INDEX MAP
Zymoetz River
313 - 1915

Scale - 17.75 mi. to 1 inch.
RECONNAISSANCE

do.

ZYMOTZ OR COPPER RIVER

WATERSHED

1915

H.C. KINGHORN.

Reconnaissance File 313.
MAPS:
2 key Maps.
Scale 2 mi to 1 inch.
R = Key Maps.
2 Sketch Maps P.H.A. 27.
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Hazelton, B.C.

Dec. 1st. 1915.

Exploratory Cruise of the Zymoetz
or
Copper River Watershed.

The District Forester,
Hazelton, B.C.

Dear Sir:—

I beg to submit the following report on the
general reconnaissance of the greater part of the
Zymoetz or Copper River watershed carried on by me in
this District during the past season.

It had been reported that there were large
areas of vacant Crown Timber Land in this valley so it
was gone through with the idea of locating these areas
and reserving them from alienation and it is also un-
derstood that the C.T.P. Ry. Co. might in the future
run a line through this valley from Copper City to
Telkwa thus if it was thought necessary that the Forest
Branch should have a better knowledge of the timber
areas in same and also as a guide for plans of future
protection.

The methods used were necessarily very rough
but sufficiently accurate enough to obtain the location
of practically all the crown timber in the area explored.
Except at the head waters and Coal Creek very little surveying has been done throughout this valley but in the lower valley there are mile posts on a Government pack trail constructed in 1908 - 10 from Copper City through to the head of Summit Creek - 44 miles. One can check his locations fairly well by these mile posts and also by the tributaries of the main Copper River like the South Fork and Ktnayakwa Rivers and Summit Creek. Other distances were obtained by pacing and by judging same. Directions were kept and checked on the map with an ordinary box compass the magnetic declination being 28° - 30°.

The maps used and checked was the blue-print No. 14A, Preemptor's map 3D and a map compiled by Ranger Dover in 1913. The official blue-print of the lower Copper River is entirely wrong in distances, directions etc., and is of little use to anyone going in this country but the pre-emptors sheet and Dover's map are fairly good.

I covered the lower river from its mouth up about 45 miles and went up the South Fork about 10 miles and right up the Ktnayakwa River and
Summit Creek to their head waters. I was not able to cover the upper sources of this river, i.e., around Coal Creek, McDonnell Lake but I obtained the desired information re timber etc. of this area from W.B. Chettleburgh of Telkwa who has been in this country about three seasons and whose information is reliable.

The elevations were obtained from the G.T.P. survey run through here in 1906-7.

The scale used in mapping the area explored by me was one inch to the mile while the scale in mapping the head waters was one inch to three miles or the information was compiled on the latest pre-emptor's map No. 3 D - Bulkley Sheet.

IV. Areas. (Approx.)

1. The total area of the watershed is 2400 sq. miles.
2. The area examined is 2300 square miles.
3. The area not examined was 100 sq. miles (3 Fork).
4. Timbered area = 160 sections or 102,400 ac.
   (a) Alienated
       Timber Licences - 70 sections or 44,800 ac.
       Coal Licences - 25 sections or 16,000 ac.
   (b) Vacant Crown Land. 65 sec. or 41,600 ac.
5. Second and Alpine Growth. 350 sec. or 224,000 ac.
6. Burned over area - 74 sec. or 47,360 acres.
7. Area above timber line. 1684 square miles.
8. Alienated Land.
   (a) Pre-emptions. 2 sections or 1280 acres.
   (b) Application to purchase. 7 sec. or 4480 ac.
   (c) Timber Licences - 70 sec. or 44,800 ac.
   (d) Coal Licences - 40 sec. or 25,600 acres.
9. Agricultural Land. 15 sec. or 9600 acres.
Summary of Areas.

Approximate.

<table>
<thead>
<tr>
<th>Color on Map</th>
<th>Class</th>
<th>Area in Sec</th>
<th>Area in Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Timbered</td>
<td>160</td>
<td>102,400</td>
</tr>
<tr>
<td>Red</td>
<td>Burns</td>
<td>74</td>
<td>47,360</td>
</tr>
<tr>
<td>Brown</td>
<td>Second Growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>Swamps or</td>
<td>350</td>
<td>224,000</td>
</tr>
<tr>
<td>Yellow</td>
<td>Alpine Tbr.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>Meadows</td>
<td>2</td>
<td>1,280</td>
</tr>
<tr>
<td>Yellow</td>
<td>Mountains</td>
<td>1684</td>
<td>1,077,760</td>
</tr>
<tr>
<td>Black Cross</td>
<td>Agricultural</td>
<td>30</td>
<td>19,200</td>
</tr>
<tr>
<td>Hatched</td>
<td>Land</td>
<td>15</td>
<td>9,600</td>
</tr>
</tbody>
</table>

V. Cost.

The cost of this reconnaissance was as follows:

Expenses.
- Provisions: $40.00
- Meals and Lodging: 27.00
- Transportation: 13.00
- Horses (allowed): 30.00

Total: $110.00

Salaries.
- Self - 34 days: 151.00
- Ranger Dover - Asst. 27 days: 97.00

Total: $248.00

Total Cost $358.00 making a cost of .16¢ per square mile.

VI. Topography.

This watershed can be divided into two main divisions,

1. Lower Zymoetz or Copper River.
2. Upper Zymoetz or Copper River.
1. Lower Zymoetz or Copper River - This covers the lower valley of the river from its mouth where it empties into the Skeena River at Copper City up the river about 50 miles to Redesnon Creek, including the South Fork and Kitnaikawa Rivers and Summit Creek.

This valley is fairly narrow and generally the mountains run right up from the river. High snow capped mountains lay on either side of the river varying in elevation from 5000 to 6500'. The elevation at the mouth of the river is 250' while at the mouth of Summit Creek (30 miles up river) it is 1250'.

The lower half of the valley lays east and west while the upper half lays north and south.

The location of the timber areas etc. is shown on map. The timber consists of a good stand of hemlock, cedar, spruce, balsam and cottonwood.

There is very little agricultural land in this area and generally the valley is rough and rocky and is strictly timber land.

The South Fork of the Copper River.

The South Fork enters the main river about 23 miles from its mouth on the south side. It is about 60 miles long and is as large as the main river.

I was only able to go up this river about eleven miles but in this distance fair timber consisting of hem-
look, balsam, cedar and spruce are found on both sides from one to one and one-half miles from the river till you run into a burn on the east side about seven miles from the mouth.

There are numerous canyons along this river.

The G.T.P. Engineers reported the river to abound in canyons for about 13 miles from its mouth and then the river and valley widens out into low flat country. Good timber has been reported along the upper reaches of this river.

From the reports of prospectors and trappers the head waters of this fork could be more easily reached from the Howson Basin Country and they claim horses can be taken into this country by this route where it is impossible to take them up the main fork.

I am showing the general course of this river by the pre-emptor's map.

The Kitnayakwa River.

The Kitnayakwa enters the Copper River on the south side about 28 miles from its mouth. It is about 20 miles in length and it flows about north west. The elevation at its mouth is about 1150' while at its head waters on the divide to the South Fork it is
about 3000'. The river valley is not very wide except at its mouth.

Commercial timber extends for about one mile on either side of the river for 13 miles up same but the timber is only accessible for only about 10 miles from the mouth due to the canyons and steep slopes on the upper river. The timber consists of hemlock, balsam, cedar 5% and spruce 5%. Cedar extends about five miles up the river.

A horse trail is constructed for about six miles up this valley.

Summit Creek.

Summit or Limonite Creek enters the main Copper River on the east side about 30 miles from its mouth. It is about 12 miles long and flows about due west. The elevation at its mouth is 1250' while at the Summit it is 2900'.

Good timber is found for about five miles from its mouth, where the valley is very wide, consisting of Hemlock, Balsam and Cedar, after this the valley is very narrow and the mountains and glaciers are very close to the creek.

A Government horse pack trail extends up this valley and runs through to Telkwa.
The Upper Copper River.

I did not cover this area this season but I am reporting on same from information received from F.B. Chettleburgh, Forest Guard at Telkwa, who has spent several seasons in this country and should be quite familiar with same.

This covers the main river from Redcanon Creek easterly to its head waters, a distance of about 25 miles.

The elevation at the head waters is about 3000'.

The mountains are farther back from the river and generally this is a different and more open country than the lower river and has less commercial timber on same. Generally this country is high and rolling with numerous small lakes and creeks. Poplar, Willows and Jackpine are generally found on the lower levels while the main tree growth is small Spruce (Engelman) Jackpine and Balsam.

VII. Timber.

1. From examination and reports I have found about 160 sections or 192,400 acres of green sound commercial timber in this watershed which will average over the whole area about 9000 B.F. to the acre, making a total cut of 921,600,000 feet B.M. The commercial timber
on the lower river is good where it has not been destroyed by fire and there are many places where it will average 15 to 20,000 B.F. to the acre but taking it over the whole area 9000 B.F. will be a good conservative average of same.

2. The chief commercial species are:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemlock</td>
<td>Tsuga heterophylla</td>
<td>40%</td>
</tr>
<tr>
<td>Balsam</td>
<td>Abies amabalis and lasiocarpa</td>
<td>30%</td>
</tr>
<tr>
<td>Sitka Spruce</td>
<td>Picea sitchensis</td>
<td>10%</td>
</tr>
<tr>
<td>Engelman Spruce</td>
<td>Picea engelmanni</td>
<td>5%</td>
</tr>
<tr>
<td>Jackpine</td>
<td>Pinus contorta</td>
<td>2%</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>Populus trichocarpa</td>
<td>1%</td>
</tr>
<tr>
<td>Red Cedar</td>
<td>Thuja plicata</td>
<td>12%</td>
</tr>
</tbody>
</table>

**Hemlock - Tsuga heterophylla.**

This is the chief commercial tree in this valley and constitutes about 40% of the total estimate. It extends practically throughout the whole watershed. The trees are fairly tall and clean and average 24" in diameter. Fair quality. Usually found with Balsam but occasionally in pure stands. Good reproduction.

**Balsam - Abies amabalis and lasiocarpa.**

This tree is found abundantly on the lower Copper River in commercial quantities. The trees being large, tall and clean, averaging about 24" in diameter. Good quality. Good reproduction. A small percentage of the Alpine Balsam is found throughout the valley especially on the upper river.
Red Cedar - *Thuja Plicata*.

This tree is found only on the lower river. It extends up the main river about 35 miles and up the South Fork, Kitnayakwa and Summit Creek about five miles from their mouths. It is usually found on the lower levels mixed with hemlock, spruce and cottonwood. The trees are fairly sound, large and tall, being suitable for shingle-bolts.

_Sitka Spruce - Picea sitchensis._

This tree is found on the lower river but not very extensively. The trees are large, tall and clean. Good quality.

_Engelman Spruce - Picea engelmanni._

This tree is found on the upper river around the head waters of same being in the chief commercial tree in this area. Average 18" in diameter. Tall, fair quality.

_Jackpine - Pinus contorta._

This tree is found commercially on the upper river. It averages 14" in diameter. Branching quite low, fair quality. Good mining timber.

_Cottonwood - Populus trichocarpa._

This tree is found on the river bottoms along the lower river but to a small extent being usually mixed with Cedar and Spruce. It is very large
and hard to log.

Its commercial importance is small in this country.

The other species of trees found in this watershed are: Mountain Hemlock, Poplar, and scrubby Willows and Alders, but none of these are of any commercial importance.

3. Logging Possibilities.

Due to the general rough topography of this country logging would be fairly difficult especially on the lower river and its tributaries where practically all of the good commercial timber is found.

The main river and its tributaries could be driven at high water but considerable trouble would be found with the narrow canyons in many places along the river and then the great difficulty would come in stopping and holding the logs at the mouth or on the Skeena River. A big draw back to logging in this valley at present would be to get supplies and equipment up the river as there is no wagon road beyond two miles from the mouth and it would be very costly to construct one.

Considering conditions, size of timber etc., the most feasible way to log would be with horses and drive the logs down the river. To log this way would cost about $6.00 per M.E.F.

The best way to log this valley is with a
logging railroad but it is questionable whether the quantity and kind of timber would warrant the construction of same but there is a possibility of the G.T.F. Ry. Co. constructing a line through this valley, in which case the timber could be manufactured on the ground.

A fair stumpage value for the timber on the lower river would be 75¢ per M.B.F.

Logging on the upper river could be done most easily with horses but the timber here could be used to more advantage for mining purposes than taking it out of the valley but if necessary this timber could be driven at high water. The cost of logging this timber would be about $8.00 per M. as the timber is small, scattered and has to be taken a long way to transportation facilities.

A present fair stumpage value of this timber would be 50¢ per M.B.F.

4. Second Growth.

The chief second growth areas of any extent are found on the Upper Copper River and around the head waters of same. It consists chiefly of Balsam, Jackpine and Spruce. Average d.b.h. 7". If protected from fire this will all make good mining timber in about twelve years and no doubt be of considerable value.
The areas colored brown on the map on the Lower River is practically all Alpine Timber and not second growth.

VIII. Burned over Areas.

On the Upper River there has been three areas burned over covering a total area of about 15 sections or 9,600 acres. These areas were burned previous to 1913 and the timber killed was practically all second growth.

The fires that burned these areas were no doubt caused by prospectors.

On the Lower River there is a very extensive burn on the north side of the main river; destroying practically all of the timber and country from Mile 6 to 22 on the trail. This has been burned over several times the last fire being in 1912.

There was originally a good stand of timber on this area consisting principally of Hemlock and Cedar but practically all of it has been killed by the successive fires but there is some good Cedar poles along some of the Creeks that might possibly be salvaged.

Due to the successive fires there is no reproduction of any kind on this area and the land is only suitable for growing timber due to the topography so if artificial seeding is ever done in this district I
would recommend that it be tried here. The fires have even destroyed the soil in many places where it was thin and the bare rocks are showing up.

The fire that first burned this area was no doubt caused by prospectors but the other fires have probably been caused by trail crews when constructing this trail up the north side of the river as this fire has confined itself entirely to this side of the river except for about 200 acres burned over on the south side opposite Mile 14, where the fire no doubt jumped the main river.

There is also a small burn on the east side of the south Fork starting about seven miles from its mouth. Some fair timber has been destroyed here, this fire occurred previous to 1913.

IX. Settlement and Agricultural Land.

There are practically no settlers in the Copper River Valley except for about three at the mouth of the river and one or two at the head waters around Denis Lake. This is due chiefly to the fact that there is very little good agricultural land in this valley, that the land is hard to clear and it is very difficult to get into this country as one has to depend on a poor pack trail on the Lower River. There is some fair agricultural land around the head waters.
of this river but practically all of this land is alienated.

During the past season there was five groups of mineral and coal claims, the Sultana, Dardenelle, Great West, Iron Group and Coal Creek coal claims on which some development work was done. There are cabins on all of these claims and trails leading to three of the groups which are off of the main trail.

Thomas Elliot of Copper City has an extensive trap line on the Lower River, South Fork and Summit Creek; having in all about eight cabins outfitted, and he has been trapping in the country for about three winters.

John Gabriel, a prospector and trapper, has four cabins on the Aitneyakwa River and spends the better part of the year in this country.

Previous to last season the Copper River coal company (National Finance Company) had several men developing coal claims on Coal Creek.

Outside of the above mentioned there is no one living in the valley.

X. Other Resources.

The other natural resources of this country are minerals, fur, and water power.
Minerals.

Numerous mineral claims have been staked in this watershed with good surface showings but most of the claims are in the hands of the prospectors and little development work has been done.

There are two chief coal areas in the district, one on the Kitnayakawa River where very little real development work has been done and the other on Coal Creek near the head waters where considerable development work has been done and good showings obtained but they require better transportation to the railroad (37 miles by pack trail.) before they can do any more work.

For further information on Mineral Claims in this district see W.M. Brewer's report on pages 115-119 and 123 to 125 in the Annual Report of the Minister of Mines for 1914.

Fur.

There are quite a few fur bearing animals in this valley consisting principally of Bear, Martin, Mink and Beaver.

Water Power.

There are several points on the Lower Copper River and on Summit Creek which are suitable for developing power. These might be examined to advan-
tage by the Water Department.

XI. Climate.

Generally speaking this country has a fair climate. There is a fairly heavy rain fall as there are numerous snow capped mountains and glaciers all over the country.

There is an average snow fall on the level of 2\(\frac{3}{4}\)". The temperatures are moderate.

XII. Roads - Trails and etc.

The only public road on the Lower River is at the mouth where the Copper City - Kitselas Road runs up the main valley two miles to cross the river.

On the Upper River there is a winter sleigh road running into about Coal Creek, a distance of 37 miles from Telkwa. This is a good pack trail in the summer.

On the Lower River there is a Government Horse Trail extending from Copper City up the river to Summit Creek, a distance of 30 miles; this trail runs on up Summit Creek to the Summit (14 miles) and on to Telkwa (32 miles). From the mouth of Summit Creek there is also a trail up the west side of the main river to Kleanza or Gold Lake, a distance of about 12 miles; this trail runs down the Kleanza River to Kitselas.

There is also an old G.T.P. Trail running from Mile 32.5 on the Summit Creek Trail up the east
side of the Copper River to Bear Creek, a distance of eight miles.

All of the above and other minor trails are shown on the map.

There are three bridges across the Copper River, these are at 2, 4 and 30 miles from Copper City. There are also three bridges across Summit Creek at Miles 30, 35 and 39.

There are four basket cable ferries across the Copper River near miles 6, 13, 22 and 28 on the main trail.

XIII. Fire Protection.

The Lower River and its tributaries constitutes the Copper River patrol district, this being the area shown on Map No. 1, in which the Forest Branch have one Forest Guard employed during the fire season.

His headquarters are at Mile 26 on the main trail from Copper City where a Ranger Station site has been secured and a good cabin constructed. He patrols his district on foot. Generally it is fairly wet in this district during the summer but sometimes it gets very dry and considering the area, the amount of timber and the number of timber licences (58) I would recommend that this man be always put on during the dry season but that the season of patrol be from
June 1st. to Sept. 15th.

The Upper River is patrolled by the Telkwa Guard at present and to date his work has been sufficient to keep down fires but in the future if there are many people in this country I would recommend a patrolman be put in here during the exceptionally dry periods.

XIV. Recommendations.

I wish to make the following recommendations regarding this watershed:
1. That the Timber Licences in the Lower Copper River Valley be surveyed as soon as possible as out of the 58 odd licences staked only nine of these have been surveyed. This is necessary so that the exact location of the licences can be obtained and the remaining areas of Crown Timber, which are quite numerous, can then be located and reserved.

As the official blue-print of the Lower Copper River is made up now it is impossible to tell where the Licences are really situated as the map is wrong in many places in distances and directions of the rivers.
2. I would recommend reserving a strip of timber on the Kitnayakwa River two miles wide, from its mouth for ten miles, i.e. of the area not covered by Coal Licences.
A detailed report is enclosed.
3. That a more careful reconnaissance be made of the Upper Copper River from Redancon Creek east taking in all of the watershed of the river.
4. That a reconnaissance be made of the balance of the watershed, i.e. the upper portion of the South Fork of the Copper River.
5. That the official blue-print of the Lower Copper River and its tributaries be corrected to agree with the map I have compiled.

XV. I have given you all of the information I can from personal examinations and from reliable reports of others and trust you find same satisfactory and useful to the Department in the future.

I am enclosing maps of the area examined.

Yours truly,

"R.C. Kinghorn."
Forest Assistant.

Hazelton Forest District.
MAP

ZYMOETZ OR COPPER RIVER VALLEY

Scale: 2 Miles = 1 inch.