLeod Lake, Fort Graham and Hudson Hope.

From Summit Lake to Hudson Hope and from Finlay Forks to points north of the Ingenika, the rivers are navigable with few portages, and form the main means of transportation. Flat bottom double-ended freight boats and canoes built for outboard engine attachment are main type used.
Freight boats are constructed at Summit Lake at cost around $50.00. Orders for construction would have to be placed early in season to Mr. Jergersen or Seebach and Hubble - address Summit Lake - as construction of boats for Hudson’s Bay Posts and Finlay river mines commences early in May. There are numerous good river men familiar with Peace river waters who may be hired for a season’s work and would name four as follows:  

James Adams, Summit Lake,  
Mr. Jergensen, " "  
Emmett Haynes, Dome Creek, P.O.  
Bill Seymour, South Fort George, (Indian)  

Rivers with their source east of the Rocky Mountains are reported to flood their banks during Spring and early Summer run-off, causing a hazzard for horse transportation, which is the usual means of travel in this locality. Saddle and pack-horses may be hired from J. Beatty, located on Peace River thirty-five miles east of Hudson Hope. No authentic data was obtained with regard to trails in the locality of the Pine and Murray rivers. This information may be had by corresponding with Mr. Wright of Hudson Hope or D.L. Cornock, address Pouce Coupe.
McLeod Lake

Looking NW to Nation River Divide from burn
MCLEOD LAKE


Looking NW to Nation River Divide from burn West of McLeod Lake