A COMPILATION OF EXISTING DATA FOR AGRICULTURE, GRAZING AND OTHER LAND ALIENATIONS IN THE GREATER WHITEHORSE STUDY AREA

Yukon
Renewable Resources

A COMPILATION OF EXISTING DATA FOR AGRICULTURE, GRAZING AND OTHER LAND ALIENATIONS IN THE GREATER WHITEHORSE STUDY AREA

prepared by Parks, Resources & Regional Planning
Department of Renewable Resources
March, 1988

Prepared for the Department of Community and
Transportation Services, Lands Branch

prepared by George Nassiopoulos, Resource Inventory Coordinator
and Francine Guay, Agricultural Technician

PRRP/G21/agan
88.03.22

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS:

Many people contributed to the successful completion of this paper. We hope that we have not missed any one. Thanks go to Karen McKenna, Natalie Gooch, Beth Hawkings, Rosanna White, Allan Koprowsky, Thom Rodger (for drafting services) and Art Hutchison.

I'd also like to thank Scott Smith, Yvonne Harris and Brian Love for reviewing the manuscript.

1.0 BACKGROUND

As the population of the Yukon grows and people of differing backgrounds come to the Territory, the economy can be expected to diversify. Many of the more traditional pursuits (trapping, mining, outfitting, etc.) are being joined by other interests such as an expanded service industry and a growing interest in agriculture. In recognition of the importance of agriculture, the Yukon Government provides both financial and advisory support to the agricultural industry. Financial support, as outlined in the Green Paper on Renewable Resources, is provided through the Economic Development Agreement and by special projects such as the New Crop Development Program.

The Agriculture Branch of Renewable Resources supports the development of a self-sustaining industry by providing advice to farmers, reviewing applications for land, conducting research on crops and by advising government on farming issues. Farmers' concerns are also addressed through a ministerial advisory group (Agricultural Planning Advisory Committee).

The growth of any new industry will ultimately result in conflict with existing or other proposed activities; these include wildlife conflicts, traplines, mining, forestry, recreational and residential uses of the land. For example, 71% (177 of 250) of all applications for agricultural land in the Yukon are in the study area, specifically map sheet 105 E/3 and 105D (1:250,000 scale). That figure should not be surprising in light of the fact that approximately 85% of the population of the Yukon is also contained in the same area. There is considerable demand for land in the Yukon, with the majority in the Greater Whitehorse area. Land disposition is complicated

where competing interests for land are also high. Land use planning is one avenue for the resolution of land use conflicts and dispositions.

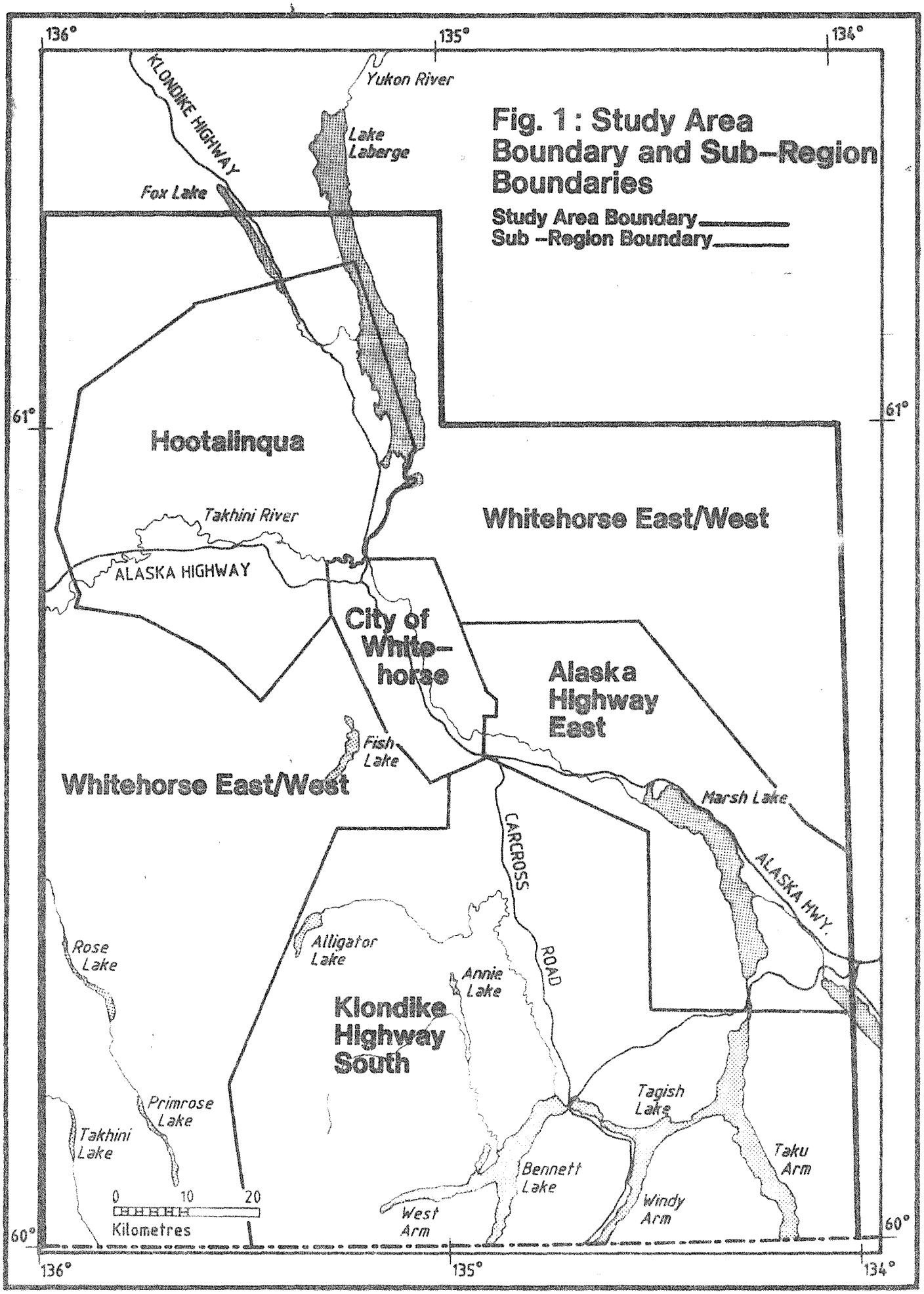
This report has been prepared to provide information on agricultural land capability and demand primarily in the Whitehorse area in support of the Hootalinqua Land Use Plan. The objectives of this study include the following:

(i) To compile existing information on agriculture use, demand and capability in the greater Whitehorse area.

(ii) To contribute to the ongoing planning process in Hootalinqua and the Resource Inventory Study in the Watson-Wheaton valleys.

2.0 STUDY AREA

The study area is confined primarily to the Whitehorse map sheet (105D, 1:250,000) and 105/E3 and E/4 (Figure 1). The southern boundary is the Yukon/B.C. border, 2 km. west of Jake's Corner in the east, 12 kms west of the Alaska Highway Bridge over the Takhini River and north to approximately the top of Fox Lake. The study area was divided into 5 sub-regions. They include: (1) Hootalinqua, (2) City of Whitehorse (3) Alaska Highway East (4) Klondike Highway South and (5) Whitehorse East/West. This was done for comparative purposes and also to highlight areas where demand for land is concentrated.


136°
135°
134°
61°
60°
KLONDIKE HIGHWAY
Yukon River
Lake Laberge
Fox Lake
Fig. 1 : Study Area Boundary and Sub–Region Boundaries
Study Area Boundary
Sub –Region Boundary
Hootalinqua
Takhini River
Whitehorse East/West
ALASKA HIGHWAY
City of White–horse
Alaska Highway East
Fish Lake
Whitehorse East/West
Marsh Lake
CARCROSS
ROAD
ALASKA HWY.
Rose Lake
Alligator Lake
Annie Lake
Klondike Highway South
Primrose Lake
Takhini Lake
Tagish Lake
Taku Arm
Bennett Lake
Windy Arm
West Arm
0 10 20
Kilometres

3.0 METHODOLOGY

Three subjects were examined in this study. They include (1) soil capability for agriculture, (2) existing and proposed agricultural alienations, and (3) existing and proposed types of agricultural use. In addition, the report includes some data on other types of existing land uses (rural-residential, industrial, public lands) and proposed land uses or alienations (future subdivisions, land claims).

The study area included all of mapsheets (i.e. quads) 105/D1 through 105/D16 and 105/E3 and E4 (Figure 1). Area calculations were derived multiplying the number of quad sheets involved (18) by the size of a quad sheet (83,400 hectares). The figure for Hootalinqua was provided by IMC (Drackley, pers. comm.).

Area estimates for the various classes of soils were calculated using a electronic hand planimeter. The majority of the data was taken from Rostad et al (1977). This soil survey was mapped originally at a reconnaissance level of 1:125,000 by the Saskatchewan Institute of Pedology. The data was remapped at a scale of 1:100,000 in order to match other biophysical data available for the study area. Estimates of amounts of Class 5,6, and 7 lands were calculated for the entire study area and the 5 sub-regions.

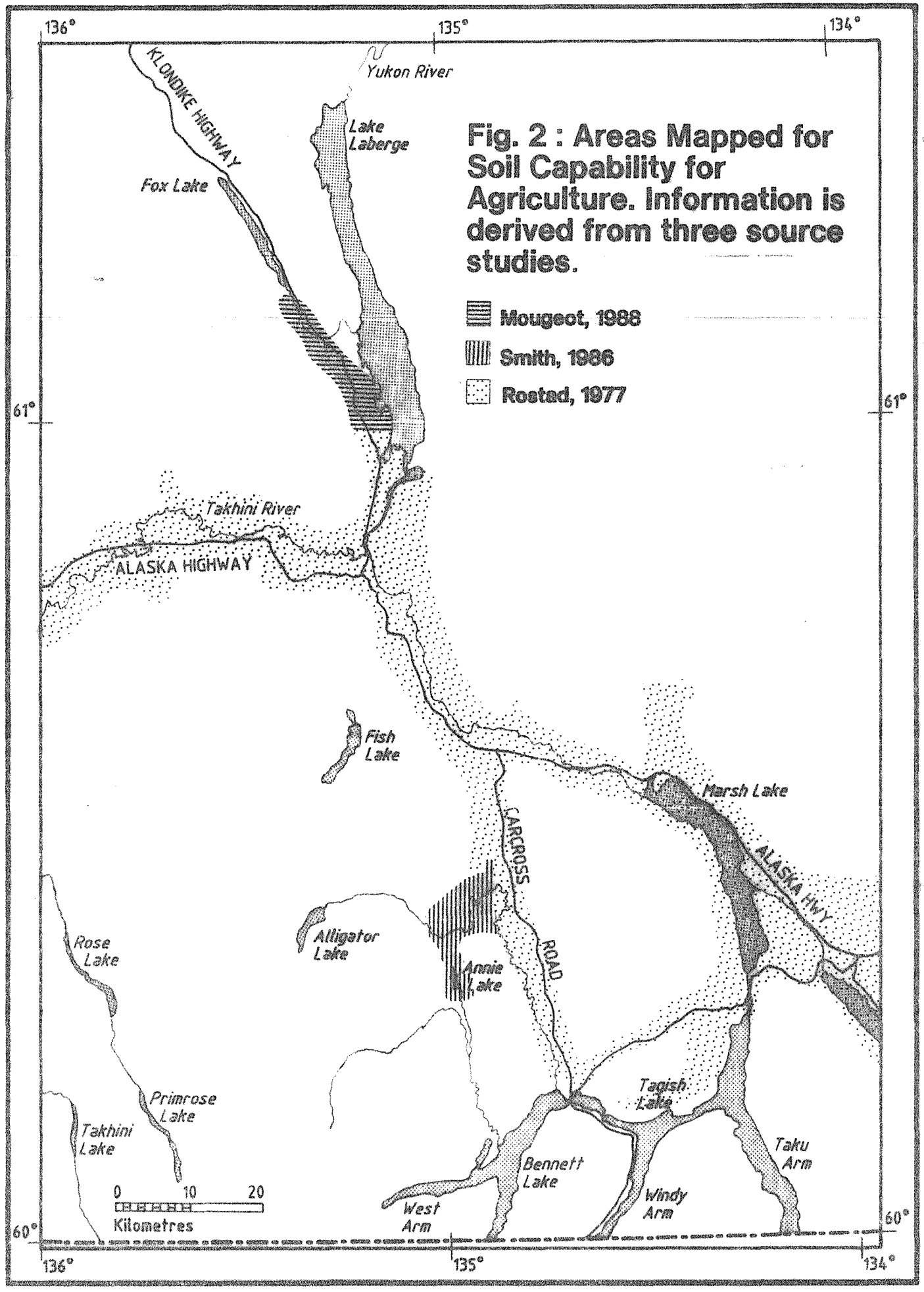
A subsequent detailed study in the Annie Lake area was conducted by the Yukon Section of Agriculture Canada at a scale of 1:20,000 that overlapped, and in some cases resulted in changes to the results of the reconnaissance level work. A large scale (1:20,000) soil survey was conducted in the Hootalinqua North planning area by Agriculture Canada (Mougeot 1988). However, final

maps were not available at the time that this report was prepared. Only a small area (105/E3) along the Klondike Highway was used for soil Class area calculations from the Hootalinqua study.

The soil capability maps were used to determine the amount of land suitable for agriculture in the study area. The area mapped for capability for agriculture within the study area is illustrated in Figure 2. The land was classified according to the Canada Land Inventory (CLI) methodology for soil capability for agriculture. Land above 2500' was considered unsuitable for agriculture and can, for all intents and purposes, be considered as Class 6 or 7.

Generally, Class 4, or better, lands are allocated to agriculture, with some Class 5 lands within the parcels. In most areas, Class 5 lands would not be selected for agriculture due to the limitations applicable. For the Whitehorse area, though, only Class 5 lands are available and are considered suitable for some types of agricultural applications, such as forage production. Class 6 lands have potential for grazing and Class 7 lands are unsuitable for any agricultural disposition.

All of the data on existing and proposed agriculture alienations is stored on the Government of Yukon mainframe computer. Information on existing agriculture use is compiled from two sources. Renewable Resources and Community and Transportation Services' data bases contain recent agricultural dispositions. The Agriculture Branch and Department of Justice Land Titles maintains records of lands being used for agricultural uses that were not originally disposed of for agricultural purposes. Additional information on


136°
135°
134°
61°
60°
KLONDIKE HIGHWAY
Yukon River
Lake Laberge
Fox Lake
Takhini River
ALASKA HIGHWAY
Fish Lake
Marsh Lake
CARCROSS ROAD
ALASKA HWY
Alligator Lake
Annie Lake
Rose Lake
Primrose Lake
Takhini Lake
Tagish Lake
Bennett Lake
Taku Arm
Windy Arm
West Arm
0 10 20
Kilometres
Fig. 2 : Areas Mapped for Soil Capability for Agriculture. Information is derived from three source studies.
Mougeot, 1988
Smith, 1986
Rostad, 1977

agricultural land use for existing alienations was compiled from Filteau (1987), and personal interviews with A. Hutchison, Agriculture Branch.

Proposed alienations for agriculture use are compiled from Renewable Resources and Community and Transportation Services data files. Active applications are in various stages of processing. The status of the applications fall into a number of categories. Detailed descriptions of the land status categories are presented in Section 4.3.

In order to provide an overview of proposed and existing alienations within the study area, a map was prepared at 1:100,000 scale (Figure 3). A range of alienations are illustrated and the information is current to February, 1988.

Data from the Taxation Division of the Lands Branch were reviewed. Comparison of Taxation Branch records to Renewable's data base revealed differences approaching 40% in some sectors. The Taxation Division data did not provide current information on existing land alienations because: (1) area data was not updated regularly, and (2) not all dispositions were recorded, since not all dispositions are currently taxed. Because of this, the Taxation Division information is used to demonstrate trends, and a summary of the information is presented in the appendix of this report.

The Taxation Department's data is stored by quad sheet in the computer. Therefore, the discussion in Section 4.6 will be presented by quad sheet, instead of by sub-region. The effort involved to convert the data to conform to the sub-region boundaries would have exceeded the gains. The map of existing and proposed alienations was used to evaluate patterns of land

dispositions and use (Figure 3). The information on the map was transferred from the 1:30,000 quad sheets.

The final section of this report summarizes the results of the analysis and proposes recommendations for agriculture based on the results.

4.0 RESULTS AND DISCUSSION

4.1 Soil capability

The study area is 1,501,200 hectares in size. Table 1 summarizes the area of each sub-region.

TABLE 1 AREA ESTIMATES (HECTARES) OF STUDY AREA AND SUB-REGIONS

	Area (1) (hectares)	Percent of Study Area (%)
Whitehorse East/West	673,200	45
Klondike Highway South	392,000	26
Hootalinqua	195,000	13
Alaska Highway East	171,000	11
City of Whitehorse	70,000	5
TOTAL STUDY AREA	1,501,200	100

(1) All area values, except for Hootalinqua, are estimates from 1:250,000 map sheets. Error can be ± 5%. Hootalinqua can be presumed accurate to ± 1%.

The study area is composed of Class 5, 6 and 7 lands. Only 201,110 hectares of the study area have been mapped for soil capability for agriculture.

Table 2 provides data on the amount of Class 5, 6 and 7 lands within the mapped area and also expresses the percentage of Class 5 land within the total study area.

TABLE 2 DISTRIBUTION OF AGRICULTURAL CAPABILITY CLASSES FOR AREAS WITH SOIL INFORMATION

Class	Hectares (ha)	Percentage of mapped area	Percentage of study area
5 (1)	97,400	48 %	6.5 (1)
6	24,400	12 %	(2)
7	79,300	40 %	(2)
MAPPED AREA	201,100	100 %	13.4
(unclassified)	1,300,100		87.6
STUDY AREA	1,501,200		100%

(1) It is estimated that most of the Class 5 land is within the mapped area. Because most of the unclassified area is high elevation, mountainous terrain, it is not expected that much more Class 5 land exists beyond the presently mapped areas.

(2) Since 87.6% of the study area is unmapped - no estimates of Class 6 and 7 lands outside of the mapped area are provided.

Some Class 5 soils are suitable for cultivation, forage production (either annual (green feed) or perennial (grass, hay)) and frost tolerant vegetables. Class 6 soils are suitable for grazing of native forage, but not suitable for cultivated crops. Class 7 soils have no agricultural capability and hence are unsuitable for agriculture or permanent pasture. Using the aforementioned results then, 48% of the mapped land is Class 5 and has potential for agriculture, based on Rostad's figures. An additional 12% (Class 6) of the mapped area is suitable for grazing, while 40% of the mapped area is unsuitable for any sort of agricultural application. The study area is still 87.6% unclassified (unmapped).

There are a number of limitations that apply to the data presented and it is important that they be understood. The estimates for Class 5, 6 and 7 land come from Rostad's reconnaissance level inventory. Subsequent detailed (1:20,000 scale) inventories conducted since 1986 (Smith, 1986 and Mougeot, 1988), indicate that the figure of 97,400 ha may be a large overestimate. With this in mind, Class 5 lands in the study area would likely be more in the order of 40,000 hectares. The decision to continue with the use of Rostad's estimates is based on the desire to present figures that are comparable since detailed inventory of the whole study area is not available.

Due to topographic limitations, unclassified lands within the study area are expected to be primarily Class 6 and 7. There are a few pockets of potential Class 5 land (lower Wheaton River, portions of Michie Creek), but these can be presumed to be of limited extent. More inventory is required in order to accurately estimate the extent of Class 6 and 7 land.

Table 3 summarizes the capability of the soil for agriculture by sub-region.

TABLE 3 AGRICULTURE CAPABILITY LANDS BY SUB-REGION

SUB-REGION	HOOTALINQUA	CITY	KLONDIKE HWY SOUTH	ALASKA HWY EAST	WHITEHORSE EAST/WEST	MAPPED AREA
Class 5 land in hectares	40,517 (1)	9,280	12,543	30,978	4,557	97,875
% of total Class 5 land in mapped area	41%	9%	13%	32%	5%	100%

Note:

The 97,875 hectares refers to the area mapped for soil capability for agriculture, and not the entire study area (see Figure 2). However, it is estimated that classification of the entire study area will not significantly increase the amount of Class 5 land.

(1) This figure is derived from Rostad; current inventory places the area of Class 5 at about 20,000 hectares.

Forty-eight (48%) of the land classified within the mapped area is Class 5 land (Table 2). Of that, 41% is within the Hootalinqua sub-region and 32% in the Alaska Highway East sub-region. It can be assumed that the majority of the study area is poorly suited for most agricultural applications, but has potential for grazing. Seventy-four percent (74%) of all Class 5 lands in the study area are found in the Hootalinqua and Alaska Highway East sub-regions.

4.2. Existing Agricultural Alienations

In addition to land currently being requested for agriculture, a large amount has already been allocated within the study area. Many dispositions registered originally for other purposes (eg. placer claim, federal leases, etc.) are in fact being used for agriculture (Table 4). There are 157 different alienations (3 terminated leases were excluded)

with a total area of 10,855 hectares. The majority of this land is allocated to grazing (6218 hectares). Most of the alienated agricultural land is found in Hootalinqua (62%, 6,680 of 10,855 hectares) with the Klondike Highway South sub-region accounting for 27% (2,950 of 10,855 hectares) of land disposed for agriculture.

Within the Alaska Highway East sub-region, 6.7% of all agricultural land dispositions occur. The highest percentage of titled land (3070 of 4300 hectares) falls within the Hootalinqua sub-region (titled plus agreements for sale, Table 4). These figures demonstrate clearly the high demand for land in Hootalinqua. Similiar trends apply to Klondike Highway South, with 809 hectares titled. This sub-region also has a very high percentage of existing dispositions used for grazing (2135 hectares).

TABLE 4

TYPES OF EXISTING LAND ALIENATIONS FOR AGRICULTURE

	TOTAL STUDY AREA		HOOTALINQUA SUB-REGION		KLONDIKE HIGHWAY SOUTH		ALASKA HIGHWAY EAST		CITY OF WHITEHORSE		WHITEHORSE EAST/WEST	
	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)
Agreement for Sale	47	2048	32	1638	7	230	5	158	3	22	-	-
Titled	77	2252	41	1432	21	579	9	239	4	2	-	-
Grazing Leases	20	6218	10	3354	5	2135	3	266	-	-	2	463
Federal Leases	3	13	1	11	2	2	-	-	-	-	-	-
Other (1)	15	324	9	245	1	4	1	65	1	9	-	-
TOTAL	157	10855	93	6680	36	2950	18	729	8	33	2	463

(1) OTHER includes placer claim, lease residential/agricultural and commercial leases.

4.3 Proposed Agriculture Alienations (Applications)

There is substantial demand for agriculture land in the Yukon, with the highest demand in the study area. Generally, demand is highest around Whitehorse. The size of proposed parcels tend to be smaller in the study area, than the Yukon-wide average. Table 5 illustrates the demand for agricultural land for the Yukon, the study area, and the sub-regions.

TABLE 5 **PROPOSED AGRICULTURAL ALIENATIONS (agriculture and grazing) FOR THE YUKON, THE STUDY AREA & THE SUB-REGIONS**

	NUMBER OF PROPOSED AG ALIENATIONS	%	AREA OF PROPOSED AG ALIENATIONS HA.	%
YUKON WIDE	250	100.0%	53,366	100.0%
STUDY AREA	177	70.8%	19,353	36.3%
HOOTALINQUA	100	40.0%	11,018	20.5%
KLONDIKE S.	28	11.2%	3,428	6.4%
ALASKA HWY. E.	33	13.2%	3,306	6.2%
CITY	10	4.0%	161	0.3%
WHITEHORSE E/W	6	2.4%	1,440	2.7%

There are 250 active applications for agricultural land for the entire Yukon. One hundred and seventy-seven (177) of those are for land within the study area and one hundred (100) for land within the Hootalinqua sub-region. Applications for agriculture land in all other sub-regions combined do not equal Hootalinqua.

Applications for agricultural land have been accepted by the Territorial Government since 1982 and are in various stages within the application process.

Generally, applications are considered (1) active, or (2) on hold. An active application could be awaiting review, in the process of review, awaiting agreement-for-sale or awaiting order-in-council transferring the land. Applications on hold are: (a) awaiting additional information, either from the applicant or another source; (2) awaiting resolution of a land use conflict; or (3) awaiting policy development. Applications on hold pending policy include: (1) application for non-soil based agriculture; (2) applications within the City of Whitehorse; and (3) applications for game ranching. Non-soil based agricultural activities are not addressed in current policy. The policy needs to be revised and applications are on hold until this issue is resolved. The applications within the City boundaries are on hold awaiting the development of an agricultural policy by the City. Game ranching applications are on hold pending policy development by the Department of Renewable Resources. Table 6 shows the status of various applications to date.

Hootalinqua has the highest number of applications (100), followed by Alaska Highway East, with 33, and then by Klondike Highway south with 28. Hootalinqua accounts for 56% of all applications, as well as the highest incidence of cancelled or terminated applications.

The largest average parcels are from the Whitehorse East/West sub-region. This is due to requests for grazing leases (which tend to be

large) and the higher incidence of option land selection. Surprisingly, demand for land in the Alaska Highway East sub-region is low, despite having the second highest occurrence of Class 5 land.

TABLE 6

STATUS OF PROPOSED ALIENATIONS FOR AGRICULTURE

FILE STATUS	TOTAL STUDY AREA		HOOTALINQUA SUB-REGION		KLONDIKE HIGHWAY SOUTH		ALASKA HIGHWAY EAST		CITY OF WHITEHORSE		WHITEHORSE EAST/WEST	
	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)
Application - active	97	12769	53	6402	14	2751	22	2222	5	104	3	430
Application - terminated	70	4193	41	2427	16	1429	7	246	5	26	-	-
Application - on hold	35	4080	24	3229	4	172	4	653	3	26	-	-
Application - cancelled by applicant	24	1852	12	928	8	672	4	252	-	-	-	-
Application - on hold pending policy	20	1042	8	703	7	125	2	118	2	31	1	65
Application - O.I.C. requested	14	688	8	390	2	50	4	248	-	-	-	-
Application - ready for committee	11	774	7	294	1	330	1	65	-	-	2	85
ALL STATUS	271	25398	153	14373	52	5529	44	3804	15	187	6	1440
ALL STATUS (LESS TERMINATED AND CANCELLED)	177	19353	100	11018	28	3428	33	3306	10	161	6	1440

Note: An application can eventually be part title, part agreement for sale and/or part application as it moves through the process.

NOTE: FIGURES REFLECT BOTH AGRICULTURE AND GRAZING
TOTAL AREA INCLUDES PARCEL AND OPTION

Sections 4.4 and 4.5 deal with the types of agricultural land uses that occur on existing dispositions and those listed for proposed alienations respectively. Examples of agricultural land use include forage production, grazing, livestock, etc. A number of significant differences are apparent between existing alienations (farms) and proposed alienations.

4.4 Existing Agricultural Land Use

Table 7 lists the types of agricultural land uses that occur on existing agricultural land dispositions. Perennial forage activity is the most frequent land use, 24% of all parcels. Livestock and grazing are third and fourth respectively, with 14.5% and 13.9%. It is interesting to note that although grazing is the fourth most prominent activity, it requires the largest amount of land (58.9%). This observation is logical in light of the quality of the land base. Hootalinqua emulates total study area results while Klondike South and Alaska Highway East attribute less importance to perennial forage production and more to livestock and grazing. The City of Whitehorse (with only 8 dispositions) is different from all of the other sub-regions, with landscaping as the prime activity, followed by market gardening, greenhousing, nursery and livestock. Average lot size is considerably smaller (ranging from 0.31 to 9.00 hectares) in the City than all other sub-regions. Twenty-six existing farms do not have an activity listed. However, these account for only 3.5% of the 10,921 hectares disposed of for agriculture.

TABLE 7 EXISTING AGRICULTURAL LAND USES

AGRICULTURAL LAND USE	TOTAL STUDY AREA		HOOTALINQUA		KLONDIKE HIGHWAY SOUTH		ALASKA HIGHWAY EAST		CITY OF WHITEHORSE		WHITEHORSE EAST/WEST	
	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)
Forage Production	48	2609	34	1736	8	552	6	321	-	-	-	-
Livestock (Small Scale)	22	345	15	280	4	57	2	7	1	1	-	-
Grazing	23	6430	12	3541	5	2135	4	291	-	-	2	463
Subsistence Farming	13	131	4	31	7	97	2	4	-	-	-	-
Market Gardening	10	302	5	205	2	19	1	65	2	14	-	-
Livestock (Large Scale)	4	329	4	329	-	-	-	-	-	-	-	-
Landscaping	3	1	-	-	-	-	-	-	3	1	-	-
Game Ranching	3	168	3	168	-	-	-	-	-	-	-	-
Greenhousing	3	77	2	69	-	-	-	-	1	8	-	-
Feed Distribution	1	2	1	2	-	-	-	-	-	-	-	-
Sod Farming	1	65	1	65	-	-	-	-	-	-	-	-
Poultry Production	1	7	-	-	1	7	-	-	-	-	-	-
Nursery	1	9	-	-	-	-	-	-	1	9	-	-
Dairy	1	65	1	65	-	-	-	-	-	-	-	-
Missing (1)	26	380	14	257	9	83	3	41	-	-	-	-
ALL PRIMARY ACTIVITIES (Total)	160	10921	96	6748	36	2949	18	729	8	33	2	463

(1) No data available for activity.

4.5 Proposed Agricultural Land Use

Table 8 provides data on proposed agricultural use as indicated on the applications for agricultural land within the Yukon. The data has been split between land requested for agriculture and land requested for grazing. The trend in the study area differs from the Yukon wide trend. In the Territory as a whole, the amount of land (in hectares) requested for grazing exceeds requests for agricultural land. The trend in the study area is the exact opposite. The results again confirm the observation that the Hootalinqua sub-region receives the greatest demand for land in the study area. This may be due in part to superior road access as compared to other sub-regions and proximity to potential markets in Whitehorse.

TABLE 8

Proposed Agricultural Land Use: Agricultural and Grazing

		AGRICULTURE	GRAZING	TOTAL
YUKON WIDE	- Total number of applications	205	42	250
	- Total Area (ha)	23,098	30,130	53,366
STUDY AREA	- Total number of applications	146	28	177(1)
	- Total Area (ha)	12,646	6,569	19,353(2)
Hootalinqua	- Total number of applications	87	13	100
	- Total Area (ha)	8,718	2,300	11,018
Klondike Highway	- Total number of applications	20	8	28
	- Total Area (ha)	831	2,597	3,428
Alaska Highway East	- Total number of applications	27	6	33
	- Total Area (ha)	1,954	1,352	3,306
City of Whitehorse	- Total number of applications	10	-	10
	- Total Area (ha)	161	-	161
Whitehorse East/West	- Total number of applications	5	1	6
	- Total Area (ha)	1,120	320	1,440

(1) 3 applications have information missing. These come from the study area.

(2) The 3 applications missing information total 138 (ha) in area.

Proposed agricultural land use (or agricultural activity) is listed in more detail in Table 9. Fifteen (15) different agricultural activities have been identified by farmers on their application forms. These range from perennial forage to beekeeping. This list includes only primary activity and is a subjective evaluation of the main activity planned by the applicant. Up to 6 activities are entered by each applicant.

Perennial and annual forage production account for about 47% of proposed activities, requiring 9037 hectares of land. Grazing is the second most common activity at 34%, requiring 6569 hectares. Greenhousing, annual forage production, market gardening and livestock production are the next most prominent activities in descending order of importance. Together these six activities account for 85.9% of proposed land use. Perennial forage, grazing, annual forage, livestock and game ranching are land intensive activities, requiring an average parcel size exceeding 100 hectares.

The highest diversity of activities is found in Hootalinqua, followed by Klondike Highway South and Alaska Highway East. The City of Whitehorse reflects specialized pursuits and the smallest average parcel sizes. Market gardening is listed as the most important activity in the City, in contrast to all other sub-regions. Perennial forage production is most important in Whitehorse East/West, Alaska Highway East and to a lesser extent, Hootalinqua. Requests for land for the purpose of game ranching occurs only in Hootalinqua. Greenhousing is prevalent in all sub-regions except Whitehorse East/West.

Hootalinqua land requests are almost triple those of the next most requested area, Klondike South. In Klondike South, 72% of the land applied for has been requested for grazing. This will result in large tracts of land being required to support this activity since the majority of Klondike South is primarily Class 6 (57%).

TABLE 9

PROPOSED AGRICULTURAL LAND USE

AGRICULTURAL LAND USE	TOTAL STUDY AREA		HOOTALINQUA		KLONDIKE HIGHWAY SOUTH		ALASKA HIGHWAY EAST		CITY OF WHITEHORSE		WHITEHORSE EAST/WEST	
	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)	Total Number	Total Area (ha)
Forage Production	75	9037	47	5935	9	591	14	1442	2	34	3	1035
Grazing	28	6569	13	2300	8	2597	6	1352	-	-	1	320
Greenhousing	24	861	10	451	4	111	7	236	3	63	-	-
Market Gardening	15	378	8	198	2	73	1	53	4	54	-	-
Livestock (large scale)	10	1070	9	1005	-	-	1	65	-	-	-	-
Game Ranching	6	928	6	928	-	-	-	-	-	-	-	-
Subsistence Farming	4	125	3	113	1	12	-	-	-	-	-	-
Dairy	3	105	-	-	-	-	1	20	-	-	2	85
Missing	3	138	1	65	-	-	2	73	-	-	-	-
Berry Production	2	85	-	-	1	20	1	65	-	-	-	-
Livestock (small scale)	2	10	1	2	1	8	-	-	-	-	-	-
Poultry (egg and poultry)	2	23	1	13	-	-	-	-	1	10	-	-
Nursery	1	8	-	-	1	8	-	-	-	-	-	-
Beekeeping	1	8	1	8	-	-	-	-	-	-	-	-
Fish Farming	1	8	-	-	1	8	-	-	-	-	-	-
TOTAL	177	19353	100	11018	28	3428	33	3306	10	161	6	1440

4.6 Other types of Land Uses (Alienations)

Currently, 12.09% of the study area is under application or title, for a total of approximately 182,194 hectares. The summary of the applicable alienations is presented in Table 10.

Table 10 COMPETING ALIENATIONS OCCURRING IN THE STUDY AREA (proposed and existing)

Alienation	AREA (ha)	% of Study Area
Land Claims	149,650	10.00
Agriculture	17,283	1.15
Grazing	12,781	0.85
Commercial (1)	90	0.01
Openspace (Park Reserves) (1)	1460	0.01
Recreational Cottaging (1)	120	0.01
Country Residential (1)	570	0.04
Multi Residential (1)	20	<0.0011
Industrial (1)	220	0.02
Total	182,194	12.09

(1) These figures (except for land claims) are taken from Lands Branch Taxation files and are considered to be underestimates. This data is intended to show trends in land use not available on our files for existing alienations outside of agriculture.

Land claims were calculated form 1984 selections using an electronic hand planimeter. These figures are not underestimates and are considered accurate to ±1%.

By far, land claims account for the largest alienation of land, with 10% of the study area (149,600 hectares), or 82% of all requests for land. Agricultural applications account for approximately 1.15% of the study area, while grazing leases add an additional 0.85%. The figures on Table 10 are underestimates of other land alienations except for land claims, agriculture and grazing.

Land claims data was derived with a hand planimeter from 1984 claims selection maps and are considered accurate (calculations are expected to change when the 1988 land selections are added). The figures for land use were provided by the Taxation Branch of Community and Transportation Services and are underestimates (see Section 3.0 for explanation regarding Taxation Branch values). However, the data is useful for identifying trends in land use. Land reserves (YTG and Federal) and rural-residential are the next most prominent land uses in the study area after land claims and agriculture (including grazing).

The following data were taken from the Taxation Division and are presented by quadrant instead of by sub-region. Quadrant D14, which is contained within the Hootalinqua sub-region, contains the highest concentration of agricultural alienations. Agricultural lands are primarily concentrated along the Klondike Highway north and the Takhini Road. Quadrant D12, south of the Alaska Highway, shows grazing as the most important land use. In Quadrant D2, which includes Carcross, government reserves and industrial concerns are the most prevalent land uses. Mining and lands belonging to the Yukon and White Pass Railroad account for the majority of land uses in D2. Country residential

alienations are most prevalent in D14, as are commercial and multiple residential concerns. Recreational cottaging is mostly concentrated in D8, which includes Marsh Lake and parts of Tagish Lake. A summary of existing alienations is provided in the appendix (Table 1) by quad sheet.

Most agricultural alienations are restricted to valley bottoms, lake and river margins and road corridors. Agriculture and grazing account for 15% (30,064 of 201,100 hectares) of the mapped area, or 2% of the study area. This figure does not in itself indicate a problem of overuse, but the figures on Table 1 (appendix) reveal trends for the area. Seven of the sixteen quad sheets do not have any existing or proposed alienations on them at all. Fifty-one percent (51%) of all land uses are on Quadrants D12 and D14. D14 (i.e. Hootalinqua) also has the highest concentration of agricultural, commercial, multiple residential and country residential land use. This trend of concentrations of intensive land alienations in pockets is apparent when examining the overview maps of land alienations, both proposed and existing (Figure 3).

This problem is complicated further when applications for land are also included. Examination of the maps shows little land free from alienation along the highway corridors, especially the Takhini Road. Also, between the Alaska Highway Bridge and the merging point of the Takhini River and the Yukon, there would be virtually no access to the river if all proposed and existing alienations are taken into account.

5.0 SUMMARY OF RESULTS AND RECOMMENDATIONS

After reviewing the data, the over-riding observation is that agriculture is a very complex issue. There are an number of observations that can be summarized from the compilation of the existing data. They include the following:

5.1 The majority of the Class 5 lands in the study area are in the Hootalinqua and Alaska Highway East sub-regions.

5.2 The results of Rostad's soil surveys overestimate the amount of Class 5 land in the study area. The figure of 97,400 hectares is likely more in the neighbourhood of 40,000 hectares, or less.

5.3 Not all Class 5 soils are suitable for agriculture; an assumption adhered to in the past.

5.4 Only 13.4% of the study area has been mapped for capability of the soil for agriculture.

5.5 Most of the titled land in the study area resides in Hootalinqua (71%). Fifty-four (54%) of the titled land is utilized for grazing. Sixty-two (62%) of all alienated land is in Hootalinqua.

5.6 For existing land dispositions, the most frequent agricultural activities are perennial and annual forage production (29.5%), livestock (14.5%), grazing (13.9%), subsistence farming (more accurately termed contributory, as few farmers are completely subsistent) at 7.8%, and market gardening (6.02%). No data on agricultural land use exists for 17.5% of the existing dispositions.

5.7 This contrasts with activities listed on applications, which include perennial and annual forage (53.7%), grazing (33.9%), greenhousing (4.5%), livestock (5.5%), game ranching (4.5%) and market gardening (2.0%)

5.8 Approximately twelve percent (12.09%) of the study area is under application (approximately 182,000 hectares). 149,600 (82%) of those 182,000 hectares are alienated by land claims, based on 1984 selections. This will likely increase. Agriculture (including grazing) constitutes the next most frequent alienation at 9.5%.

5.9 Agriculture and grazing (existing and proposed) land requests amount to a total of 30,064 hectares in the study area (17,283 and 12,781 respectively), and 64,218 ha. for the entire Yukon. The figures for proposed alienations are 19,353 ha for the study area, with 12,646 and 6,569 ha for agricultural use and grazing respectively. The Yukon-wide total is 53,363 ha.

5.10 The highest percentage of terminated applications reside in Hootalinqua, as well as the highest number of current applications. Within Hootalinqua, 6748 hectares are already alienated.

5.11 Alaska Highway East has the second highest percentage of Class 5 land (32%), yet only accounts for 11% (18 of 160) of existing dispositions and 19% (33 of 177)of all applications for land. Hootalinqua, on the other hand, has figures of 61% and 57% of all proposed alienations respectively. Klondike Highway South has figures of 23% and 21% respectively, with only 13% of all Class 5 lands available.

RECOMMENDATIONS:

5.1.1
Only 13.4% of the area has been mapped for agricultural capability. This is at a reconnaissance level of detail. Additional inventory is required, preferably at larger scales (1:20,000 - 1:50,000), as was completed for Annie lake and Hootalinqua.

5.1.2
To date, 10,855 hectares of land have been disposed for agriculture and grazing in the study area, and an additional 19,353 hectares have been applied for. An additional 34,013 hectares are under application in the rest of the Territory. Work should be initiated that will address the question of supply versus demand for land for these purposes. The results of that study could be used to better manage the land base both in term of agriculture as well as other competing interests.

6.0 REFERENCES CITED

Filteau, D. 1987, Agriculture Resource Inventory Survey, Yukon Agriculture Branch, Government of Yukon, unpublished report.

Mougeot, C.M., 1988, Hootalinqua Soil Survey, unpublished map set, Mougeot Geoanalysis Ltd., Whitehorse, Yukon

Rostad, H.P.W., L.M. Kozak, and Acton, D.F., 1977, Soil Survey and Land Evaluation of the Yukon Territory, Saskatchewan Institute of Pedology Publications

Smith, C.A.S., 1986, Annie Lake Soil Survey, unpublished map set, Yukon Soil Survey Unit, Agriculture, Canada, Whitehorse

APPENDIX

APPENDIX 2
TABLE 1

EXISTING ALIENATION (by Quadsheet)

LAND ALIENATION (hectares)	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	E3	TOTAL AREA
Agricultural	270.0	10.0	-	-	-	-	328.4	248.2	22.1	51.0	-	-	68.9	714.0	-	-	30.0	1742.9
Grazing	-	-	-	-	-	-	32.8	70.4	8.3	8.1	54.2	-	1478.3	197.5	-	-	195.5	2045.1
Openspace (land reserve)	73.2	488.1	261.1	-	-	-	46.3	91.2	30.9	56.8	4.8	-	17.4	351.2	-	-	10.0	1431.0
Industrial	-	215.9	-	-	-	-	-	-	-	0.3	-	-	-	5.5	-	-	-	221.7
Commercial	-	0.9	18.8	-	-	-	0.6	7.8	-	12.6	22.7	-	-	28.8	-	-	0.9	193.1
Multi-Residential	-	-	-	-	-	-	-	-	-	0.6	-	-	-	13.2	-	-	-	13.8
Country Residential	0.9	1.5	-	-	-	-	45.7	32.2	1.9	96.5	25.2	-	8.5	328.5	-	-	0.4	123.6
Recreational Cottaging	0.6	24.0	-	-	-	-	0.3	54.3	22.5	2.3	1.8	-	-	0.4	-	-	17.4	123.6
TOTAL	344.7	740.7	279.9	-	-	-	454.1	504.1	85.7	228.2	108.7	-	1573.1	1629.1	-	-	286.5	6343.8