R 21
MORICE RIVER
A. E. COLLINS
1927
INDEX MAP

SHOWING

-MORICE RIVER WATERSHED-

1927.

Scale: 31.56 miles = 1 inch.
Report On

MORICHE RIVER WATERSHED

Prince Rupert District

- 1937 -

by

A.R. Collins

Correspondence File 063301
Reconnaissance File No. 21
CONTENTS

1. Introduction
2. Description of Area
   (a) Location
   (b) Topography
   (c) Climate
3. Agriculture
4. Soil
5. Forest Description
6. Logging
7. Protection
8. Management

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APPENDIX

1. Reconnaissance Costs.
3. Cover Map
**EXTENSIVE TIMBER RECONNAISSANCE**

**MORICE RIVER WATERSHED**

**PRINCE RUPERT FOREST DISTRICT**

1927

The reconnaissance of the Morice River watershed was commenced on May 21st and completed on June 20th. The examination was made with a view to ascertain the relationship in land suitable for growing merchantable timber, as against areas not suitable for forest production. To cover the country intervening between Houston and the Coast Range Mountains, it was necessary for the examination to take the form of an extensive exploratory survey, this being accomplished with the aid of two men—Messrs. McLean and Fenton—and four horses, secured through the offices of the District Forester, Prince Rupert. While little information was found on file covering the topographic features of the main valley, the topographic map, produced by F. C. Swannel B.C.L.S., in 1925 of that area across Morice Lake and the Nadina River watershed, with a tie to Morice and Nadina Mountains, assisted in tying in the main type boundaries. Fair weather enabled the party to cover the entire watershed fairly thoroughly. Late snow and high water on the main river and tributaries made that country to the East and West of the North Fork difficult of access. The burned area South of Howson basin and headwaters of North Fork only being described from a distant lookout point.

Control for the reconnaissance was carried from surveyed lots at junction of Owen Creek and Morice River, surveyed lots adjoining Bill Nye Lake, and from Morice and Manika Lakes, previously located by triangulation survey. Strip cruise lines were run into timbered and reproducing areas with box compass, with pacing for distance travelled. Main type line boundaries were ascertained by compass triangulations and sketches from high outstanding features. C.P.R. tables for Spruce and Lodgepole Pine were used in compiling of timber estimates.
DESCRIPTION OF AREA

Location.

The outlet to the Morice River watershed lays five miles west of Houston, elev. 1,950', and thirty miles south east of Twelka on the Canadian National Railway. The area is bounded on the North by the Copper, Hudson Bay, and Twelka Mountains, and upper Bulkley Valley--on the South by the Siclos Mountains and Nadina River watershed--on the East by Buck Creek and Morice River Mountain--and to the West by the main Coastal Range.

Area in Square Miles.

Moric River Watershed.

Total area equivalent to 1,650 square miles. Watershed should be divided into two main types as follows:

1) Coast Type.
   Suitable for watershed protection -- 700 sq. miles

2) Interior Type.
   Suitable for Forest production -- 950 sq. miles

Interior Type

Nature timber reproduction and other areas suitable for reforestation .......... 540 sq. miles 57%

Barren and Scrub ........................................... 360 " " 36%

Agricultural and Grazing ..................... 25 " " 4%

Water .............................................................. 14 " " 1%

960 " "
General Topography and Drainage.

Moric River is the main source of water supply to the Bulkley and Skeena River watersheds. Rising in high, glacier-capped mountains of the Coast Range--average elev. 6000'--directly East of the Kildala and Kemano River watersheds, the river carries the waters of its large lake system, and many tributaries, over a smooth, wide, well-defined, river bed to its outlet into the upper Bulkley River five miles West of Houston.

Moric Lake—elev. 2614', Atna Lake—elev. 2568', and Nanika Lake—elev. 3100', with a general trend West and East, laying in steep, rocky, and partially timber clad valleys of the main Coastal Range, form the three chief reservoirs of the Morice watershed; Nanika Lake rising directly East of the Kemano River divide and the Western extremity of the Sibola Mountains and flowing North east through a high, barren, mountainous country, enters the Nanika River approximately twenty miles from its source, thence via Bergeland Creek, Kid Price River and Kid Price Lake—elev. 2980'--and the un navigable waters of the lower reaches of the Nanika River where a well-timbered valley widens to evenly surfaced mountain slopes, terminating at Morice Lake, two miles West of Morice River.
Looking North east across Kid Price Lake down Nanika River.

The Atna River drainage basin, situated in the Coast Range system directly North of Morice Lake and South of the Copper River divide, has topographic features comparatively similar to that of Morice and Nanika Lakes, comprising excessively steep, rock mountain spurs of the Coast Range, rising to high, barren divides and falling away to the East to the wide, well-watered, rolling hills of the Morice Valley proper.

Looking East down Morice Lake, elev. 2614 ft.
Flowing East, Morice Lake, a fine, deep stretch of water, twenty-six miles long, and with an average width of two miles, carrying the waters of McBride Creek, Nanika and Atna River drainages, empties into the Morice River approximately sixty-five miles South west of its outlet to the Bulkley.

Moric River 35 miles upstream from outlet to Bulkley River.

Following an Easterly course from its source between low cut banks, rising to Pine bench lands and gently rolling hills of a well-watered valley the Morice River, a moderately fast flowing stream with an approximate average width of 250 feet, depth "at low water" of three
Looking East to Loring Mountain
Moric Lake. Area 36 sq. miles.

Looking S.W. to lower reaches Nanika River
and E. end McBride Lake. Area 6 sq. miles.
Richmond Lake
Area: 5 sq. miles

View taken from burn Kid Price Lake
looking East to headwaters Nanika Lake
watershed - 7 sq. miles
feet, and an even drop of 12 feet to the mile, is fed by 
three main tributaries as follows: the North Fork, carry-
ing the waters of Gosnell Creek and draining the Southern 
slopes of the Twelka and Copper Mountains and Howson basin, 
to the North—and to the South, flowing in from compara-
tively low divides of "Bill Nye" and Owen Lakes, are found 
Wright and Owen Creek (ref. map attached). Other feeders, 
which break the valley proper to timbered ridges running 
North and South to river bottom land, are comparatively 
small in size and of little importance to include in this 
report.

The parent stream, following a tortuous North 
easterly course from its source to the North Fork, thence 
East over a comparatively straight channel to the junction 
of Owen Creek, thence North to its outlet, is navigable 
for canoes and shallow draught boats with outboard engines. 
"Two small canyons at points 20 and 50 miles, respectively, 
from the river's outlet, would necessarily have to be 
lined."

River bottom land along the main stream is narrow, 
averaging approximately 300 yards in width in river flats, 
breaking away directly to low ridges, thence via high bench 
land to moderately steep rocky knolls, the formation carry-
ing across the valley to the moderately steep slopes of 
main divides.
Sibola Mountains looking S.W. from Crescent Lake Wainga River watershed.

Looking N.E. from headwaters West Fork Wright Creek
Looking South to Nadina Mountain from point three miles North of Morice Camp.
CLIMATE:

Is moderate; winds prevailing from the South west broken by the Coast Range and Sibola Mountains, are the cause of a moderate rainfall along the lower reaches of the valley. Climatic conditions are more severe in the large lake and mountain system at the Western extremity of the watershed where deep valleys, running East and West, hold back a heavy snowfall until late into the Spring season, causing periodic stages of high water on the Morice River throughout dry weather.

Weather conditions are usually influenced by the severity of conditions prevailing along the Coast and invariably run to extremes with little break in between seasons, the Eastern extremity of the valley having a lower rain and snowfall and more sunshine than that experienced to the West.

Occurrence of Seasons as follows:

Spring and Summer seasons    April 1st to Sept. 15th
Fall season                  Sept. 15th to Nov. 30th
Winter season                Dec. 1st to March 31st
Snowfall along reaches of main valley 3 feet
Annual precipitation approx. "    30 inches
Snowfall, Lake and Mountain System 6 feet
Annual Precipitation approx. "    50 inches
Natural Meadowland. Lot 3416. Owen Lake.

AGRICULTURE

Approximately 18,000 acres surveyed for settlement in the Morice River Valley, located along the East bank of the river from the river’s outlet, thence via the East bank of Owen Creek to Owen Lake; small additional unsurveyed areas occur along the North bank of the river between Owen Creek and Wright flats. Areas noted above comprise small river bottom flats, low Pine bench land and natural wild hay meadows in the lee and to the West of Morice Mountain. The above are the only areas worth consideration from a viewpoint of agricultural development.

No areas as surveyed have reached an advanced stage of development. Two pre-emptors are living on their homesteads, their means of marketing vegetable produce being via trail and packhorse to Houston. Better facilities for an outlet are needed. The construction of a road
over an easy grade from Houston to Owen Lake might induce further settlement.

Frequent summer frosts may prove a detriment to grain growing on the comparatively small acreage suitable for tillage. Land surveyed for settlement would be of most value for livestock raising on a small scale. Good natural feed is found along meadows and Poplar covered slopes adjoining Morice River.

**SOIL:**

Varies in substance from a heavy, wet, chocolate coloured clay loam on rock rubble and clay along river bottom flats and open meadowland, to a moderate to shallow light gravel and clay on rock rubble and rock on timbered bench lands and valley slopes. Soil under timber has a light covering of moss.

Soil covering on areas throughout Morice Lake Mountains is light with heavy rock outcropping.

Windfall and ground cover throughout the watershed is moderate.

**FOREST DESCRIPTION**

Forest cover is chiefly a lodgepole Pine forest intermixed with a poor growth sparsely scattered Spruce Balsam. A large fire occurred in 1908, evidently from coal
prospects South of the Howson basin and the North Fork, cleanburning the large area North of the Morice River and across the North Fork to the Copper Mountains; East of the North Fork, along the South slopes of the Twelka Mountains to Morice Mountain.

It is evident that preceding fires—that have since reproduced to Lodgepole Pine—were very intense, having influenced in retarding rate of forest growth. The rate of growth is slow, Pine not reaching maturity until approximately 120 years old, while seventy year Pine stands have an average diameter of six inches and height of seventy-five feet.

Timber stands may be divided into two type classes, as follows:

**Coast Type.** North east from East end of Kid Price Lake to outlet of Nanika River, thence to Morice River and North west to Copper Mountains.

**Interior Type.** The Morice River valley East of the line as defined above.

The Coast Type, evidently due to heavy precipitation, short growing season, and poor growing sites, has reached a climax stand of overmature, heavily defective Balsam, Hemlock, Spruce, of little commercial value, being of most use for the purposes of watershed protection.
Open grown Lodgepole Pine North of McBride Lake.

On edge of burn. Coast Type Spruce, Balsam, two miles South of Manika Lake.
Interior Type is made up of three commercial species as follows:

Lodgepole Pine -- *Pinus contorta*
Balsam -- *Abies amabilis*
Spruce -- *Picea engelmanni*

Lodgepole Pine is the principal species and is chiefly found in pure stands with a scattered growth of a poor quality Balsam and Spruce with a large proportion of the area covered with a scrub growth of Pine, Spruce, Balsam, along summits of all minor divides.

Lodgepole Pine covering approximately 75% of the timbered area, is found in all stages of growth from mature stands growing in mixture with Balsam and Spruce with an understory reproducing densely to Balsam, to large areas of immature, fully stocked stands with an understory reproducing sparsely to Spruce with dead Poplar--the result of preceding forest crop--still standing.

Lodgepole Pine is also found in immature, overstocked, stagnated stands principally along bench lands in the lee of North slopes.

Poplar, the resulting growth from former fires, is found scattered in small areas over the entire area, but occurs chiefly along watercourses in mixture with a non merchantable growth of Spruce, Balsam, and in scattered Pine reproduction over the 1908 burn.
Occurrence and Distribution

Chief area of merchantable timber occurs on McBride and Nanika Lakes watersheds, Block D, comprising a stand of Lodgepole Pine, Balsam, Spruce. South over the low divide from McBride Lake and along the North slope to Morice River the Lodgepole Pine type continues but is more scattered with other areas made up of low grade Pine tie trees intermixed with Balsam, Spruce, and swamp. Extending East along the North slope of the Morice to Wright Creek a more uniform growth of mature Lodgepole is found giving way to the large area East of Wright Creek, and North of Nadina Mountain to scattered mature Pine stands in mixture with scrub growth Spruce, Balsam, Poplar, and immature, overstocked stands of Lodgepole Pine. The large timbered area tributary to Owen Creek and East to the Buck Creek divide, comprises an immature seventy year old stand of Lodgepole Pine with small areas of mature Lodgepole Pine, Spruce, Balsam and scattered areas of Poplar, this type extending North and West across the Morice River to the Twelka Mountains and West to the North Fork and 1908 burn.

Quality of Timber

Lodgepole Pine varies in quality throughout the watershed. In well-stocked stands, the tree is found to be mature, tall, straight, free of limbs, and sound, has an
average D.B.H. of 14 inches—height of 115 feet—and will make six ties to the tree with average of twenty-five trees to the acre. Lodgepole Pine in other areas is of a poor quality, is mature, short, straight, limby and sound, has a rapid taper, average D.B.H. 12 inches, height of 100 feet, and will make three ties to the tree, with approximately fifteen trees to the acre.

Spruce, of a poor quality throughout the watershed, was found growing to best advantage along bottom land fronting Bill Nye and McBride Lakes. The tree was found to be sound, straight, limby, of medium height, with average D.B.H. 16 inches.

In all other areas Spruce is small, and limby, has an average D.B.H. of 12 inches and along watercourses of main river and tributaries, is non merchantable scrub.

Balsam is of a poor quality and was only found of a merchantable size on the McBride, Bill Nye, and Nanika
Lake watersheds. The tree is of medium height, with an average D.B.H. 16 inches, has a clean trunk to moderately high crown and slightly defective with conical heartrot.

Reproduction.

Approximately 112 square miles of timbered area is reproducing to a seventy year old stand of Lodgepole Pine, this age class occurring throughout the Owen Creek watershed, North and West across the Morice River and West to the North Fork, the type being broken only by small areas of mature Pine, stagnant second growth Pine thickets, scrub Spruce Pine over minor divides and open groves of Poplar.

An average acre plot in Pine reproduction at seventy years old will carry approximately 400 trees with an average D.B.H. 5 inches and height of 75 feet. Trees in fully stocked stands were found to be slightly limby along a clean, straight trunk, and to have an understory of
sparingly scattered Spruce with ground cover of Red Willow and Alder on moss.

Reproduction under mature Pine, Balsam, Spruce, at Western extremity of watershed is restocking to Bal-

Lodgepole Pine throughout the watershed has a slow growth evidently due more to soil substance than short growing season.

The large 1908 burn across the North Fork East to Morice Mountain is restocking chiefly to Poplar, sparsely scattered Lodgepole Pine, and small areas of dense Pine thickets.
### Total Area by Types in Square Miles

<table>
<thead>
<tr>
<th>Area</th>
<th>Timber</th>
<th>Reproduction</th>
<th>Burn</th>
<th>Grazing</th>
<th>Barren &amp; Scrub</th>
<th>Water</th>
<th>Total Area</th>
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<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>53</td>
<td>66</td>
<td>13</td>
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<td>59</td>
<td>2</td>
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<td>--</td>
<td>160</td>
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<tr>
<td><strong>Totals</strong></td>
<td><strong>61</strong></td>
<td><strong>191</strong></td>
<td><strong>268</strong></td>
<td><strong>36</strong></td>
<td><strong>360</strong></td>
<td><strong>14</strong></td>
<td><strong>950 sq. miles</strong></td>
</tr>
</tbody>
</table>

**Total Area in Square Miles**

- Interior Type equivalent to 950 Sq. miles
- Coast Type " 700 "  " 700 "
# Total Timber Estimates

Area in Acres
Ties in numbers
Sawlog timber in thousand board feet.

<table>
<thead>
<tr>
<th>Timbered Area</th>
<th>Lodgepole</th>
<th>Pine Ties</th>
<th>Spruce</th>
<th>Balsam</th>
<th>Total Sawlog Timber</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>4,000</td>
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<td>C</td>
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<td>731,000</td>
<td>12,000</td>
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<td>15,000</td>
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<td>D</td>
<td>27,520</td>
<td>1,070,000</td>
<td>18,000</td>
<td>12,000</td>
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<tr>
<td>E</td>
<td>3,840</td>
<td>115,000</td>
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<tr>
<td>Totals</td>
<td>51,840</td>
<td>1,969,000</td>
<td>40,000</td>
<td>15,100</td>
<td>55,100</td>
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</tbody>
</table>

Lodgepole Pine Tie 1,969,000
Sawlog timber 55,100 M.B.M.
Logging:

Could be carried out during summer and winter months with logging and road construction during summer season, and sleigh hauling during winter months to deck landings, along lakes and main river for the transportation of tie timber via the Morice to the river's outlet and Canadian National Railway, during high water season June and July.

Most outstanding feature would be the advantage derived from the Morice River for driving purposes as an outlet for timber to the Bulkley valley. The river has a good channel for this purpose with straight cut banks.

To make it possible to handle ties and other timber the clearing of two log jams would be necessary at mile 40 and 45 upstream from the river's outlet, also a large rock would have to be cleared from the centre of the stream in small canyon at mile 20. Other improvements necessary would be the erecting of sheer booms in stream above islands at mile 40.

Main timbered area being distant from transportation and supplies, camp construction and supply costs would be high, and entail a well-constructed road to operations.
Protection.

Area is evidently one of minor hazard, no fire burned areas of recent origin having been found. The large fire burned area across the North Fork was reported to be the result of human agency during coal prospecting South of Twelka. No mining is being carried out in the watershed at present and prospecting is only being tried by a few in the coast mountains. The watershed is seldom travelled, five Indians trap tributary streams during winter time, leaving for coast fishing during summer season. Lightning storms in the main valley are of rare occurrence, the main fire risk may result from the large open grazing area East of Poplar Lake--"Nadina River watershed". Should this be fired, in front of a prevailing wind during the late season when the crop is dry, fire would spread along the low divide adjoining Bill Nye Lake to the Morice watershed.

The main trail to Morice Lake and branch trail via Owen Creek and Owen Lake to the Nadina watershed are in a fair state of repair. The branch trail from Wright Creek via Poplar Lake and Nadina watershed to Nanika Lake--known as the "Kid Price Trail"--is in poor condition with many bad muskegs and fords.

All trails of the Morice Valley are so located as to be of little value for patrol purposes, not having
main timbered areas under direct observation. During periods of fire weather, a two days patrol trip from Houston to top of Morice mountain has entire valley under observation.

I would recommend the main trail to Morice Lake be travelled once each season for purposes of keeping trail free from windfall.

Recommendation for Management.

Timber of the Morice valley will be of most value as a lodgepole Pine tie reserve. Of the 950 square miles of interior type approximately 540 square miles—or 57% of the area—is capable of forest production, of which approximately 50% is at present producing timber in all age classes. The above area constitutes true forest land of a fine valley with good growing sites.

Soil appears to be the principal factor in the retarding of forest growth, but it is highly probable that the present rotation of reproduction will result in mature Pine of a commercial tie size. The elimination of advanced Balsam reproduction under mature Pine tie stands may be managed by a process of clean broadcast burning after logging.

I would recommend that a stock taking survey be made of approximately 300 square miles of timbered and
reproducing areas, with a view to include the interior type—as noted on attached map—as a future provincial forest.

A.E. Collins,
Junior Forester.
Appendix 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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</thead>
<tbody>
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<td>Salaries and Wages</td>
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<tr>
<td>Travelling Expenses</td>
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<tr>
<td>Horse Hire</td>
<td>95.00</td>
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<tr>
<td>Food Supplies</td>
<td>73.20</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>$ 424.84</td>
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<tr>
<td>Salary of Chief of Party</td>
<td>164.90</td>
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<td></td>
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<tr>
<td>Total Not Charged to Vote</td>
<td>$ 164.90</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total Expenditure</td>
<td>$ 589.74</td>
</tr>
</tbody>
</table>

(2)

Recommendation for Stock Taking Survey.

From initial Headquarters camp at junction of Owen Creek with Morice River, control for Cruise may be carried from North west corner Lot 5912, thence via Morice River and Wright Creek to Bill Nye Lake and tie to Lot 5388 Nadina River watershed. For control of area D baseline should be carried from junction of Wright Creek with Morice, thence West along Morice River to Morice Lake with an additional control run from base-
line No. 1 via West Fork of Wright Creek, West along shoreline of McBride Lake, thence West and South west up Hanika River to extent of timber. Control for Owen Creek area will be found from boundary of surveyed lots adjoining Morice Camp. Control for large reproducing area Block A should be carried South one mile from South west corner Lot 3909 Morice River, thence West to edge of 1908 burn.

Good camp sites with grazing for horses may be found along Morice River to Wright Creek, Owen Creek, Owen Lake, Wright Creek, and East end of McBride Lake. Two sloughs at East end Morice Lake carry few days grazing for horses.

I would recommend two men--Messrs. M. McLean and M. Fenton--as packers for project. Both these men know the country, can secure horses, and part outfit, are resident at Houston and can be secured through District Forester, Prince Rupert.

Mail and supplies may be had from Houston.
Preliminary

TIMBER RECONNAISSANCE

MORICE RIVER WATERSHED

SCALE

1 inch = 2 miles

Total Area equivalent to 1650 square miles.

LEGEND

Merchantable (Over 10 M. per Ac.)
Timber (Under 10 M.)
Reproduction (over 85' high)
Burned
Barren
Scrub
Grazing Land
Block Boundaries
Height of Land Boundaries
Type Boundaries
Trails
Surveyed Lots (Outside Boundaries)
Preliminary Timber Reconnaissance

OCE RIVER WATERSHED

Scale: 1 inch = 2 miles

Area equivalent to 1650 square miles.

Legend:

- Commercial Timber:
  - Over 10 M. per Ac.
  - Under 10 M.

- Firebreaks:
- Over 25' high
- Under 25' high

- Boundaries:
  - River Boundaries
  - Lot Boundaries
  - Surveyed Lots (Outside Boundaries)
Hudson Bay Mountains