

THE UNIVERSITY OF CALGARY

THE IMPACT OF OIL SANDS DEVELOPMENT
ON TRAPPING
WITH MANAGEMENT IMPLICATIONS

by

MICHAEL G. FOX

A MASTER'S DEGREE PROJECT

SUBMITTED TO THE FACULTY OF ENVIRONMENTAL DESIGN
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ENVIRONMENTAL DESIGN
(ENVIRONMENTAL SCIENCE)

FACULTY OF ENVIRONMENTAL DESIGN

CALGARY, ALBERTA

DECEMBER, 1977

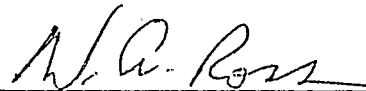
MICHAEL G. FOX 1978

THE UNIVERSITY OF CALGARY
FACULTY OF ENVIRONMENTAL DESIGN

The undersigned certify that they have read and recommend to the Faculty of Environmental Design for acceptance a Masters Degree Project entitled

THE IMPACT OF OIL SANDS DEVELOPMENT ON TRAPPING
WITH MANAGEMENT IMPLICATIONS

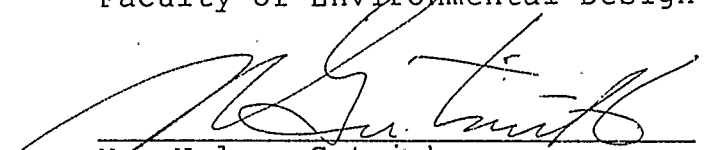
submitted by Michael G. Fox in partial fulfillment of the requirements for the degree Master of Environmental Design.



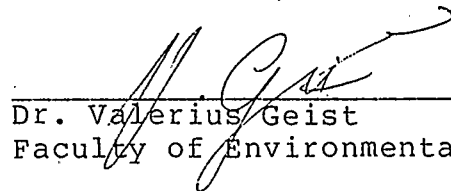
Dr. Wm. A. Ross, Chairman
Faculty of Environmental Design



Dr. Dixon A. R. Thompson
Faculty of Environmental Design



Mr. Nelson Gutnick
Faculty of Social Welfare



Dr. Valerius Geist
Faculty of Environmental Design

Date 1978-01-18

ABSTRACT

THE IMPACT OF OIL SANDS DEVELOPMENT ON TRAPPING WITH MANAGEMENT IMPLICATIONS

by Michael Fox

Completed in partial fulfillment of the requirements
for the degree Master of Environmental Design.

Project Supervisor: Dr. Wm. A. Ross

Faculty of Environmental Design
University of Calgary, January, 1978.

A study of trapper demography, motivations, and trapping patterns was done for the Alberta Oil Sands Environmental Research Program in the area around Fort McMurray, Alberta. Interviews, trapline surveys, and secondary data from the Alberta Fish and Wildlife Division were used in the study. Registered trappers were seventy percent native and averaged forty-six years of age. The majority held other jobs concurrently, and spent less than two months on the trapline in 1975/76 (a year of long-haired fur scarcity).

Several trapline variables were analyzed for their effect on trapping income. Trapper effort was found to be the most significant, followed by distance from the trapper's home and trapline size. Method of travel and use of different trapping devices do not correlate with income.

Trapping incomes in Fort McMurray, Fort MacKay and Anzac were calculated at \$64,000, \$28,000 and \$11,625 respectively. Trapping is still an important source of income in the native village of Fort MacKay.

The most significant motivation for trapping was found to be enjoyment of lifestyle. Financial gain, tradition, and need of meat were also important, while financial need seems to be declining in importance.

A development scenario for the region was evaluated for its impact on trapping. A new town, the clearing of oil sands leases, and a large population increase will likely have the greatest negative impact on trapping.

A management strategy was evolved to mitigate negative impacts and ensure future viability of the trapping industry in northern Alberta. Compensation procedures to cover trapper losses, and a program for upgrading of the fur industry in Alberta are proposed.

ACKNOWLEDGEMENTS

This research project was made possible by a grant from the Alberta Oil Sands Environmental Research Program, a joint Alberta-Canada program, established to fund, direct, and coordinate research into the effects of oil sands development on the renewable resources of the Athabasca oil sands. I wish to thank the AOSERP staff for their assistance in facilitating my fieldwork, particularly Dirk Hadler, who accommodated most of my incessant requests.

I am grateful to those who provided me with academic and professional assistance. I am particularly indebted to my committee chairman, Dr. William A. Ross, for his constructive guidance, and his always-open door. Dr. Ross also served as the senior investigator for this AOSERP project, and I thank him for the many times he stood up on my behalf. The other members of my committee, Dr. Dixon Thompson and Mr. Nelson Gutnick, deserve special mention for not letting me forget that trappers are, first and foremost, human beings. Dr. Jim Frideres, Department of Sociology, University of Calgary, was kind enough to review my methodology section. Mr. Hugh Dempsey, Archivist, Glenbow Museum, reviewed my historical section. Mr. Larry Sinkey and Mr. Bob Sidebotham put in countless hours on the computer to produce a text processing program.

The Fish and Wildlife Department provided me with invaluable assistance and cooperation, without which this project could not have been done. In particular, I wish to thank Arlen Todd, Chuck

Hambling, and Marvin Doran for their time.

Last but not least, I wish to thank the trappers of Fort McMurray, Fort MacKay, and Anzac for putting up with all my silly questions and taking care of me in the bush. I haven't the space to name them all, but Wink Plews, Rose Cheecham, Jim and Lenora Mulawka, Blair Jean, James Grandjambe, Andrew Boucher, and the late Marvin Orr deserve special mention. It is my sincere hope that this study will help the trappers in the future.

TABLE OF CONTENTS

ABSTRACT.....	i
ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES.....	viii
PREFACE.....	ix
1. INTRODUCTION.....	1
1.1. Study Objectives.....	1
1.2. Time Frame and Study Area Definition.....	2
2. HISTORY OF TRAPPING IN THE STUDY REGION.....	5
2.1. Period Prior to White Contact.....	6
2.2. The Early Fur Trading Period.....	7
2.3. The Transportation Period.....	14
2.4. Recent History.....	19
2.5. Summary.....	23
3. METHODOLOGY.....	25
3.1. Cross-Cultural Communication: Considerations for Northern Indians & Metis.....	25
3.2. Other Considerations for Doing Research in Northern Native Communities.....	30
3.3. Techniques Available and Their Relevance to This Study.....	33
3.4. Methods Used in Data Collection.....	37
3.5. Data Analysis.....	48
4. TRAPPER DEMOGRAPHY, TRAPPING PATTERNS, AND MOTIVATION IN THE PROJECT STUDY AREA.....	58
4.1. Trapper Demography.....	59
4.2. Trapping Patterns.....	73
4.3. Possible Determinants of Trapping Success in the Project Study Area.....	92
4.4. Trapper Motivation.....	97
4.5. The Future of Trapping in the Project Study Area.....	111
5. IMPACT OF OIL SANDS DEVELOPMENT ON TRAPPING.....	120
5.1. Development Scenario.....	120
5.2. Impact on Trapping.....	128
6. MANAGEMENT CONSIDERATIONS.....	145
6.1. Fish and Wildlife.....	146
6.2. The Federal Department of Indian Affairs and Northern Development.....	149

6.3.	Oil Sands Industry.....	150
6.4.	Compensation for Losses.....	152
6.5.	Upgrading of the Fur Industry.....	157
6.6.	Summary of Management Considerations.....	171
7.	SUMMARY AND MANAGEMENT RECOMMENDATIONS.....	173
7.1.	Trapper Demography, Motivation, and Trapping Patterns...	174
7.2.	Trapping Trends.....	178
7.3.	Impact of Oil Sands Development on Trapping.....	179
7.4.	Recommendations.....	180
	LITERATURE CITED.....	185
APPENDIX A:	REQUIREMENTS OF SEISMIC PROGRAMS, RE. TRAPPERS...	191
APPENDIX B:	MEAN ANNUAL FURBEARER HARVEST ON TRAPLINES DIRECTLY AFFECTED BY PREDICTED OIL SANDS DEVELOPMENT TO THE YEAR 2000:.....	192

LIST OF TABLES

3-1a	Number of Trappers Interviewed by Community of Origin...	40
3-1b	Number of Trappers Interviewed by Ethnic Origin.....	40
3-2	Number of Trappers Visited on Traplines by Ethnic Ethnic and Community Origin.....	46
3-3	Number of Trappers Interviewed by Effort Grouping.....	46
3-4	Comparison of Trapper and Buyer Reports.....	53
3-5	Some Possible Reasons for Misrepresentation in Fur Records.....	54
4-1	Ethnicity of Registered Trappers.....	60
4-2	Percentage of Trappers to the Total Populations of Three Communities.....	62
4-3	Employment Status of Trapper Sample by Community.....	67
4-4	Employment Status of Trapper Sample by Ethnicity.....	68
4-5	Comparison of Calculated Mean Trapping Incomes in Project Study Area Communities.....	71
4-6	Estimate of Fur Income Produced in Three Communities....	72
4-7	Relationship of Employment Level to Calculated Trapping Income.....	74
4-8	Trapper Effort Broken Down by Ethnic Group.....	78
4-9	Trapper Effort Broken Down by Community.....	79
4-10	Commonly Used Methods of Catching Furbearers.....	87
4-11	Companions When Trapping.....	89
4-12	Correlation Analysis of Trapline Size With Fur Dollars Produced.....	95
4-13	Correlation Analysis of Trapline Accessibility With Fur Dollars Produced.....	96
4-14	Enjoyment of Lifestyle as a Motivation for Trapping....	100
4-15	Tradition as a Motivation for Trapping.....	102

4-16	Financial Need as a Motive for Trapping.....	104
4-17	Money as a Motive for Trapping.....	105
4-18	Importance of the Trapline for Supplying Meat.....	106
4-19	Use of Meat and Fish from the Trapline.....	108
5-1	Shallow Surface Mining Stripping 0-125 ft Overburden on the Athabasca Deposit.....	121
5-2	Predicted Development of Oil Sands Leases.....	131
5-3	Estimated Trapline Losses Assuming Development Scenario.....	134
5-4	Comparison of Fur Harvests in Two Areas of Future Development With Regional Data.....	135
5-5	Production of Economically Important Furbearers In Two Regions Containing Areas of Future Oil Sands Development.....	136

LIST OF FIGURES

1-1	Definition of AOSERP and Project Study Areas.....	3
2-1	Trading Posts and Settlements in and Around the Study Area.....	9
2-2	Early Transportation Routes.....	16
3-1	Questions from First Interview Schedule.....	43
3-2	Location of Traplines Visited.....	45
3-3	Second Interview Schedule.....	49
3-4	Coding Format for First Interviews.....	51
3-5	Second Interview Coding.....	56
4-1	Trapper Ages.....	64
4-2	Calculated Trapping Income.....	69
4-3	Amount of Time Trappers Reported Spending on Their Traplines.....	77
4-4	Modes of Travel on Traplines.....	80
4-5	Change in Modes of Travel Over the Past Ten Years.....	81
4-6	Reported Use of Traps and Snares.....	85
4-7	Trapping Devices.....	86
4-8	Trapper Income Means in Six Trapping Blocks.....	98
5-1	Development Scenario.....	123
5-2	Registered Traplines in the Project Study Area.....	130
7-1	Impact Matrix.....	181

PREFACE

The securing of adequate future energy supplies for the North American continent emerges as one of the major concerns of the seventies for Canadian and American governments alike. Conventional oil and gas supplies have dwindled, and this, combined with the exponential growth of energy demands, has created the "energy crisis". The result has been a tremendous rise in the cost of energy supplies, making large scale exploration and development of energy supplies from the North economically feasible.

Large scale Northern development of energy sources began in Canada with the exploitation of hydroelectric power. In the sixties, provincial governments began forming crown corporations to tap the hydroelectric potential of places like James Bay in northern Quebec, and Peace River in northern British Columbia, and the Churchill and Nelson Rivers in northern Manitoba.

With many of the hydroelectric projects either under construction or completed, the energy push has turned to northern oil and gas exploration by private industry. Major areas of oil and gas potential have been discovered in Prudhoe Bay, Alaska, the Arctic Islands, the Beaufort Sea, and northeastern Alberta. It is with the last of these mentioned that this report will be concerned.

The existence of the oil sands around Fort McMurray, Alberta, has been known since the early days of the fur traders. However it wasn't until the 1960's that a large scale plant to mine

the oil sands was built. Great Canadian Oil Sands began construction along the Athabasca River in 1963 (Bresee & Tyler, 1975), at a time when social and environmental considerations were not as high a priority in Canada as they now are. It could be argued that these considerations are still not taken seriously when it comes to development in the North. C. G. Morley (1973) had some serious criticisms to make of the impact assessment process (which is supposed to consider social and environmental factors) used in northern hydroelectric developments.

In each case the impact assessment done or contemplated was preceded by a provincial government decision to carry out the proposed development ...

In each example cited [James Bay, Bennett Dam, and Churchill River Division] the decisions were made by the governments in power, in secret consultation with their hydro officials, without holding public hearings or otherwise consulting with those people whose interests would be inevitably affected by the development, without environmental or social impact studies being done as an integral part of the decision making process, without taking into consideration the inevitable disruption, if not the elimination of the life styles of the people living in the development area ...

Morley's points about these hydroelectric projects are relevant to the Syncrude development currently under construction in Fort McMurray. (Development of the Syncrude lease began before the Alberta Oil Sands Environmental Research Program did any fieldwork).

This project, The Impact of Oil Sands Development on Trapping With Management Implications, is designed to elucidate the impacts of current and future oil sands development on trappers and trapping. While this assessment comes after the fact of Syncrude, it is my hope that its recommendations will be used to better manage future development in the Fort McMurray area.

1. INTRODUCTION

Trapping is perhaps the oldest industry in Canada. It is one to which Canadians owe a great debt, because it was representatives of that industry who mapped and charted much of this country, and opened it up for settlement. The Fort McMurray area is one part of this country that was first explored by the fur traders, who, incidentally, were the first people to make note of the existence of the oil sands. It is paradoxical, then, that the oil sands industry, one of Canada's newest, is now in conflict with the trapping industry, one of Canada's oldest.

1.1. STUDY OBJECTIVES

The purpose of this project is to investigate the impact of oil sands development on the trapping industry around Fort McMurray, with special emphasis placed on the participants, the trappers. The intent is to provide recommendations for sound environmental management that will anticipate and alleviate the negative effects of oil sands development on trappers.

The goals of this investigation are as follows:

- 1 Establish baseline information about:
 - trapper demography
 - predominant trapping patterns
 - trapper effort on the trapline
 - trapper employment in areas other than trapping
 - the economic importance of trapping to native communities proximal to Fort McMurray
 - trapper motivation
 - the relative importance of the attributes of a trapping area (size, proximity, accessibility, for example) to trapper earnings.
- 2 Document the modernization of trapping in the area

using the switch from dog teams to snow machines as a chronological indicator of change.

- 3 Predict future trapping trends in the area in light of current baseline data, past history of trapping in the region, and changes occurring in other northern areas.
- 4 Predict the impact of a possible oil sands development scenario on the area trappers and their domain.
- 5 In light of the scenario generated, baseline information, and the current management system, recommend and access possible management strategies to alleviate negative aspects on area trappers and the trapping industry.

1.2. TIME FRAME AND STUDY AREA DEFINITION

The study was conducted in the period from May, 1976 to November, 1977.

The study area was selected to focus on individuals trapping out from Fort McMurray and two proximal native villages, Fort MacKay and Anzac. All of these communities are in the southern half of the AOSERP study area (figure 1-1).

The area these trappers use approximates the lower Athabasca watershed in Alberta from the Grand Rapids, 140 river kilometres southwest of Fort McMurray, to the mouth of the Firebag River, 132 kilometres north of that town. It lies almost entirely within the mixedwood section of the boreal forest region (Rowe, 1972), much of which is covered by muskeg (Intercontinental Engineering of Alberta Ltd. [Integ], 1973). It is predominately flat lowland, with four raised areas, one in each quarter of the project study area. The largest of these, the Birch Mountains in the northwest, gradually rises to a height of six hundred metres

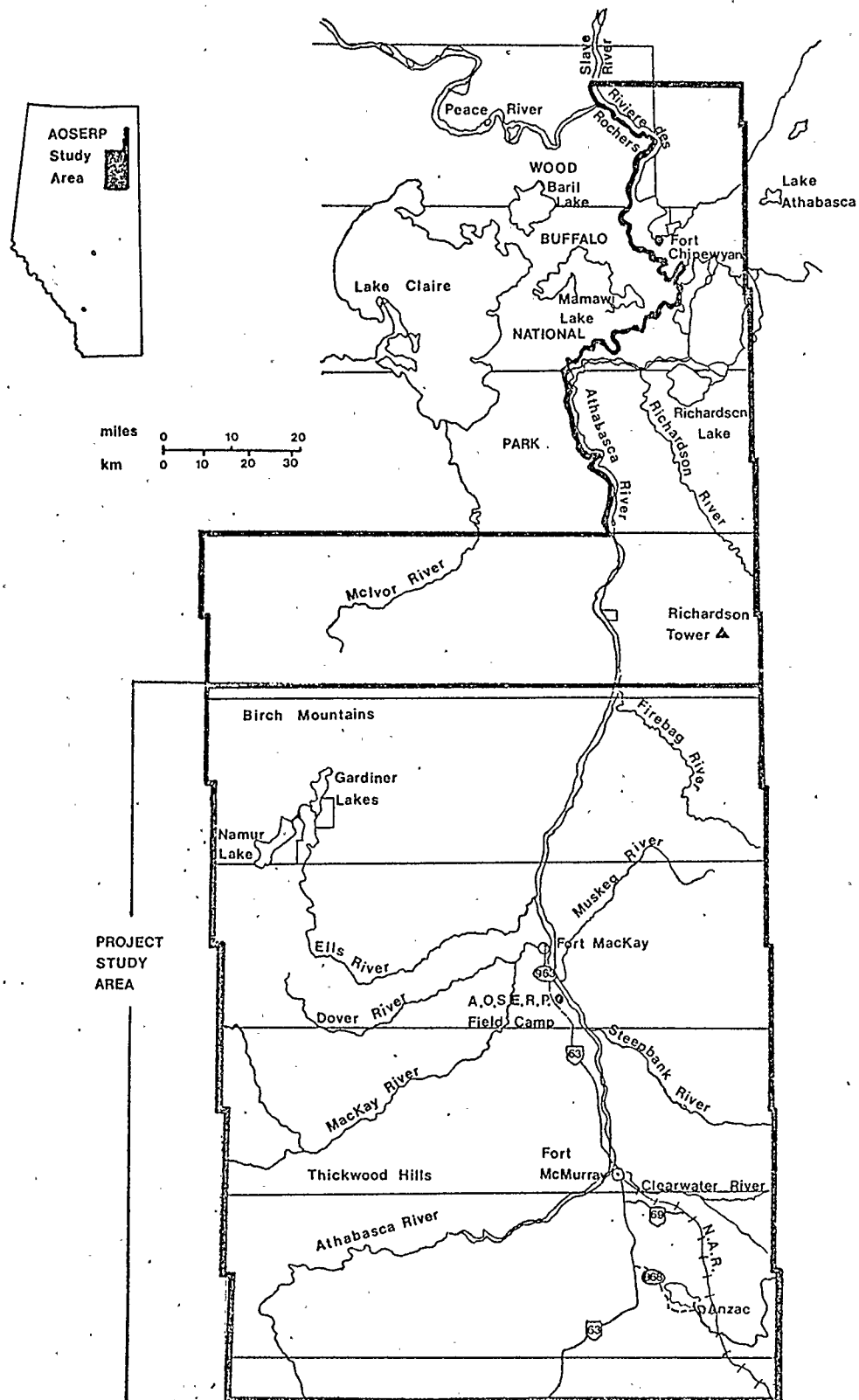


Figure 1-1. DEFINITION OF AOSERP AND PROJECT STUDY AREA.

above the river.

The project study area can be approximated by a rectangle having as its corners: Twp. 84, R. 1; Twp. 84, R. 18; Twp. 101, R. 18; Twp. 101, R. 1. This rectangle covers 30,000 square kilometres.

This large area was registered to 127 treaty Indian, Metis, and white trappers from Fort McMurray, Fort MacKay, and Anzac in 1975/76. [1] The section following this one explains the relationship of the three communities and the three ethnic groups mentioned, to the history of trapping in the study area.

[1] In the 1975/76 season, 125 individuals from these 3 communities had registered traplines or trapping areas. The remaining ten or so individuals having lines in the study area come from Calling Lake, Chipewyan Lakes, Desmarais, Edmonton, Fort Chipewyan, Janvier, Lac La Biche, and La Loche, Saskatchewan.

2. HISTORY OF TRAPPING IN THE STUDY REGION

The purpose of this section is to provide a historical context for the current changes in trapping patterns in the project study area. It emphasizes the effect that particular outside events have had on trapping in the area, particularly the changes in trapper ethnicity. This historical review is divided into four periods; the period prior to white contact, the early fur trade, the transportation period, and recent history.

It should be noted that, the project study area was not a historically relevant unit in itself until the 20th century development of the oil sands. Prior to that it was treated by historians as a minor part of the Mackenzie basin. [1] The main reason for this is that its settlements (Fort McMurray, Fort MacKay, and Anzac), came relatively late to the Mackenzie basin, and never were very important to the fur trade. These settlements were dwarfed by Fort Chipewyan (320 kilometres downstream from Fort McMurray), which is the oldest European settlement in Alberta (Troost in Sims, 1975), and was, in its heyday, the headquarters and crossroads of the northwest (MacGregor, 1974).

[1] This section makes reference to three spatial units. The Lower Mackenzie basin refers to the watersheds of the Peace River in northern Alberta, the Athabasca River watershed below Lesser Slave River, and the total Hay, Slave, Fond du Lac, and Mackenzie River watersheds. Within this unit is the lower Athabasca basin, referring to the Athabasca watershed below Athabasca town, including Lake Athabasca. The project study area has already been defined, and is within the lower Athabasca basin.

2.1. PERIOD PRIOR TO WHITE CONTACT (PRE-1750).

According to Alexander Mackenzie, three tribes inhabited the Mackenzie basin in the late 18th century; the Cree, Beaver, and Chipewyan (Dempsey, 1974).

The Woodland Cree were among the first tribes to meet the traders on Hudson Bay more than a century ago, and at that time, Cree hunting territory stopped east of northern Alberta. In fact, the Beaver were then the only inhabitants of the project study area (Dempsey, 1974). The Beaver were pushed westward by the Chipewyan from the north and the Cree from the south and east until, by the late 18th century only the Cree and Chipewyan were hunting in the lower Athabasca basin.

The Woodland Cree were living on ungulates, small animals, bears, and fish. They travelled in small family units to pursue game, and met with other tribal members for ceremonies or at early trading posts. Early tools included bows and arrows, sinew snares, and eagle claw fish hooks. Pursuit of food was their most important activity and, unlike the Plains Cree, they did not develop a complex society or strong tribal identity (Dempsey, 1974).

The Chipewyan, like the Cree, depended on hunting and gathering for subsistence, and travelled with the food supply, in a defined territory. The region they inhabited in the early 1700's covered an area north and east of Lake Athabasca, south to the Churchill River, and northeast from there to Hudson Bay. This is the subarctic region bordering on the tundra, and is the home of

the migrating caribou. Caribou and moose, supplemented with small game, fish and berries, were the Chipewyan's major foods.

Local Chipewyan bands consisted of extended family units of 25-50 individuals, and groups of them would settle into temporary summer fishing camps or winter villages of usually less than one hundred people. Their homes were portable, since the village sites were only temporary (VanStone in Marino, 1975).

Thus it can be seen that, prior to the coming of the fur trade to the lower Athabasca basin, the Indians who were to invade that region were wanderers in small groups, entirely dependent on local resources for their existence.

2.2. THE EARLY FUR TRADING PERIOD (1750-1890)

As the fur traders moved westward from Hudson Bay, the Cree Indians moved with them. Knives, guns and other useful items were available in exchange for furs and food; the Cree began to concentrate on trapping and hunting in order to obtain these trade items. They apparently had begun to deplete the animal resources in their former area, and this may be one of the reasons they expanded their territory. A fur trader in the late 1700's observed:

Either to avoid Europeans, or in order to search for furs to barter, or because food grew scarce by the large numbers of animals destroyed for their furs and skins, one or more of these reasons has caused them [the Cree] gradually to retire farther inland...

(Andrew Graham quoted in Dempsey, pp. 33-34).

Dempsey notes further:

Others remained close to the traders, living both by trapping and providing fresh meat to the posts. (p.34).

The Cree began to adapt their culture to that of the fur trading Europeans they came in contact with, and often, Cree women married these traders (Dempsey, 1974).

The Chipewyan began to trade with the Europeans at Hudson's Bay in the early 1700's. They also traded for guns and ammunition, which gave them the power to advance westward and southward. By around 1760, they drove the Cree away from Lake Athabasca (Dempsey, 1974). A serious epidemic of smallpox hit both tribes in 1781 and this, along with the peacemaking of the fur traders, may have prevented further warfare between the two groups.

The first posts built for the Athabasca watershed trade, were established by the independent traders Thomas Frobisher and Peter Pond. The former built the Ile-a-la-Crosse post in 1776, and the latter established a post near the present site of Embarras Portage in 1778 (MacGregor, 1974). These were important to the Indians of the area because they ended the need to take furs all the way to Fort Churchill on Hudson Bay. The first of many posts on Lake Athabasca was Roderick Mackenzie's Fort Chipewyan, a North-West Company post built in 1789. From that time until the start of the transportation period, Fort Chipewyan was the most important post in the Mackenzie basin.

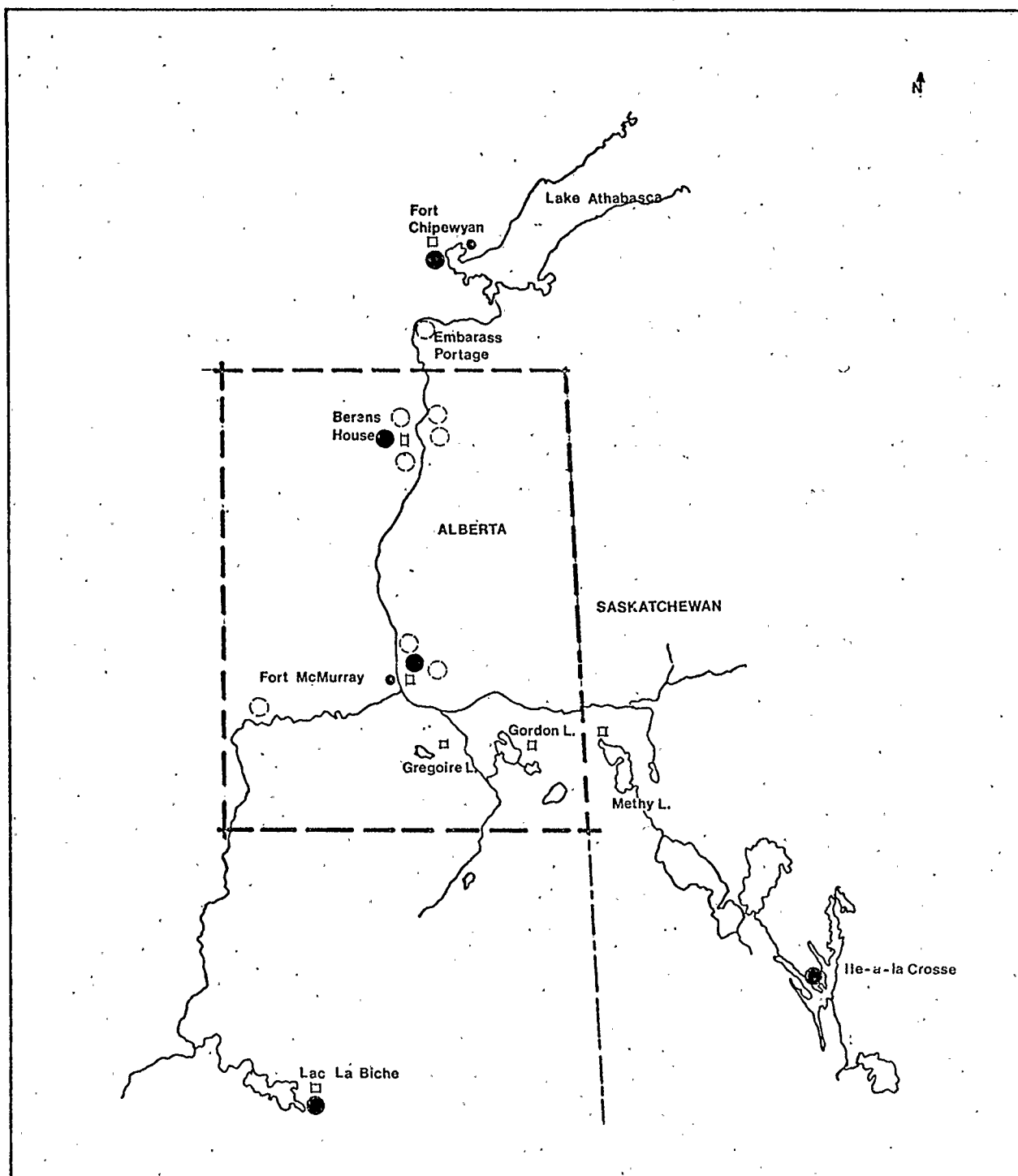


Figure 2-1. TRADING POSTS AND SETTLEMENTS IN AND AROUND THE STUDY AREA (1776-1890)

The presence of the traders had several bad effects on the Indians. The historical documents of the time describe the havoc that European diseases wrecked on them. MacGregor notes:

Serious outbreaks of diseases are recorded so often that in that regard it is almost impossible to tell the difference between what was normal and what was exceptional.

(p. 57).

Alcoholism was another often-mentioned problem in the traders' journals. Its peak effect occurred at the time of the Hudson's Bay - North-West Company rivalry around Lake Athabasca (1799-1821). This rivalry for control of the Athabasca fur trade was very hard on the Indian people, as the rival companies stopped at nothing to procure the loyalties of Indian hunters and trappers. When the two companies merged in 1821, the flow of liquor to the Indians was greatly reduced.

Although the focal point during this period was the area around Fort Chipewyan, several short-lived posts were built along the lower Athabasca River. The first notation of these came from the journals of Philip Turnor and Peter Fidler, who surveyed the river in 1791. They noted the presence of three outposts, two of which were abandoned (MacGregor, 1974). At different times there were four outposts built near the present Fort McMurray townsite before H.J. Moberly built the first continuously-inhabited one in 1870.

The Fort MacKay vicinity saw at least five posts built since the late 18th century. Two of them were built during the competition days of the Hudson's Bay and the North-West Companies. Berens House, built around the time of the amalgamation of the companies, closed before 1848. The present townsite of Fort MacKay was established around 1872 by the Hudson's Bay Company. It was then called the "Little Red River Post".

The various journal accounts give the impression that these posts were built for things other than the collection of furs (with the exception of the Little Red River Post). [2] This information, combined with the transient nature of these posts, make it probable that most of the furs obtained in the project study area were taken directly to Fort Chipewyan or Ile-a-la-Crosse. However, individual Indians would vary the posts they did their trading at, particularly during lean years (personal communication, H. Dempsey). [3]

Historical writings show that the project study area was used by both Crees and Chipewyans in the 19th century. For example, Mathewson writes:

[2] The company posts near present-day Fort MacKay were built to help supply Fort Chipewyan with food. Moberly built Fort McMurray in 1870 to be the terminus of the proposed steamboat route. For a discussion on these forts, see Chalmers (1974) and Marino (1975).

[3] Mr. Hugh Dempsey, Archivist, Glenbow Museum, Calgary, Alberta.

A small group of Crees, 15 to 40 hunters, regularly travelled along the Athabasca River in the late 1700's and early 1800's. By the 1820's, the band wintered in the area of the Bark [Birch] Mountains which was between three and seven days' journey from Fort Chipewyan....Although the number of Cree on the Birch Mountains caused a scarcity of animals there by the 1830's, they continued to hunt there for several decades....The Cree hunting grounds are all within 100 miles of the settlement [Fort Chipewyan] in winter.
(in Sims, 1975, p. 13).

MacGregor (1974) also writes that Beaver, Cree, and Chipewyan Indians hunted around Namur and Margaret Lakes in the winter.

Although it is not known with certainty how animals were being trapped at that time, Dempsey (1974) generalized that the Cree often dug beaver and muskrats from their lodges, and also used snares, deadfalls, and wooden traps. It is known that the Hudson's Bay Company tried to influence the Indian trappers to take pelts only at certain times of the year (MacGregor, 1974). The Indians were persuaded not to trap beaver in the summer, when the pelts were worthless. This represents an important change in subsistence patterns for the Indian, who, prior to the fur trade, was concerned with beaver meat and not beaver pelts.

The Hudson's Bay Company probably repressed the introduction of the steel trap into the area in order to conserve furbearing animals. Hugh Dempsey (personal communication) believes the steel trap was not introduced until about 1870, by "Twelve Foot" Davis, an independent trader from the Peace River country.

As the Indians came to rely more and more on the trading posts, they became no longer wanderers, but permanent settlers.

During the early fur trade, the Indians visited the Forts in spring and autumn. The seasonal cycle involved receiving credits at the posts in October, leaving for the winter hunts and returning in March to trade the catches. Increasing competition between the trading companies affected the seasonal pattern. Since company men went out to the Indian camps to procure furs, the bands had no need to move over as large a territory as previously.

(Mathewson in Sims, 1975, p. 13).

During this time [1821-1871] Cree and Chipewyan bands came to the posts for longer stays and their migrations were curtailed. More hunting and trapping activities took place within the immediate vicinity of the posts.

(Sims, 1975, p. 14).

This change occurred gradually since the beginning of the Athabasca fur trade, and was virtually complete by the late 19th century (VanStone in Marino, 1975).

No discussion of the fur trading days in the lower Athabasca would be complete without mention of the role of the Metis. Some Metis were born locally from the union of early Fort Chipewyan traders and Indian (particularly Cree) women (Dempsey, 1974). These Metis joined the ranks of Fort Chipewyan's social elite; the clerks and traders.

Other Metis migrated into the area after the Red River Rebellion of 1869-70. Some became hunters and trappers, following the Indian way of life. Red River Metis who settled at Lac La Biche and Athabasca Landing were later to play an important role in the Transportation Period.

The first important mission to affect the natives using the project study area, was a Catholic mission built at Fort Chipewyan in 1851. A Catholic mission was established at Lac La Biche a year later. The latter drew Cree and Metis families, including several soon-to-be-famous Athabasca River scowmen.

There can be little doubt that the missions had a major impact on the area trappers through their power to draw people to settlements. By taking care of the sick and infirm, they added to the number of native individuals occupying permanent settlements. Even more significant was their move to set up schools for native children. Mathewson writes:

...it created a positive draw to the settlement for natives who wished to visit their children, and prolonged the period when they camped at Fort Chipewyan....They learnt skills other than those required to earn a living in the bush, and could perceive certain advantages in settlement life.
(in Sims, 1975, p. 15).

The influence of the missions set the stage for the next period in the history of the lower Athabasca; when steamers would travel its waters and its native users would sign a treaty.

2.3. THE TRANSPORTATION PERIOD (1880-1915).

The expansion of the Church into Hudson's Bay territory increased the demand for a more efficient means of transportation from the South. With the coming of the CPR to Calgary in 1883, and to Edmonton soon after, the time was ripe for steamers to be introduced into the North. The "Graham" was built in 1884 to

transport people and goods from Graham's Landing (Fort Fitzgerald) to the tiny settlement of Fort McMurray. They would then be transferred to scows and taken over the treacherous Grand Rapids to Athabasca Landing. From there, they would be freighted overland to Edmonton (figure 2-2).

The development of this transportation system caused some major changes in the region. Fort Chipewyan declined in importance while the fledgling Fort McMurray grew. The scows provided employment to an increasing number of native people. So did wood cutting for fuel along the route of the steamer. MacGregor (1974) noted that a number of trappers took up woodcutting as a second occupation, and this added \$500 a year to many an income.

It is likely that ancestors of Fort McMurray and Fort MacKay residents earned their living in those days through combinations of trapping, hunting, woodcutting, transport, and trading. Marino (1975) makes a good case for this by connecting names of past traders and scowmen to current Fort MacKay residents.

The steamers also served to open up the North to a host of independent traders. Cutthroat competition forced most to vacate the Fort Chipewyan area by 1890, but within a few years, some of them set up shop on the Clearwater watershed. This may have been the beginning of the Anzac settlement, and a lure to bring Chipewyans south:

...during the next five years [1890-1895] various traders began re-entering the far North and also setting up posts on the Pelican River, at Wabasca, Heart Lake, and at Gregoire and Gordon lakes. From 1892 on,

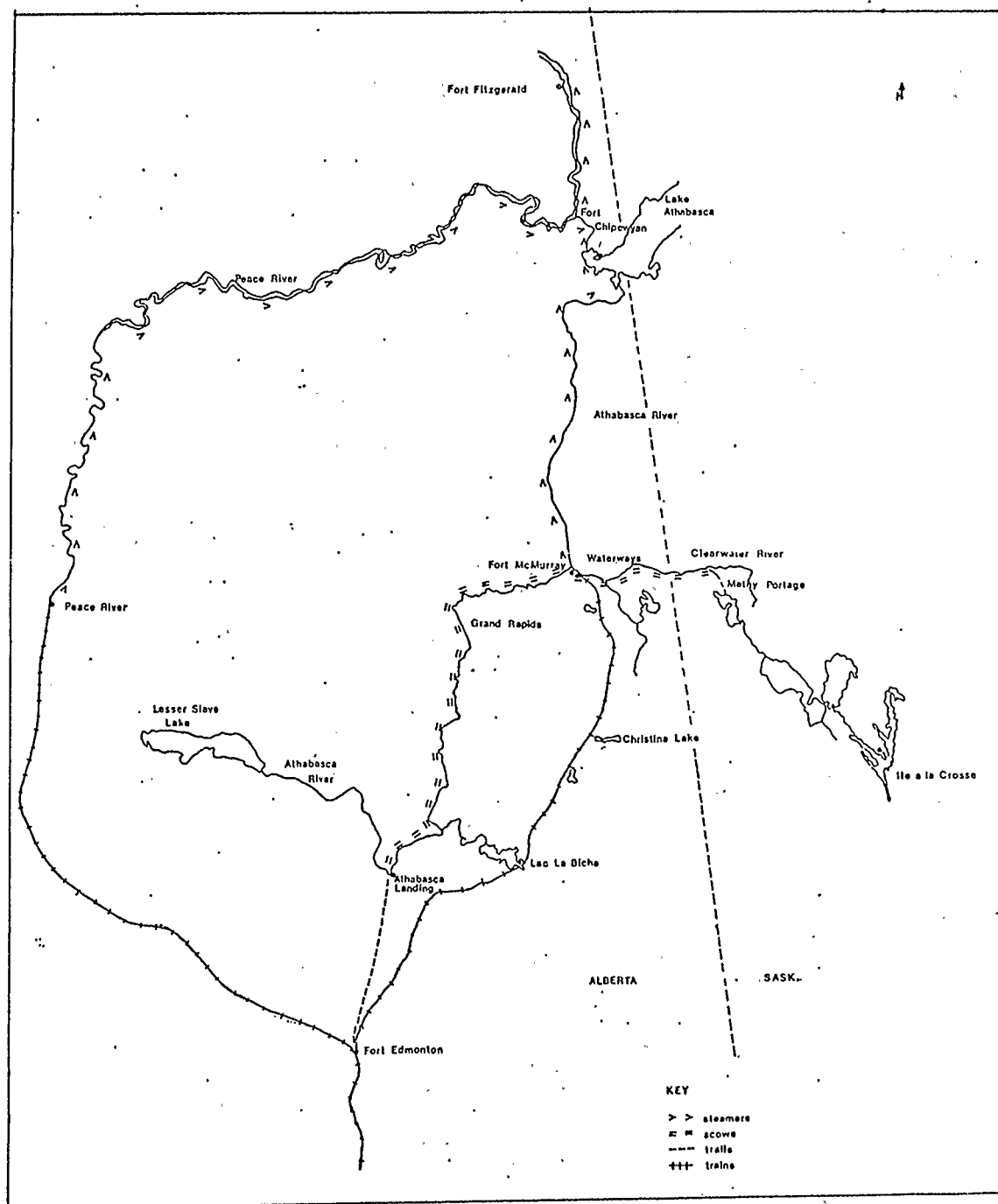


Figure 2-2. EARLY TRANSPORTATION ROUTES

however, there were always a few Chipewyans who brought their own furs to Edmonton....Undoubtedly these natives did not follow the river from Fort McMurray but worked their way across country to Lac La Biche by the route that some traders used in winter-time. The traders' dogs needed fish for food and the Athabasca was not generous. But by heading south from Fort McMurray to Gregoire Lake and thence keeping close to the route which years later the Alberta Great Waterways Railway took, they could stop at Christina, Wiau and Heart Lakes on their way to Lac La Biche. A few Chipewyans had built shacks at most of these lakes and from them the travellers obtained the necessary fish. Similarly, the Chipewyans from Lake Athabasca could stop over with their relatives and enjoy a social evening before pressing on to Edmonton.

(MacGregor, 1974, pp. 91-92).

One important event that forever changed trapping and native settlement patterns was the Klondike Gold Rush. Gold seekers began pouring into the North in 1897; almost 800 of them passed through Fort McMurray that year (MacGregor, 1974). Charles Mair (1908) cites the Gold Rush as one major reason for the signing of Treaty 8.

The gold-seekers plunged into the wilderness of Athabasca without hesitation....Some...exhibited on the way a congenital contempt for the Indian's rights. At various places his horses were killed, his dogs shot, his bear-traps broken up. An outcry arose in consequence, which inevitably would have led to reprisals and bloodshed had not the Government stepped in and forestalled further trouble by a prompt recognition of the natives title.

(pp. 23-24).

The Klondike Gold Rush was probably responsible for introducing white trappers to the Athabasca-Mackenzie basin. Fumoleau (1975) claims that these new residents changed the nature of the area fur trade for the worst. He blames them for overintense and reckless trapping, including the introduction of poison to kill

furbearers. Its use by white and Metis trappers invoked hardships on the Indian by depleting fur and game populations and the poisoning of Indian hunting dogs. [4]

Treaty 8 was signed on August 4, 1899 by representatives of the Indians considered to be living in the Fort McMurray area. One hundred and seventy-nine Indians took treaty, including inhabitants living around Fort MacKay, Gregoire Lake, and Janvier (south of the project study area). The Half-Breed Claims Commission soon followed to give "scrip" to those Metis who were "living like whites" (Marino, 1975). [5] The actual reserves were laid out in 1915; land was set aside at Fort MacKay, Namur Lake, Namur River, Gregoire Lake, the Clearwater River, and Janvier.

Fumoleau (1975) persuasively argues that the federal government wanted Treaty 8 for other reasons beside insuring the well-being of the Indians. Among these reasons were the anticipation of white settlement in the area, and natural resource exploitation in the North. Whatever its intention, Treaty 8 had spacial implications for the Indians who were trapping and hunting in the lower Athabasca basin. The treaty stipulated annual payments and also, free education for the Indian children. Thus, like the missions, they expanded the drawing power of the settlements.

[4] See Fumoleau (1975, p. 52). These points came from two NWMP Commissioners' reports.

[5] Scrip is a certificate redeemable for either cash or land, and given to Metis families at the time of the Indian treaties. Heads of families got scrip worth \$160 or 160 acres of land (Hall, 1977).

2.4. RECENT HISTORY (1915-PRESENT).

The scow-steamer transportation system flourished in northern Alberta until about 1915 when one railroad connected Edmonton to the modern town of Peace River, and another was being built to connect the capital city with Waterways. The latter was completed in 1926, effectively ending the use of scows upstream of Fort McMurray. This probably served to put some Metis out of work, and move others into the Fort McMurray area (they were previously headquartered at Lac La Biche and Athabasca Landing). The modern era for Fort McMurray had begun.

The Alberta Great Waterways Railroad (AGW) did one other thing; it brought more white trappers into the project study area. One account of the early days of the AGW told of a train conductor who set traps along the route of the train (MacGregor, 1974). Another account of a trip made in the "dirty thirties" mentioned the presence of trappers on the train (Munsterhjelm in Chalmers, 1974). A wave of white trappers must have come up in that decade as there was no work to be found in the South.

But white trappers were living around Fort McMurray even before the end of steel reached Waterways. MacGregor (1974) notes that white trappers were living along the Clearwater River in 1914. He adds:

...the previous two or three years had seen a considerable influx of white trappers who fanned out into the muskegs and timbered hills well to the north of the hamlet [Fort McMurray].

(p.146).

MacGregor (1974) notes a family of former farmers trapping out of Fort McMurray as far away as the Firebag River.

Those were the days of itinerant trapping, when a trapper could get a license and trap anywhere on crown land. Some trapped out of settlements like Fort McMurray and Fort MacKay. Others started small, informal hamlets in the bush or along the path of the Northern Alberta Railway. [6] Traplines were "managed" by the federal Department of Indian Affairs, who paid for treaty Indian licenses; and the Alberta Department of Lands and Forests, who issued non-treaty licenses.

The first step toward the current system of trapline management was taken around 1940, when the Alberta Forest Service began to register traplines.

Mr. Winston Plews, a trapper and former forest officer, recalls some of the problems the Forest Service had in registering the lines. In those days, not everyone could read maps, and trappers were asked to locate their lines on a map. Some mistakes were made, occasionally costing a trapper an important part of his line.

[6] Micheal Cardinal, a Metis trapper, told the researcher about an old trapper hamlet, located near Algar Lake, 100 kilometres southwest of Fort McMurray. The hamlet had about 3 or 4 houses. Micheal's father also had a "homestead" on Algar Lake at the turn of the century. He trapped and raised vegetables there. Remains of the old house can still be found at the east end of the lake.

An example of a railroad trapping still exists. Cheecham, located in the project study area, just south of Anzac, has three houses, all lived in by trappers.

At the time of the mapping, many lines were reserved for treaty Indians. (This may have been to protect them from the competitive white trappers). These "treaty lines" are still in existence today, and are registered only to treaty Indians. [7]

Plews also recalled that a second attempt to accurately locate traplines began in 1953. At that time an attempt was made to change traplines into trapping areas. This changeover to trapping areas is nearly complete today. [8]

The administration of trapping areas (traplines) was slowly transferred from the Alberta Department of Lands and Forests to the Fish and Wildlife Division (Department of Recreation, Parks and Wildlife), from 1955-1967. Fish and Wildlife has had sole responsibility for trapline administration (and management) since that time (personal communication, C. Hambling).

While traplines were being registered and managed, one important development was occurring in the Fort McMurray area. This was the development of the oil sands. The first serious commercial attempt to mine the sands took place at Bitumount in the 1920's. It is not known what impact this had on trapping, but it

[7] No official policy exists that distinguishes "treaty lines" from "non-treaty lines". Nevertheless, in actual practice, the "treaty lines" are not available to non-treaty trappers.

[8] Chuck Hambling (Trapline Administrator, Fish and Wildlife Division, Edmonton), gave one reason for the change; to make trapping more economically viable. A trapping area can often be serviced with one main cabin instead of a number of line cabins that a long line may need.

did lead to the larger Great Canadian Oil Sands (GCOS) plant, built in 1963. One trapper recalls that natives living in the then-isolated Fort MacKay, were able to get employment during construction. He recalls that native workers had to travel by dog team to get back and forth from settlement to plant site every day (personal communication, W. Grandjambe). [9]

This may have been the first employment opportunity for a number of Fort MacKay residents that was available during trapping season. (Commuting to Fort McMurray was not a viable alternative because few had cars then, or now, for that matter.).

The employment situation in Anzac was slightly better than that in Fort MacKay. K.P. Perry, a Northern Alberta Railroad General Manager notes:

Although the station shelter was not constructed at Anzac until 1939, the existence of the railway line probably encourage a few people to settle near Anzac, as servicing of the line could provide occasional jobs.

(in Hastie, 1976, p. 5).

Other small developments occurred near enough to Anzac to offer alternative employment to trappers. One was the establishment of the mid-Canada radar site, seventeen miles southwest of Anzac, in 1957. In the early 1960's the Forest Service opened a park near Anzac, and around the same time, Amoco Canada began an in-situ pilot project in the Gregoire Indian Reserve (Hastie,

[9] Wilfred Grandjambe, a Fort MacKay trapper.

1976). It is not known how many trappers around Anzac actually worked at these jobs.

2.5. SUMMARY

A historical review of the lower Athabasca area shows that successive influences from the South resulted in changes in trapping patterns and the ethnic makeup of the trappers. Starting with the establishment of trading posts, native people in the area altered their way of life from one of total subsistence off the land to one of partial dependency on the traders. The establishment of a permanent post at Fort Chipewyan (and much later, at Fort MacKay and Fort McMurray) began to change the settlement pattern of the area Indians from one of restricted wanderers to one of settlement dwellers. This change was helped along by the establishment of missions, the Klondike, the signing of Treaty 8, and the opening up of the area by transportation and resource developments. As this pattern progressed, the range of the Indian trappers contracted, and white trappers invaded the area in increasing numbers. The role of the Metis in trapping the area is less clear because some of these people lived with the Indians while others struck out on their own or with the traders.

It is difficult to trace the pattern of Indian and Metis trappers in the project study area during the fur trading period because there were no permanent trading posts there until 1870. It appears that the whole area was being used by Cree, Chipewyan, and Metis hunters and trappers, especially around the Athabasca

River and the Birch Mountains. Historical documentation of trapping in the area improves considerably with the permanent establishment of Fort McMurray in 1870.

Fort McMurray is now a boom town, and the recent employment opportunities, as well as the expansion of its oil sands developments into current trapping areas will, no doubt, have further effects on trappers and trapping patterns. To determine that effect is one of the main functions of this report.

3. METHODOLOGY

This section of the report deals with the methods used to collect information for the study, the rationale for the methodology, and the subsequent analysis of the information collected. The consideration of cross-cultural communication between the researcher and non-white trappers is of prime importance here, and will therefore be discussed at length. This should be applicable to anyone attempting a cross-cultural study involving Canadian Indians or Metis.

The study was primarily aimed at obtaining information from the regions' trappers, as the secondary information that exists lacks sufficient factual information about the trappers' background and trapping patterns. Also, the records do not supply information regarding trapper motivation. Thus, the study was, from the beginning, dependent on communication with the trappers, of whom more than two thirds are Indian and Metis.

3.1. CROSS-CULTURAL COMMUNICATION: CONSIDERATIONS FOR NORTHERN INDIANS & METIS.

Hall and Whyte nicely expressed the relationship between culture and communication in a paper directed to North Americans doing business overseas.

Culture affects communication in various ways. It determines the time and timing of interpersonal events, the places where it is appropriate to discuss particular topics, the physical distance separating one speaker from another, the tone of voice that is appropriate to the subject matter....Culture includes the relationship of what is said to what is meant --as

when "no" means "maybe" and "tomorrow" means "never".
(1960, p. 6).

It is important to understand the effect of native culture on the communication patterns of the Indian and Metis trappers in order to (1) plan an appropriate communication strategy for collecting the information desired, and (2) to ensure that the information collected is properly interpreted.

Honigmann (in Zentner, 1967) has cited six dominant orientations of early northern Athabaskan Indian societies. Two of these, deference and emotional isolation, are particularly relevant to communication with native people in the project study area. Zentner (1967) describes deference as

...a motivational orientation directed toward the maintenance of personal esteem, of assurance to the individual that he is liked and respected.
(p. 80).

It manifests itself as a tendency to submit to the opinions of others, especially people who are defined as experts. Tester (1975) points out that deference often causes a confusing situation because natives will appear to support the suggestions of an "expert" in their presence, and later on, they will "change their mind". What actually occurred is native deference in the presence of the "experts". Deference is part of the reason for general non-assertiveness in Indians, a characteristic that has been related to Woodland Cree by Chance (1968).

The characteristic of emotional isolation in northern natives creates a second communication problem for this study. It results in an emotional aloofness or detachment on the part of the native in certain circumstances, such as when they are asked to discuss their feelings. Zentner (1967) points out that northern natives may repress the spontaneous expression of strong feelings as a result of emotional isolation. This can lead to difficulty for the researcher in assessing the motivations of native individuals.

As previously mentioned, northern natives are often non-assertive. Chance (1968) describes this as an adaptation from traditional Woodland Cree life when aggressive behavior would have been a threat to group survival. (This should apply to Chipewyans also, as they also lived and hunted in small groups.). Northern native non-assertiveness manifests itself in deference, and also in one other characteristic that can affect cross-cultural communication; a general reluctance to interfere in the lives of others. Good Tracks (1973) discusses non-interference for Indians in general, emphasizing that not only do they not interfere in each other's lives, but they expect others to do the same. Where white people tolerate a large amount of interference; suggesting a course of action an Indian should take or prying into his personal feelings may be intolerable. In line with the characteristic of non-assertiveness, the Indian will not directly address such a transgression. Instead, he will either look away, pretend not to hear, or change the subject. [1]

Another characteristic frequently mentioned in literature about native people is that they have a different concept of time from that of the white society. [2] Native people measure time less by a calendar than by the succession of natural events (such as seasons). This cultural difference must be taken into account when communicating with northern native people. For example, asking when an event occurred, the duration of the event, or when it usually occurs, may produce an answer in a non-white time frame. Even if the answer is in calendar time, the researcher should consider the possibility that the individual used his own time reference and translated it into approximate calendar time in order to please the researcher.

Northern native people also invoke their special time frame when responding to questions. When a native person is spoken to, he may not respond right away since he prefers to think out an answer and likely does not perceive the urgency of a quick response (Tester, 1975). Therefore in questioning a native person, a researcher must allow enough time for the person to give a response. Tester (1975) points out one negative result of not doing this. He notes that when native people do not respond

[1] One way that Indians and Metis in the project study area tried to tell me I was interfering was to say, "You ask hard questions". Note the use of the vague adjective, "hard", instead of something more direct.

[2] For example, Zentner (1967, p. 80) discusses the difference between the time orientation of whites and northern Athapaskan Indians.

right away to questions or suggestions of white planners, the planner often takes this as a sign of non-understanding. The planner then repeats the communication, thus changing its level from a communication between adults to one of condescension (such as a parent speaking to a child). The significance of this is not lost on Indian people.

Indian ambiguity is closely related to the time concept. Levasseur (n.d.) points out that the Indian tends not to plan for the future due to his traditional reliance on the physical environment (which can change at any time). Thus it is not surprising that they tend to be ambiguous when asked to take a position about future plans (Redbird, 1973). This has obvious implications in communication with northern native people about their future plans.

The preceeding discussion of characteristics of northern native people is by no means exhaustive. Other cultural differences, such as spatial orientation, dependence, and views on money and religion, are less relevant to the cross-cultural communication process, but just as relevant to the interpretation of the information collected.

The reader is referred to Zentner (1967), Chance (1968), Redbird (1973), Levasseur (n.d.), Walsh (1971), and Cardinal (1969) for a detailed discussion of the aforementioned Indian characteristics.

From the previous discussion, one might get the idea that communication between a white researcher and northern Indians or Metis is virtually impossible. This is not the opinion of the researcher. Virtually every native person living in Canada today has been subject to the acculturative forces of the dominant white society. This contact has greatly reduced the communication barrier, probably to the degree that acculturation has taken place. In the case of the project study area, it can be said that the overwhelming majority of native trappers from Fort McMurray, Fort MacKay, and Anzac have had extensive contact with the white majority; through summer and winter employment, schooling, contacts with government representatives and police, shopping trips, etc. The primary purpose in discussing these cultural differences is to make the reader aware that these differences must be considered by the researcher in any attempt to collect information from northern native people.

3.2. OTHER CONSIDERATIONS FOR DOING RESEARCH IN NORTHERN NATIVE COMMUNITIES

Unfortunately for the white researcher, his intrusion into northern native communities is not always treated as a blessing by the residents. Part of the reason for this is the traditional Indian leaning towards non-interference in the activities of others. There are also things that the intruder can be blamed for doing (or not doing) that do not help native people. Here are some relevant comments made by native authors:

We know from our past experience that government research by white researchers has never improved our lives....After all of these things are written in their jargon, they go away and neither they nor their reports are ever seen again.

Nahanni (1977, p. 23).

Indian scholars have estimated that our poverty "problem" could have been "solved" if all the money spent on anthropologists and sociologists of poverty were given in grants to the Indian tribes they studied.

Manuel and Posluns (1974, p. 159).

Critics and researchers alike suggest that information collected during the study be shared with the community where it was obtained. Researchers doing work in Indian communities are often caught in the middle of the interests of the paying client versus the interests of the community. The researcher should be obligated to both, as the client pays for the study with money, and the community pays with time donated by individuals. Thus, both have "paid" for the information as well as the results. [3]

Support from a native community is essential for a study because it allows respondents to be freer in providing information. That the community will tend to support a researcher who shares information is evidenced by the following quote from Manuel and

[3] One way to ensure the client's permission to share the findings of the study with the people being studied is to have permission written into the research contract. Unfortunately, this was not done for this trapper study, and the researcher was not permitted to present study findings to the trappers until after the study is released.

Posluns:

What distinguished...was mainly his willingness to share [information]....So we were as assured by his manner and style as by his words that we would be as high on his list of loyalties as any sponsoring agency.

(1974, pp. 159-160).

Sharing information during the study has one other advantage; it provides the researcher with a feedback mechanism. Thus by sharing information, the researcher can gauge local opinion regarding the accuracy of what he thinks he has learned. This is an important check against the cross-cultural communication problems already alluded to.

Not only should information be shared with the community being studied; the community is also entitled to know why the study is being done. Support for this idea comes from general research methodology literature, such as Stacy (1969) and Dean et. al. (1969). One argument against disclosure of the purpose of the study is that it may put informants on their guard, thus biasing their responses. However, in the case of native communities, the suspicion created by not disclosing the purpose of the study may create bad feelings and a subsequent reluctance to reveal information. [4]

[4] This may be less applicable to participant observation (as opposed to interviewing) when the observer lives among native people for a year or more. For example, Braroe (1975) lived among a band of Plains Cree without initially telling them about the study. He notes that the Indians originated and dispelled several theories about his presence. Yet, due to the time he spent among the band (and probably his personality), Braroe

The last consideration to be mentioned here is that when interviewing native people, confidentiality should be both promised and respected (Braroe, 1975, and Stacy, 1969). This is plain common sense when studying a group of people who do not like their privacy invaded.

In conclusion, native communities have justifiably become very suspicious of white intruders; anthropologists, planners, sociologists, and consultants. This is due in part to the use of inappropriate research methodology, and to the frequency of intrusion in native communities. This, added to the perception of native people that they have not been helped in the past by the intrusions (although help was often promised), make it important for the researcher to (1) make his intentions clear, (2) share his results with the northern native community, during the actual research and when it is completed, and (3) to offer and keep a promise of confidentiality to the subjects of the study.

3.3. TECHNIQUES AVAILABLE AND THEIR RELEVANCE TO THIS STUDY

A general literature search was conducted to determine the range of techniques available for collecting factual and non-factual information from human sources. The techniques eventually used were selected because they were best suited to communication with northern Indians and Metis.

appears not to have had any problems making friends or collecting information.

The literature search revealed that three basic techniques exist for collecting information from human sources; participant observation, interview schedules, and questionnaires. These techniques vary in the amount of structure they impose on the subject.

Participant observation is the most physically demanding on the researcher's time. The bulk of the time is spent on direct observation of, and social interaction with, the subjects of the study, but some time is also spent interviewing informants and respondents (McCall and Simmons, 1969). [5]

Participant observation allows the researcher to gain an insight into the attitudes and motivations of a community by observing the actions of its members. Dean (et. al., 1969) views this as an advantage over techniques that infer behavior by attempting to measure attitudes and motivations. This is because the relationship of attitude and motivation to behavior is not at all agreed upon by sociologists and psychologists (Liska, 1975). Another advantage cited for participant observation is that the technique is flexible enough to allow the researcher to redefine his problem, should his observations turn up unexpected information (Dean et. al., 1969). Finally, the technique gives the researcher the flexibility to probe a topic deeply, making the results less superficial (Dean et. al., 1969).

[5] An informant reveals information about other people and events he has observed. A respondent gives information about himself.

Participant observation has some problems associated with it. For one thing, information collected in such an unstructured format may be problematic for statistical treatment, especially since situational contexts are not randomly selected (Dean et. al., 1969). Secondly, a participant observer can bias a field situation without realizing it (Stacy, 1969, and Dean et. al., 1969). Examples of such biases are; (1) selection of informants the researcher is most comfortable with; (2) selective weighting of informant information; and (3) selective screening of information through the researcher's own perceptive mechanism resulting in the omission or distortion of relevant information.

The informality of participant observation is a major advantage for its use with northern native people. Tester (1975) points out that northern native people are uncomfortable with "experts", and they dislike being asked a lot of questions. Participant observation does not rely heavily on the questioning of subjects, and it puts the observer and his expertise (though not necessarily his biases) into the background.

Participant observation was used in this study, but to a much lesser extent than interviewing. It served to make native people comfortable in the researcher's presence, to collect information on trapline visits, and to clarify information obtained from interviews.

A second technique used to collect information from human sources is the questionnaire. The questionnaire is usually designed to get at peoples' attitudes, motivations, and

behaviors. A sample of people are asked to respond in a structured way to item sets, each of which relates to a dimension of an attitude (personal communication, Dr. J. Frideres). [6] For example, the researcher might be interested in the trapper's attitude towards the object , "trapping". One dimension of trapping is the difficulty of the work. The questionnaire might then contain a set of items that help to reveal the importance of that dimension to the subject's attitude toward "trapping". One such item might be, "How difficult is it for you to set a beaver snare under the ice?" Depending on the questionnaire technique used, the subject may be given a choice of adjectives (such as "very difficult", or "very easy"), or he may be asked to rank the difficulty of this activity against activities that are not a part of trapping. The major advantage of this technique is that the information collected lends itself to statistical treatment. However, no questionnaires were used in this study because it was felt that native people would not be comfortable with the rigidity and the formality of the technique.

The technique used most extensively in this study was the interview schedule. This involves an interview where the researcher brings with him (not necessarily on paper) a set of questions he wants answered. The researcher can vary the rigidity and formality of the interview schedule according to the needs

[6] Dr. J. Frideres, Dept. of Sociology, University of Calgary, Calgary, Alberta.

of the study. In general, this technique is less rigid and formal than the questionnaire, but more so than the participant observation technique. It allows the researcher to select subjects from a random sample, so it is more amenable to statistical treatment than data gathered through participant observation. Also, it allows the researcher to structure the situation, which produces more relevant information in a given time period than participant observation. This was particularly important for this study because the researcher had to learn about trappers from three communities in a span of only thirteen months.

The preceding discussion is only a summary of the kinds of techniques available for collecting information from human sources, and the relevance of these techniques to this trapper study.

The discussion now turns to the specific methodology used in this study.

3.4. METHODS USED IN DATA COLLECTION

Fieldwork for this project began in May, 1976, lasted through the summer, and was intermittent until May, 1977. The researcher took up residence in Anzac for the first two months in order to get adjusted to the lifestyle of native people in the area. The researcher moved to the AOSERP field camp (ten miles south of Fort MacKay) for the remainder of the field time, except for trapline visits, which involved overnight stays in trappers' line cabins. Fieldwork in the communities included interviews

and some participant observation. Observations were made primarily during informal visits to peoples' homes. The researcher was occasionally able to participate in activities such as water collecting, fishing, snowmobile repair, Christmas shopping, etc.

3.4.1. Fish and Wildlife Sources

Some information of a factual nature was initially available from the files of the Fish and Wildlife local office in Fort McMurray, as well as the administrative headquarters in Edmonton. The files are indexed by trapline (or trapping area) number, and provide a record of the trappers registered to each trapline that is complete back to 1965. [7] Each file has a record of all trapline applications, sworn affidavits listing the reported catch of trappers for each season, and any special written communication between the trapper and enforcement officials or administrators (such as complaints). [8] Fish and Wildlife also

[7] Fish and Wildlife officials are in the process of changing linear traplines into block-shaped trapping areas; however the researcher chooses to use the more conventional word, "trapline", to refer to trapping units in the project study area.

Some of the files have information dating back to the 1940's, when the Alberta Dept. of Lands and Forests managed the traplines.

[8] Trapline applications usually list the man's age, occupation, and most recent trapping experience. Only the age was used from these applications.

The use of trapline affidavits began in Alberta in the 1970/71 trapping season. At least 25% were missing from the files, mostly from the 1970/71 season. Others are missing because clerks forget to ask all trappers to fill them out, or

has a record of furs purchased by licensed buyers each year. These buyer records report the seller's name, registered trapline number, home residence, and the kind and numbers of pelts sold.

Fieldwork in the project study area was interspersed with examinations of these files, and also with interviews of Fish and Wildlife enforcement and management officials. The purpose of these interviews was to familiarize the researcher with the trapline management system, including its history, purpose, and flexibility to respond to the potential loss of large parcels of land currently being trapped in the project study area. The interviews were initially informal and exploratory in nature. Later, interviews were taped. The subjects were Mr. Marvin Doran, a local enforcement official in Fort McMurray (July 20, 1976), Mr. Chuck Hambling, a senior trapline administrator, Mr. Arlen Todd, a provincial fur biologist, and Mr. Dave Unger, who is responsible for trapper education in Alberta. The latter three officials, members of the Working Fur Committee in Alberta, were all interviewed on March 21, 1977, in Edmonton. [9]

because some trappers do not come into the office to renew the line.

[9] The Working Fur Committee is an ad hoc committee within the Dept. of Parks, Recreation and Wildlife in Alberta, set up to promote the fur industry in Alberta.

3.4.2. First Trapper Interviews

The first interview schedule was conducted from May to July, 1976, at the summer homes of trappers selected for the study. [10] Subjects were selected by random sample. A disproportional sample, stratified by community origin was used. Tables 3-1a and 3-1b break down the sample of sixty-three interviewed trappers by community and ethnic origin.

Table 3-1a. NUMBER OF TRAPPERS INTERVIEWED BY COMMUNITY OF ORIGIN, SUMMER, 1976.

	<u>McMurray</u>	<u>MacKay</u>	<u>Anzac</u>
# Reg. Trappers	80	31 (34) ¹	15 (17)
# Interviewed	35	16	12

¹Numbers in parenthesis include trappers with traplines, who did not officially register their lines in 1975/76.

Table 3-1b. NUMBER OF TRAPPERS INTERVIEWED BY ETHNIC ORIGIN, SUMMER, 1976.

	<u>Indian</u>	<u>Metis</u>	<u>White</u>
# Reg. Trappers	26 (28)	66 (69)	34
# Interviewed	15	31	17

The names and origins of trappers were obtained from a Fish and

[10] All but 5 of the trappers included in the study had homes in one of the 3 communities. Of the 5, 3 were located on the highway between Fort McMurray and Anzac, 1 was on the Clearwater River, and 1 lives in the bush about 60 miles west of Fort MacKay.

Wildlife list of registered trappers for the 1975/76 season in the Fort McMurray detachment area. [11] Trappers reporting residences outside the project study area (such as Edmonton, Lac La Biche, etc.), were not sampled.

Interviews were conducted in an informal, conversational manner. All but three of them were conducted in English. (The others were conducted in Cree through an interpreter.). Interviews varied in length from twenty minutes to three hours; the average was about one hour.

The questions asked of each trapper are listed in figure 3-1. The actual wording used was varied, but comparable. All but the most straightforward questions were phrased in an open-ended manner to promote detailed answers. All were phrased in as non-suggestive a manner as was possible. This was done to reduce the degree of deference.

The questions listed in table 3-2 can be classed into four groups; demographic, trapping/employment pattern, problems on the trapline, and trapper motivation. The last group was the most difficult to interpret. This was expected, and not considered a detriment to the interview schedule because the answers were used to help make up a second interview schedule that concentrated on trapper motivation.

[11] The boundaries of the Fort McMurray Detachment Area are slightly larger (in the north-south direction) than those of the project study area. One Fort McMurray trapper is known to trap in the Fort Chipewyan Detachment Area, immediately north. He was included in the first interviews.

Each interview began by explaining that the study was being done to learn how development in the area was affecting the trappers and their trapping. The subject was told that the researcher works for AOSERP and not Fish and Wildlife. This was emphasized because some of the trappers had a negative view of the latter. The trappers were also told that the information they gave would be treated as confidential.

Attempts were made to get the study known to trappers before they were actually interviewed. Four months prior to fieldwork, an exploratory trip was made by the researcher, at which time key community members in Fort MacKay and Anzac were told about the study. A trappers meeting was held in Anzac (advertised a week in advance) which attracted six of sixteen local trappers. The meeting helped to introduce the researcher to some of the problems trappers had in the area. The researcher also visited the band chief and the leader of the local Metis Association chapter in Fort MacKay. The purpose of the study was explained to them and they were asked permission to allow the researcher to conduct interviews in that community. This action paid an immediate dividend, as the chief (the late Marvin Orr) volunteered to act as an interpreter for the interviews that could not be conducted in English. In retrospect, the community visits and the trappers meeting prior to the start of interviews, were well worth the time and effort in terms of the good feelings they germinated between the researcher and the trappers.

I. DEMOGRAPHY

1. Age
2. Ethnic Origin
3. Education Level
4. How long have you lived in the area?

II. TRAPPING/WORKING PATTERN

5. Number of years of trapping experience.
6. Number of traps owned. How many are conibear?
Which are used primarily, snares or traps?
7. Number of cabins on the trapline.
Any put up within the last five years?
8. Travel to line by:
9. Get around on line by:
10. Trap alone or with others?
11. Effort: this past season and over the last five years,
if a change.
 - when were you on your line? For how long?
 - overnights or day trips?
 - what were you setting for?
12. Other employment this year and over the last five years,
if a change.

III. PROBLEMS ON THE TRAPLINE

13. How do you think development in the region has changed
your life? Has it affected your trapping?
14. Any problems with Fish and Wildlife, trapline registra-
tion, hunters, exploration outfits, etc?

IV. MOTIVATION

15. Dependent on trapping income or the bush for food?
 16. Any furs kept for clothing or other private use?
 17. Reason for trapping. Do you like your line? Why or why
not?
-

Figure 3-1. QUESTIONS FROM FIRST INTERVIEW SCHEDULE.
SUMMER, 1976.

3.4.3. Trapline Visits

During the 1976/77 trapping season, sixteen trappers on twelve different traplines were visited. With one exception, these visits were all conducted during the winter months of December, February, and March. Safety was the most important factor in determining which traplines would be visited. In most cases the researcher was travelling alone on a snowmobile in unknown territory, so the traplines selected were those where the trapper's main cabin was located along the Athabasca River or a winter road.

Ethnic origin and home community of the trapper were secondary considerations. Table 3-2 shows the ethnic and community origins of the trappers that were visited.

The purpose of these visits was to make firsthand observations of the trapper in his work setting. In particular, the researcher was interested in observing; (1) trapping methods, (2) the types of trails and roads used by the trapper, (3) damage due to seismic crews or others, (4) trapper diet, and (5) capital equipment used and its condition.

The location of the twelve traplines visited is shown in figure 3-2, along with the winter roads that were available for travel to these traplines (These roads are not opened every year, nor are they in every case the sole means of access for the trappers of these lines.). The majority of the visits lasted at least two days and a night.

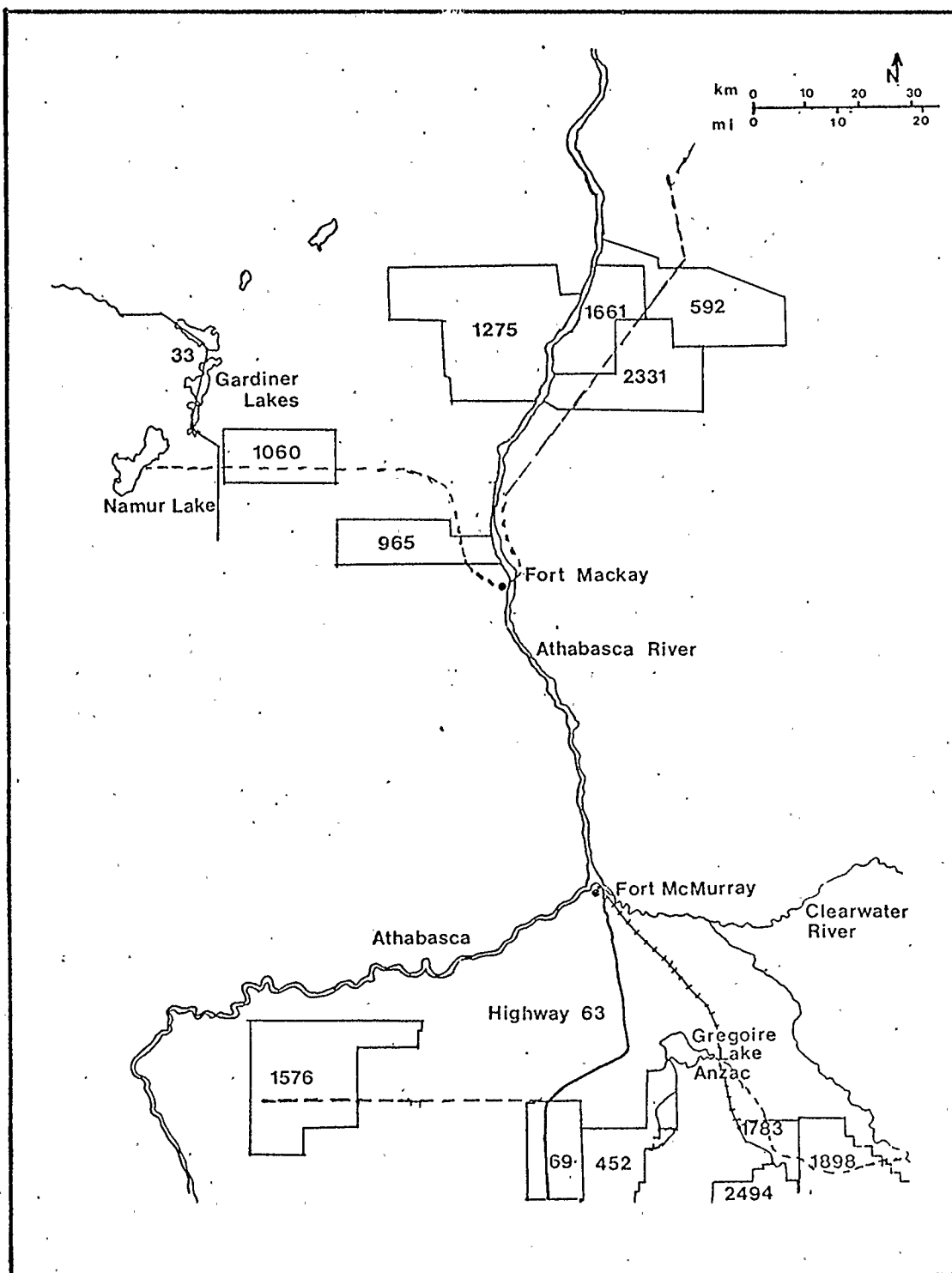


Figure 3-2. LOCATION OF TRAPLINES VISITED DURING THE 1976/77 SEASON.

Table 3-2. NUMBER OF TRAPPERS VISITED ON TRAPLINES IN THE PROJECT STUDY AREA BY ETHNIC AND COMMUNITY ORIGIN.

	<u>McMurray</u>	<u>MacKay</u>	<u>Anzac</u>	<u>Total</u>
Indian	0	4	0	4
Metis	1	0	2	3
White	7	0	2	9
Total	8	4	4	16

3.4.4. Second Trapper Interviews

A second set of trapper interviews was conducted in April and May, 1977. Subjects were selected by a random sample of trappers who were interviewed the previous summer. A disproportionate sample, stratified by trapper effort in the past season, was used. Trappers were sampled from two effort groups.

Table 3-3. NUMBER OF TRAPPERS INTERVIEWED BY EFFORT GROUPING, SPRING, 1977.

<u>Trapping Effort for 1975/76</u>	<u>First Interviews</u>	<u>Used in Second Interview</u>
Less Than 2 Months	47	14
Two Months or More	16	14

This interview schedule was used primarily as an instrument for assessing trapper motivation. It was less structured and more conversational than the first interview schedule.

The second interview served not only to collect data, but also to share information with the trapper. Old questions were answered and the trapper was thanked for specific points he made that the researcher considered important. The trapper was also informed of some of the preliminary results of the study. These often served as a lead-in to conversation about the trapper's motivations.

The use of such preludes differed for each trapper. Examples of information shared are; study findings about trapper effort and employment, problems and solutions for claiming seismic damage, game laws, and the proportion of trappers who experienced some kind of damage to their trapline. Trappers were thanked for comments on trapping methods, concerns about oil sands development and humane trapping legislation, feelings they expressed about trapping, etc.

The questions asked in the second interview are listed in figure 3-3. No trapper was pushed into answering any question he seemed uncomfortable with. Questions II and III are listed with a number of expected answers, generated from previous trappers' comments during interviews and visits. The trapper was asked if these answers were relevant to him only after he was given sufficient time to answer the questions in an open-ended form. Thus a trapper would not have been asked if trapping money is important to him until he was first asked why trapping is important to him.

The answers to questions were sometimes tricky to interpret. For example, a trapper saying that he traps when prices are good for fur may be motivated by money, but not financial need. In such cases the trapper would be asked further questions to clarify his motivations. With the above example the trapper would be asked, "Does the money you make trapping give you most of your money for the winter?", or "Is there anything you couldn't do if you didn't have your trapping money?". The answers helped in clarifying the trapper's motivations.

3.5. DATA ANALYSIS

Formal data analysis for statistical purposes was done with both the first and second sets of interviews.

3.5.1. First Interviews

The coding format used for the first interview is shown in figure 3-4. Categories 1-29 were extracted from notes taken during the interview.

For category 33, traplines were grouped into six blocks according to the location of the line. Physiography and transportation are the two main factors used in delineating the groups. Categories 30-32 are three measures of trapping income; they require a more detailed treatment.

I. WHY TRAPPING (THE TRAPLINE) IS IMPORTANT

1. Money
2. Financial Need
3. Meat
4. Enjoyment of the Activity
5. Tradition
6. Solitude
7. Hold line for security or pass it to another

II. MEAT TAKEN FROM THE TRAPLINE

1. Fish
2. Small Game
3. Big Game

III. SCENARIO:

What would you do if your trapline was going to be cleared for oil sands development? If the company wanted to compensate you, what would you ask for?

1. Money - lump sum or payments
2. Another trapline - of what quality?
3. A job from the company - guaranteed as long as you work.
4. The company pays you to continue to trap the line for them. You keep the fur.

Figure 3-3. SECOND INTERVIEW SCHEDULE. SUMMER, 1977.

3.5.2. Measures of Trapping Income

All three measures of trapping income were calculated from annual trapline catch affidavits and the average dollar value of the different furs in the year they were caught. The Alberta Fish and Wildlife Division gives the average dollar value of the furs in their annual reports.

The three measures used are; 1975/76 personal trapping income; three year average income for the trapper (1973-76); and a three year average for the trapline (1971-74). The trapline average was taken directly from an unpublished report (Renewable Resources, 1975). [12] The three year average trapper income was computed by adding together the annual incomes for the years trapped out of the past three, and dividing by that number of years. Missing affidavits were considered to be years not trapped, and if two of the three years were not trapped, the three year average was not computed.

[12] There are two slight differences between my method of calculation and the method used by Renewable Resources. I omitted any bears or rabbits reported taken (Renewable did not) when my fieldwork made it apparent that many more of these animals were taken than were reported. In addition, I lumped all colored foxes into one category, while Renewable reported them separately. Since very few bears, rabbits, or foxes were reported on trapline affidavits, the calculated values should be comparable.

1. Name (#)	
2. Age	--
3. Ethnicity	--
4. Home Community	--
5. Trapline No.	--
6. Owner of Line?	--
7. Location of Line Access	--
8. Distance Travelled to Start of Line	--
9. Shape of Line	--
10. Size	--
11. Travel to Line by:	--
12. Travel on Line by:	--
13. Change in Method of Travel on Line	--
14. Number of Traps Owned or Accessed	--
15. Use of Conibears	--
16. Use of Snares vs Traps	--
17. Number of Cabins	--
18. Number of Cabins Built in Last 5 Years	--
19. Experience	--
20. Code for Experience	--
21. Companions When Trapping	--
22. Effort Classification for 1975/76	--
23. Change in Effort Class. in Last 5 Years	--
24. Seasons of Year Trapping	--
25. Reason for Trapping	--
26. Resident for ___ Years in the Area	--
27. Grade Completed	--
28. Employment Status in 1975/76	--
29. Change in Employment Status in Past 5 Years	--
30. 1975/76 Calculated Personal Trapping Income	--
31. 1973-76 Avg., Calculated Personal Trapping Income	--
32. 1970-74 Avg., Trapline Income from Renewable Res.	--
33. Trapping Block	--

Figure 3-4. CODING FORMAT FOR FIRST INTERVIEW.

3.5.3. Accuracy of Trapper Affidavits

As previously mentioned, records of furs caught are available, not only from the trapper affidavits, but also from the fur buyer records. Buyers are required to send these records to the Alberta Fish and Wildlife Division. Fish and Wildlife also keeps holding slips and export permits, which the trapper is required to fill out if he plans to sell fur privately, hold it until the next season, or ship it directly to another province.

No one had ever attempted to check the accuracy of trapper affidavits before. It was decided to do so by cross-checking them against buyer records, export permits and holding slips. Twenty-four 1975/76 trapline records were used for this purpose. They were compared individually and collectively, species by species, and dollar by dollar. (Dollar values were calculated by the method already discussed.). The results of the collective comparison are shown in table 3-4. It shows that trappers reported higher catches than buyers for all animals except muskrats, and that the difference for some animals such as squirrels, is substantial. Only twenty-five percent of the trapline statements checked were close matches for all animals. Of the remainder, another twenty-five percent were close matches for most of the animals, and seventeen percent were badly distorted in both numbers of animals and dollar value. Two of the distorted returns reported high catches and almost no sales to buyers. When these returns were removed from the tally, the comparison improved measurably.

Table 3-4. COMPARISON OF TRAPPER AND BUYER REPORTS OF NUMBERS OF FURBEARING ANIMALS CAUGHT ON TRAPLINES. 1975/76 DATA.

Pelt	Using 24 Traplines			Without 2 Traplines Reporting Extreme Differences (22 lines)		
	Trapper	Buyer	% diff. ¹	Trapper	Buyer	% diff.
Beaver	735	508	37	605	494	20
Coyote	2	3	-40	2	3	-40
Fisher	22	20	9	21	20	5
Fox	2	2	0	2	2	0
Lynx	22	17	26	21	17	21
Marten	8	6	29	7	6	15
Mink	114	92	21	103	92	11
Muskrat	282	279	1	200	276	-32
Otter	16	15	6	16	15	6
Squirrel	3412	2215	43	3300	2215	39
Weasel	241	217	10	236	217	8
Wolf	4	1	120	4	1	120
Value	\$28,572	\$21,175	30	\$25,148	\$20,891	18

¹% diff. = $100(\text{Trapper} - \text{Buyer}) / [(\text{Trapper} + \text{Buyer}) / 2]$

There are many reasons why either of the two record types could misrepresent the actual catch. Probably the three most significant reasons for the discrepancies are the selling of fur under a different line number, the unwillingness of many trappers to keep records, and the keeping of fur for personal use. The first of these can explain discrepancies in individual trapline records, but cannot account for the difference in totals.

It is interesting to note that six of eight treaty Indian records used were included in the traplines having poor matches. This is logical since fieldwork showed that Indians tended not to keep records, or trust Fish and Wildlife officials. In addition,

Table 3-5. SOME POSSIBLE REASONS FOR MISREPRESENTATION
IN TRAPLINE AFFIDAVITS AND BUYER RECORDS OF
FUR CAUGHT

<u>Record</u>	<u>Direction of Misrepresentation</u>	<u>Reasons</u>
Trapper Affidavit	Understate catch.	Avoid Income Tax. Preserve income-dependent transfer payments (pension, welfare, etc.).
Trapper Affidavit	Overstate catch.	Avoid loss of trapline. Boasting. Ensure a good settlement with an oil company in the future. Partner duplication in reporting.
Trapper Affidavit	Mistake in either direction.	Does not keep a record. Cannot express a number in English (if trapper speaks native language).
Buyer Accounts	Understate catch.	Black market. Avoid taxes. Do not show furs not sold by trappers (worthless or for personal use).
Buyer Accounts	Mistake in either direction.	Trapper has another trapper sell furs for him, under different line number.

the researcher believes that Indians are the greatest users of
fur, for making clothing, etc.

Trappers asked about the percentage of fur kept reported
numbers as high as twenty percent for some species such as
beaver. Technically, furs kept for personal use must be re-
gistered with Fish and Wildlife, with the trapper paying a small
fur tax. In practice, this is rarely done.

This exercise in comparison is inconclusive in determining the accuracy of trapline affidavits, since it is far from certain that the buyer records represent what was actually taken off each trapline. However the difference in the collective comparison, where the buyer total is likely accurate when averaged over twenty-four traplines, leads the researcher to suspect that a tendency exists for the trapper to overstate his catch. Individual comparisons show that at least half of the trapline records matched fairly closely. The researcher suspects that approximately one quarter of the affidavits badly distort the actual catch. Since the distorted ones cannot be separated from the accurate ones without a lot of time and effort, all affidavits from the interviewed trappers were used for subsequent data analysis.

3.5.4. Second Interviews

The coding format used in the second set of interviews is shown in figure 3-5. Old information (part I) comes entirely from the first interview. [13] The rest was extracted from notes taken during the second interview.

[13] Five of the second trapper interviews were not coded for effort. In these cases, it was felt that the 1975/76 effort would be misleading because it changed substantially in 1976/77.

I. OLD INFORMATION

1. Name (#)
2. Age
3. Ethnicity
4. Effort for 1975/76

--
--
--
--

II. REASONS FOR TRAPPING

5. Enjoyment of Lifestyle
6. Tradition
7. Money
8. Financial Need
9. Meat Needed
10. Hunting
11. Security for Later/Pass on
12. Prestige

--
--
--
--
--
--
--
--

III. SCENARIO

13. Lump Sum
14. Payments
15. New Trapline
16. Trapping Job
17. Regular Job

--
--
--
--
--

IV. TAKEN FROM TRAPLINE

18. Big Game
19. Small Game
20. Fish
21. Hides and Skins

--
--
--
--

Figure 3-5. SECOND INTERVIEW CODING

3.5.5. Data Handling and Statistics.

Both sets of coded data were analysed by computer using the Statistics Package for Social Sciences (SPSS) program. Statistical treatment was kept simple. The SPSS program was used in four ways;

- 1 Generation of one-way frequency tables, histograms, and descriptive statistics;
- 2 Cross-tabulation of two or more grouped data categories;
- 3 Correlation analysis of numerical data;
- 4 T-tests to detect significant differences between pairs of numerical data.

4. TRAPPER DEMOGRAPHY, TRAPPING PATTERNS, AND MOTIVATION IN THE PROJECT STUDY AREA

This section of the report will present the results of the trapper interviews and trapline visits as described in chapter 3. From a management point of view, this information is vital because it provides detailed information about the major user of the fur resource.

The future of trapping in the project study area will also be discussed. This is admittedly speculative, coming from a study that spanned only thirteen months. However, in considering the future of trapping in the area, the researcher attempted to use information from community members, management officials, literature about trapping patterns in other northern communities, as well as the opinions of the trappers.

The first section of this chapter provides a demographic description of the trappers, including relevant statistics about their employment, trapping income, and education. Following this is a description of the trapping patterns currently in use, and an effort to relate components of these patterns with trapping dollars earned. Trapper motivation will then be discussed, and the final section will sum up the points that are particularly relevant to the future of trapping in the oil sands area.

One caution in the use of this data should be stated at the outset. The data was collected over two trapping seasons during which the "ten year" fur cycle (Keith, 1974) was at its low point. This eight to eleven year cyclic fluctuation of snowshoe hares and several furbearer species that prey on the hares, is a

natural phenomenon in Canada's boreal forests. Furbearing animals, such as lynx, fox, and coyote were very scarce in northern Alberta during the study period. Lynx have been cited as a valuable furbearing animal in the AOSERP study area, second only to beaver in fur dollars produced (Renewable Resources, 1975). Although lynx prices are up tenfold from what they were at the peak of their cycle (\$238 in 1975/76 compared with \$23 in 1970/71 according to Fish and Wildlife Annual Reports), this is irrelevant to those trappers who have seen no sign of lynx on their traplines for the last two years. Fur scarcity has got to have some effect on the trapper motivations, employment patterns, and trapping patterns reported here. The researcher will address this caution at appropriate places in this chapter.

4.1. TRAPPER DEMOGRAPHY

4.1.1. Ethnicity

The entire list of 1975/76 registered trappers was divided into three ethnic groups; white, Metis, and treaty Indians, according to information provided by trappers, community residents, and Fish and Wildlife personnel. For the purposes of this study, a Metis is defined as a person having Indian ancestry but not treaty Indian status. This definition in no way defines the amount of Indian ancestry in either the Metis or the treaty Indian. It also says nothing about the trapper's tribal ancestry (either Chipewyan or Cree in this case). The distinction between the two is relevant for a trapper study such as this one, for

three reasons. First of all, status Indians retain the right to hunt and fish on crown land at all times of year (with a few exceptions). This is relevant because hunting and fishing are often necessary to supply the trapper with food. Secondly, treaty Indians have a number of traplines unofficially reserved for their exclusive use in the project study area (see section 2.4). Thirdly, there may be significant cultural differences between the group that affects their trapping pattern.

Table 4-1 displays the distribution of three ethnic groupings of trappers living in Fort McMurray, Fort MacKay, and Anzac.

Table 4-1. ETHNICITY OF REGISTERED TRAPPERS IN THE PROJECT STUDY AREA, BY COMMUNITY.

	<u>White</u>	<u>Metis</u>	<u>Indian</u>	<u>Total</u>
McMurray	31	44	5	80
MacKay	1	13	17	31
Anzac	2	9	4	15
Total	34	66	26	127

Source: Fish and Wildlife Division, Fort McMurray, 1975/76 registration figures.

The table shows that Metis comprise just over half of the trappers studied. Over seventy percent of the area trappers are native, and most of the trappers that are white live in Fort McMurray. Sixty-five percent of the treaty Indian trappers live in Fort MacKay.

It appears that the ethnicity of trappers from Fort MacKay and Anzac is roughly proportional to the ethnic makeup in the population of these two communities. This is not true for Fort McMurray, whose native trappers make up a large percentage of the total number of trappers in a largely white community.

4.1.2. Residence

The trapper's home community is relevant to this study for two reasons:

- 1 The number of trappers trapping from a community can be used as one measure of the importance of trapping to that community, and;
- 2 The oil boom may be affecting the trapper partly through its effect on the community where the trapper lives.

Table 4-2 shows the percentage of trappers in the three communities to their total population.

These statistics show that the two predominantly native communities have a much greater proportion of trappers than Fort McMurray, but any further conclusions would be misleading. For one thing, the percentages shown for Fort MacKay and Anzac are very sensitive to annual fluctuations of even a small number of trappers due to the small size of these communities. Marino (1975) shows the number of Fort MacKay traplines worked fluctuated between seventeen and twenty-seven in the period from 1971-74. This fluctuation in the past three years could be related to the availability of other employment, and also to the ten year cycle

Table 4-2. PERCENTAGE OF 1975/76 REGISTERED TRAPPERS TO THE TOTAL POPULATIONS OF THREE COMMUNITIES.

	# Trappers	Total Pop'n.	% Trappers
McMurray	80	15,424 ¹	<1
MacKay	30	254 ²	12
Anzac	15	154 ³	10

¹Source: Statistics Canada, 1976 population figure.

²Source: Marino, 1975. 1974 population figure.

³Source: Hastie, 1976. 1974 population figure.

of furbearer populations.

It should be clarified that the percentages shown in table 4-2 do not represent the proportion of the community populations that are economically dependent upon trapping. First of all, not all trappers are dependent on trapping income, as this report will show later. Secondly, in communities such as Fort MacKay and Anzac, a trapper may be supporting a wife, children, or even an extended family with his trapping income. Neither of these considerations are taken in account in the derivation of percentages in table 4-2. Finally, the figures used for numbers of registered trappers leave out individuals not registering lines who trap anyway. The researcher was told about several such trappers in the project study area during the trapper interviews.

4.1.3. Age

Trappers' ages were obtained for 121 of 127 registered trappers from either Fish and Wildlife records or the trapper, himself. The mean age was calculated directly for each of the three communities studied. Ages were then grouped into six categories for further analysis (figure 4-1).

It is interesting to note the high average age of trappers from the Anzac community and its lack of young replacement trappers. Fort MacKay and Fort McMurray are more balanced with respect to trappers' ages, although Fort MacKay has few trappers under 25 or over 55 years of age. This could reflect a trend toward early trapper retirement in that community as well as a lack of interest in trapping on the part of young there. In fact, the age picture suggests a lack of interest in trapping on the part of young treaty Indians in general. Only one of eleven registered trappers under the age of 25 was a treaty Indian.

4.1.4. Length of Residence in the Project Study Area.

Trappers were asked how long they had lived in the project study area in order to determine the number who had recently entered the area. It was found that eight of sixty trappers have lived for less than ten years in the area. Half of the eight were white; the others were Metis who moved from other northern settlements. Only seven of the sixty trappers were whites who had spent less than twenty years in the area.

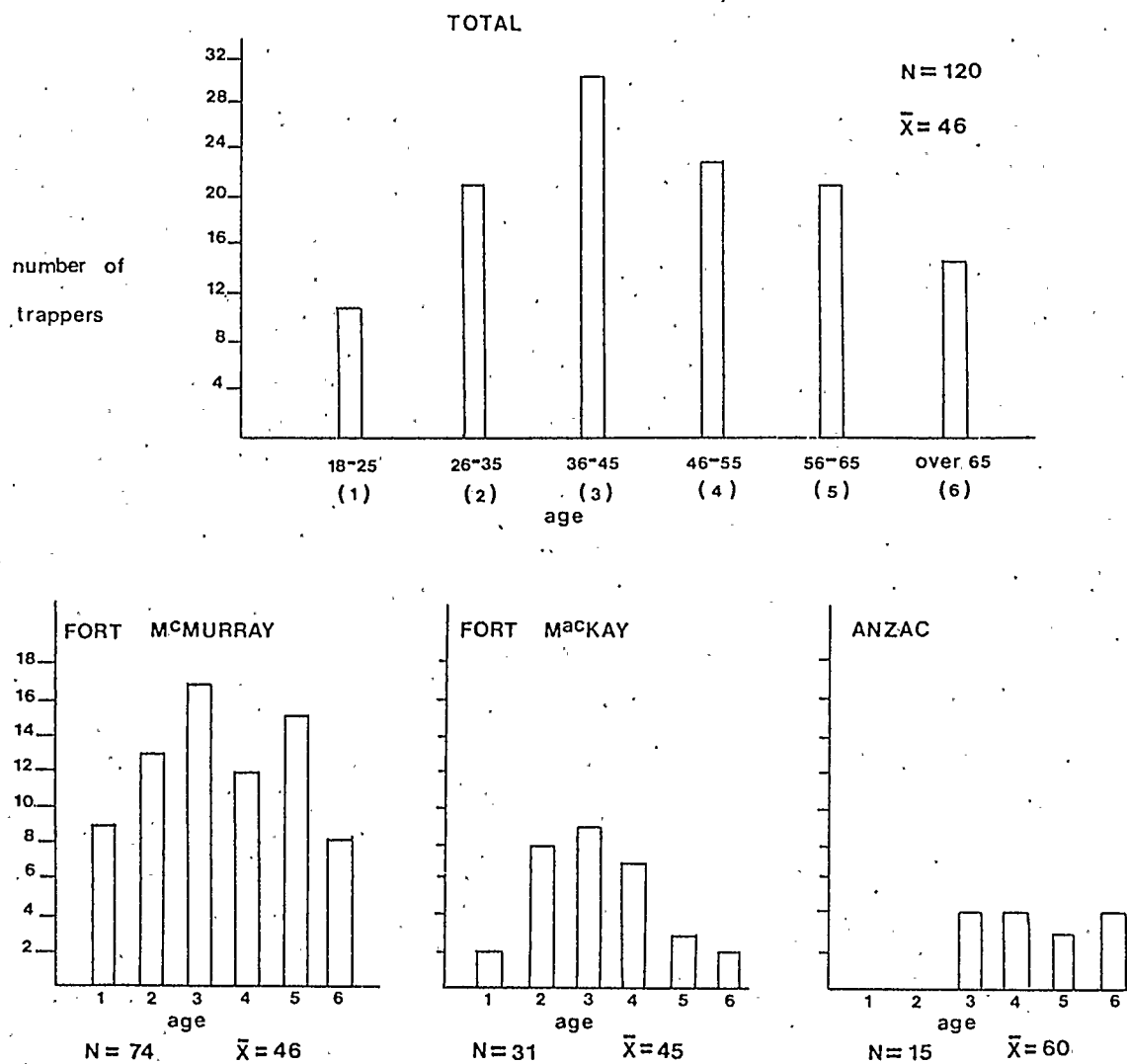


Figure 4-1. TRAPPER AGES IN THE PROJECT STUDY AREA

Discussions with Fish and Wildlife officers and the trappers themselves led the researcher to believe that many more of the trappers were newcomers. This suggests that immigration of outside trappers into the area has been exaggerated as a problem, and that, barring a significant change in the trapping industry, it would be unlikely to expect future immigration in the Fort McMurray area to significantly increase competition for trapping areas.

4.1.5. Education Level

Trappers were asked what the last grade was that they had attended in school. This was considered important from a standpoint of using job retraining as one alternative to trappers whose lines are affected by oil sands development in the near future. Syncrude is already recruiting native people throughout the province with a grade 10 or better education and training them for highly paid technical and clerical jobs.

Fifty-seven trapper responses were coded for education level. The sample mean was a grade 5 education. Only thirteen of these trappers made it as far as grade 9, and seven as far as grade 10. Of the thirteen grade 9's or better, seven currently hold full-time jobs, and two others are over 60 years of age. Thus, job retraining of the kind Syncrude is now doing appears to have limited or no potential to mitigate trapper losses in the project study area, even if trappers have a desire to be retrained. This is not to say that offering employment to trappers

that requires little or no further training would not be of benefit to them.

4.1.6. Employment

Trappers were asked in the first interview what level of wage employment they held over the past year and whether it had changed over the past five years. Employment levels were classed as full-time, part-time (or full-time for part of the year), occasional, unemployed, and retired. The results for 1970/71 and 1975/76 employment status were broken down by community and ethnicity.

Table 4-3 shows that sixty percent of the sampled trappers were employed either full or part-time, aside from trapping. Just over half the Fort MacKay sample were employed at this level, and more than seventy percent of the Fort McMurray sample were so employed. From an ethnic standpoint, sixty-two percent of the white trappers, sixty-five percent of the Metis trappers, and forty-seven percent of the treaty Indian trappers sampled held part or full-time employment last year.

These proportions did not differ greatly five years ago, according to this data.

The data suggests that, given the low incomes earned from trapping in the project study area (see section 4.1.7) the majority of trappers are earning more money from other jobs than they are from their traplines. This in itself does not mean that

Table 4-3. EMPLOYMENT STATUS IN (a) 1975/76, and (b) 1970/71 BY COMMUNITY. TRAPPER SAMPLE, SUMMER, 1976.

(a) 1975/76					
	<u>Full-Time</u>	<u>Part-Time</u>	<u>Occasional</u>	<u>Unemp.</u>	<u>Retired</u>
McMurray	14	11	2	2	6
MacKay	2	6	4	3	0
Anzac	4	0	6	0	2
Total	20	17	12	5	8

(b) 1970/71					
	<u>Full-Time</u>	<u>Part-Time</u>	<u>Occasional</u>	<u>Unemp.</u>	<u>Retired</u>
McMurray	12	14	5	0	2
MacKay	2	7	4	2	0
Anzac	4	2	6	0	0
Total	18	23	15	2	2

trappers are not economically dependent on their traplines, since it is possible for a person to hold down two jobs out of economic necessity.

4.1.7. Trapping Income Statistics

The measures of trapper and trapline income used have already been described in section 3.5.1. Mean incomes for the 1975/76 trapping season, the three year average trapper income, and the three year average trapline income were calculated for the entire sample (figure 4-2), and broken down by ethnicity and

Table 4-4. EMPLOYMENT STATUS IN (a) 1975/76, and (b) 1970/71 BY ETHNICITY.

	(a) 1975/76				
	<u>Full-Time</u>	<u>Part-Time</u>	<u>Occasional</u>	<u>Unemp.</u>	<u>Retired</u>
White	6	4	1	1	4
Metis	11	9	9	0	2
Indian	3	4	2	4	2
Total	20	17	12	5	8

	(b) 1970/71				
	<u>Full-Time</u>	<u>Part-Time</u>	<u>Occasional</u>	<u>Unemp.</u>	<u>Retired</u>
White	5	8	3	0	0
Metis	10	10	9	0	0
Indian	2	7	2	2	2
Total	17	25	14	2	2

community (tables 4-5 and 4-7).

As expected, a high, significant correlation exists between the trappers' 1975/76 income and three year average income ($R^2=.76$, $p<.01$). A paired t-test revealed that 1975/76 incomes were significantly higher than the three year average ($p<.05$). This is probably attributable to the significant rise in lynx pelt values in 1975/76. [1]

[1] Fish and Wildlife Annual Reports give the following provincial figures for lynx prices: 1973/74, \$85; 1974/75, \$103; 1975/76, \$238.

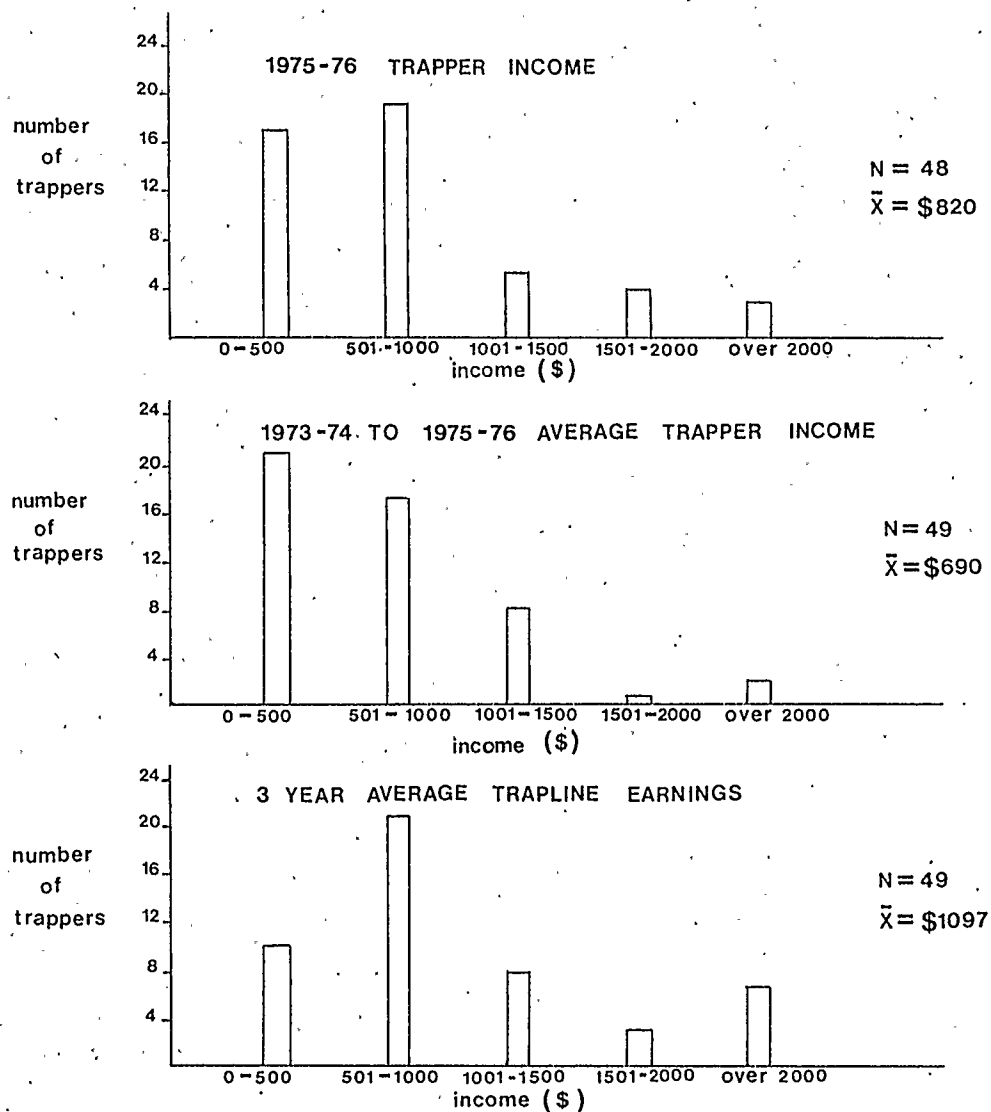


Figure 4-2. CALCULATED TRAPPING INCOME FIGURES FOR THE PROJECT STUDY AREA

Trapline income averages in the project study area are comparable to figures for the province as a whole. [2] However, trapper earnings (figure 4-2) are very low when compared with the wages paid in the Fort McMurray area. Seventy-eight percent of the sampled trappers averaged less than \$1000 annual income from their traplines, and only two percent averaged more than \$2000 (figure 4-2b). Laborers on the Syncrude and GCOS sites normally earn more than \$1000 per month.

It should be emphasized that the income figures are calculated using the average pelt prices paid by the major fur buyers in the province. Many of the area trappers do not sell their furs directly to these sources, but rather to local fur buyers at a fraction of their average provincial value. Results of the trapper affidavit/buyer record collective comparison also support the notion that actual trapper income is somewhat lower than the calculated figures for most trappers.

It should be realized, however, that the majority of trappers have very low living expenses. Much of their food comes from the trapline, and with the exception of those who rent or own conventional homes in Fort McMurray, trappers in the project study area have few home expenses to meet. Thus a small amount of trapping money can go a long way.

[2] Boyd (1976), calculated the 1970-75 average income per trapline in Alberta as \$1208. The average in the project study area for the years 1971-74 as calculated by the researcher is \$1097.

In order to determine how trapper income was distributed, several t-tests were run comparing income along some of the demographic characteristics already discussed.

Table 4-5. COMPARISON OF CALCULATED MEAN TRAPPING INCOMES IN PROJECT STUDY AREA COMMUNITIES.

	1975/76 Income <u>per trapper</u>	1973-76 Average <u>per trapper</u>
McMurray	\$800 (n=24)	\$716 (27)
MacKay	904 (12)	842 (11)*
Anzac	775 (12)	473 (11)*

*Significant difference at the .05 level.

Table 4-5 shows that Fort MacKay trappers sampled averaged the highest per trapper income of the three communities; significantly higher than the Anzac sample in the 1973-76 average income category.

The 1975/76 per trapper income figures for the three communities can be used with the trapper registration figures of the same season to produce an estimate of trapping dollars earned by the communities.

These numbers are subject to the same inaccuracies as all other income figures based on trapper affidavits and provincially-calculated pelt values.

Table 4-6. ESTIMATE OF FUR INCOME PRODUCED IN 1975/76
BY TRAPPERS OF THREE COMMUNITIES.

	1975/76 Avg. <u>Income</u>	# Registered <u>Trappers</u>	Fur <u>Income</u>
McMurray	\$800	80	\$64,000
MacKay	904	31	28,024
Anzac	775	15	11,625

Fort McMurray shows the largest fur revenue of the three, but this is to be expected because of the large number of trappers living there. Fur dollars could not be compared here with other income sources to the communities, because these figures are not available at the time of writing. Based on the researcher's field experience in the project study area, it seems safe to assume that trapping income makes up a larger portion of the total income in Fort MacKay than it does in Anzac. Trapping income is insignificant for Fort McMurray as a whole, but this may not be the case for the native population living in the town.

Trapping income was crosstabulated against 1975/76 employment levels, in order to determine whether a relationship exists between the two variables. Employment categories were grouped into two sets; those who worked at least part-time last year, and those who worked occasional jobs or no jobs at all. A t-test comparing 1975/76 trapping income for the two groups revealed no significant difference between them (\$839 to \$794, respectively).

In order to see whether ethnicity affects the relationship between trapping income and wage employment, two way frequency tables were constructed separately for each ethnic category.

Although no significant differences were detected by chi-square tests, it appears that the employment status of native trappers has a different effect on trapper income than employment status of white trappers. White trappers who were unemployed or retired last year tended to earn less trapping money; while the low trapping income earners among native people tended to be those with full-time jobs. One plausible explanation for this is that native people tend to trap more out of economic need than whites, so that when that need is met in some other way, they are less interested in trapping. This explanation is supported in at least one account of trapping changes in another northern community (VanStone, 1963).

4.2. TRAPPING PATTERNS

The term "trapping patterns" refers to a description of the trapping process, from transportation, to trap setting, to effort put into the activity. The trapping patterns reported here are very general, having been ascertained by questioning trappers and to a lesser degree, by visiting traplines. They are nevertheless useful from a management standpoint because they reveal a land use pattern which can be related to other considerations, such as furbearer distribution, or the introduction of oil sands plants.

Table 4-7. RELATIONSHIP OF EMPLOYMENT LEVEL TO CALCULATED TRAPPING INCOME IN 1975/76.

(a) White Trappers (N=12)			
-----Employment-----			
<u>Trapping Income</u>	<u>Full Time</u>	<u>Part-Time & Occasional</u>	<u>No Job</u>
\$0-250	0	0	2
251-500	0	0	0
501-1000	3	2	1
1001-2000	1	1	1
over 2000	0	1	0

(b) Metis Trappers (N=26)			
-----Employment-----			
<u>Trapping Income</u>	<u>Full Time</u>	<u>Part-Time & Occasional</u>	<u>No Job</u>
\$0-250	5	0	0
251-500	2	3	1
501-1000	2	7	1
1001-2000	1	3	0
over 2000	0	1	0

(c) Treaty Indian Trappers (N=10)			
-----Employment-----			
<u>Trapping Income</u>	<u>Full Time</u>	<u>Part-Time & Occasional</u>	<u>No Job</u>
\$0-250	1	0	0
251-500	2	0	1
501-1000	0	2	1
1001-2000	0	1	1
over 2000	0	1	0

The purpose of this section is to describe land and resource use by project study area trappers, emphasizing the differences between white, Metis, and treaty Indian trappers.

4.2.1. Effort

Inquiry into trapping effort proved to be a very difficult matter. It was initially hoped that trappers would be able to recall in detail the number of sets they put out and the frequency with which they were checked. This was not possible for the majority of trappers.

One measure of effort that could be reasonably ascertained by interview was the amount of time spent on the trapline during the 1975/76 trapping season. Responses were not always easy to interpret. One problem was cross-cultural communication. Another was occasional difficulty in obtaining reliable answers to the question. Exaggerated answers were given, sometimes to boast, but more often, in order not to reveal that little trapping was done. Not all trappers trusted that their interview would be confidential, and rumours were being spread at the time that Fish and Wildlife would be taking traplines from all trappers who were not extensively trapping.

Despite these problems, the researcher has confidence that the effort data collected is accurate for at least eighty percent of the trappers at the level to which it was coded. Minor exaggerations would not change the code used, and suspected major exaggerations (five in all) were cross-checked by discrete in-

quiry.

Trappers were also asked how last year's effort compared with their effort five years ago. Unfortunately, no useful data could be obtained from this question because of its ambiguity.

Trapper effort in 1975/76 was coded into seven groupings for further analysis, and is displayed in figure 4-3.

It is significant that only twenty-six percent of the trappers reported spending more than two months on the trapline during a season that lasted 6 1/2 months. [3] Twenty-nine percent of the trappers reported spending only three weeks or less on their lines last year.

It must be mentioned here that these numbers must be interpreted in light of the scarcity of lynx, fox, and coyote in 1975/76. Sixteen trappers referred to this in their interviews. Three of them stated specifically that they were holding back their trapping effort until the fur comes back.

The frequency of comments about fur scarcity in 1975/76 suggests that caution should be exercised in using these results as an "effort baseline" with which to assess future interest in trapping. This point should be borne in mind for all subsequent analysis that involves trapper effort. In addition, the possibly-significant effect of cyclic fluctuations on trapping

[3] The 1975/76 trapping season opened October 31 and closed May 15. The trappers' responses were not coded for time spent during the closed season. Such preparation time varies greatly among trappers. It appeared to be almost nil for occasional trappers.

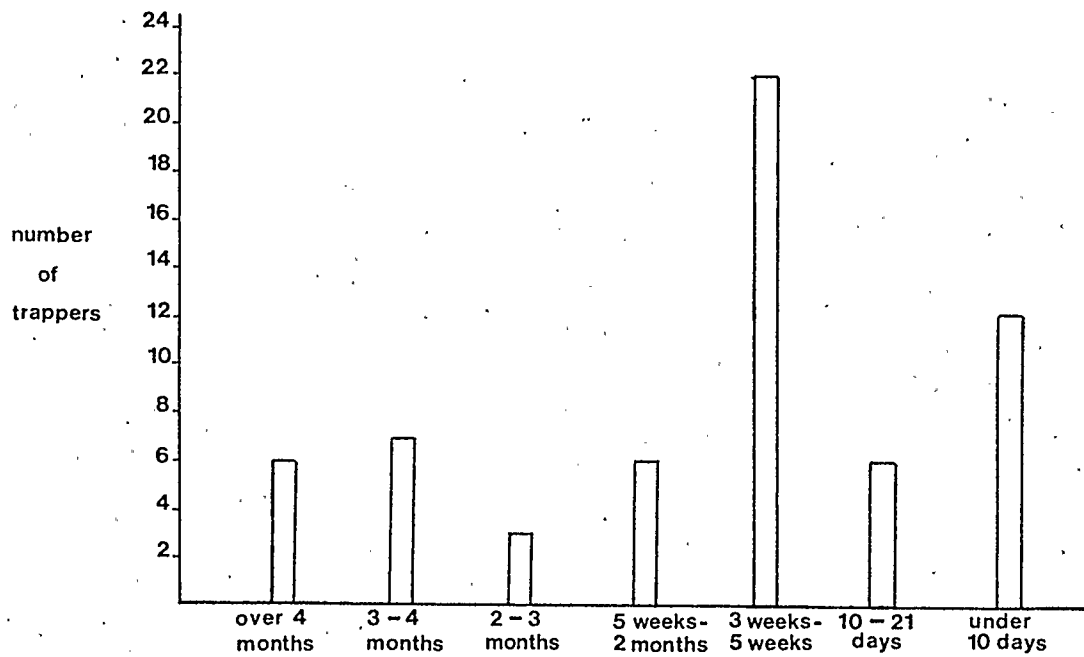


Figure 4-3. AMOUNT OF TIME TRAPPERS REPORTED SPENDING ON THEIR TRAPLINES IN THE 1975/76 SEASON.

effort, must be considered in any trapline management strategy for the project study area.

Income differences between the three ethnic groups were tested by the chi square method. The seven effort groupings were used for the test. The hypothesis that significant differences exist between the ethnic groups was rejected at the 5% signifi-

cance level ($p=.51$ for the test). However, it is worth noting that forty percent of the Metis, thirty-three percent of the treaty Indians, and only six percent of the whites interviewed trapped less than three weeks last season (table 4-8). This could reflect a loss of interest in trapping on the part of native people, or a sign that native people are more affected by fur scarcity than whites.

Effort measures were also broken down by community; it is clear that no significant differences exist here (table 4-9).

Table 4-8. TRAPPER EFFORT IN 1975/76 BROKEN DOWN BY ETHNIC GROUP

<u>Effort</u>	<u>White</u>	<u>Metis</u>	<u>Indian</u>
2 mo. or more	6 (35)*	6 (20)	4 (27)
3 wk. - 2 mo.	10 (58)	12 (40)	6 (40)
3 wk. or less	1 (6)	12 (40)	5 (33)

*Column percentages in brackets

4.2.2. Time of Year Trapping Takes Place

Trappers were asked what time of year they normally trap. Ten percent indicated they only trap in the spring, and an additional thirty-four percent said they do not normally trap in the cold months (usually January and February).

Table 4-9. TRAPPER EFFORT IN 1975/76 BROKEN DOWN BY COMMUNITY.

<u>Effort</u>	<u>McMurray</u>	<u>MacKay</u>	<u>Anzac</u>
2 mo. or less	9 (26)*	5 (31)	2 (17)
3 wk. - 2 mo.	14 (41)	6 (38)	8 (67)
3 wk. or less	11 (32)	5 (31)	2 (17)

*Column percentages in brackets

The answers trappers gave are in some cases either reflective of a suspicion of the researcher's use of such data, or refer only to years of high fur abundance or optimum weather. Observations made this winter lead the researcher to suspect that the actual number of trappers who trap only in the spring is at least three times as high as reported.

4.2.3. Method of Travel

Trappers were asked how they get to and from their traplines as well as how they travel on their lines and whether this mode changed over the past ten years. Responses were coded according to the most common mode of travel reported by the trapper.

Figure 4-4 shows that the snowmobile and the car or truck are the two most common methods of travel to the trapline. Often a snowmobile is carried on the back of a truck to the closest point of road access. The truck is then left hidden in the bush, or driven home by a friend, and the trapper snowmobiles the rest of the way. Dogs or foot travel may also follow a car or truck

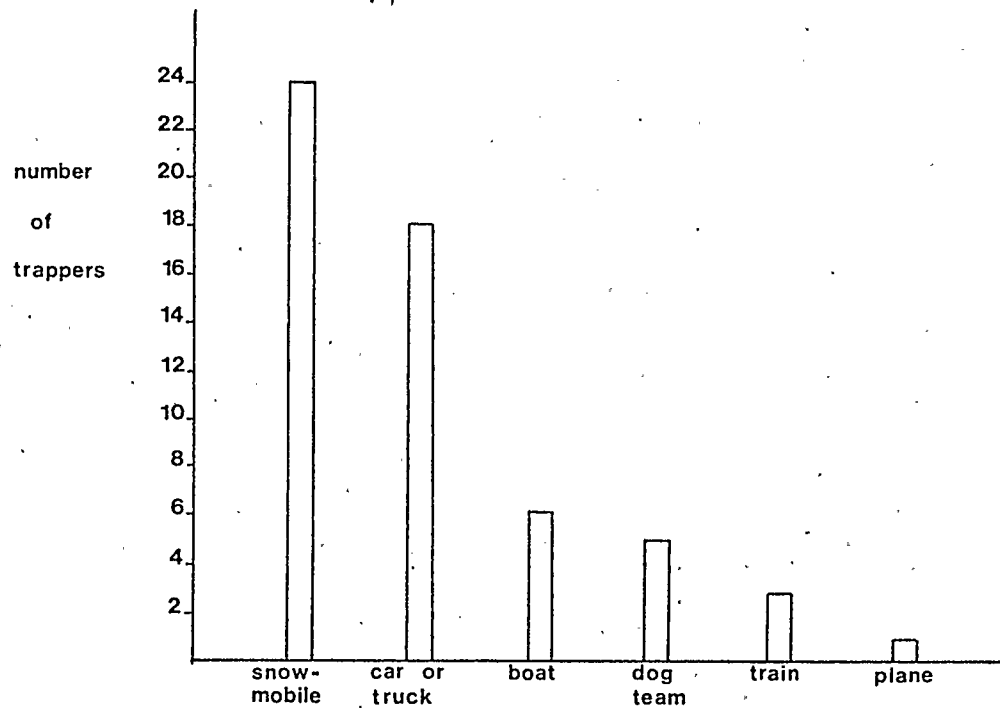


Figure 4-4. MODES OF TRAVEL ON PROJECT STUDY AREA TRAP-LINES OVER THE PAST TEN YEARS.

ride. Trappers who have access to their line by either the Clearwater or the Athabasca River usually take a boat to their line in the fall, where their snowmobile was left for winter use. One clever trapper who has a good winter road on his line, floated his car down the Athabasca River to his trapline using wood planks suspended by two freighter canoes.

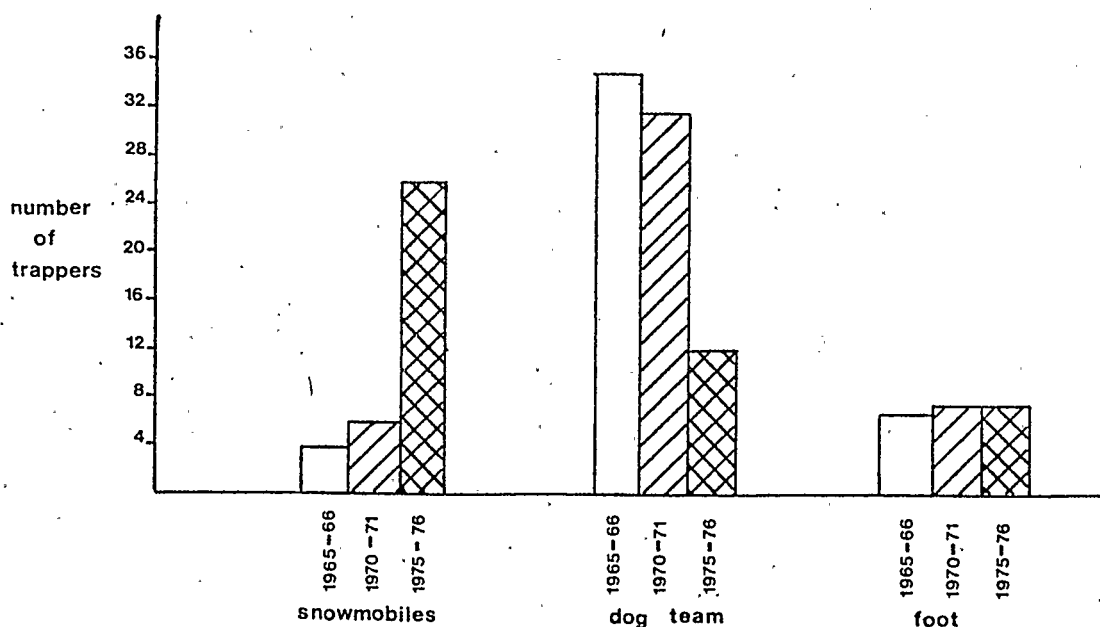


Figure 4-5. CHANGE IN MODES OF TRAVEL ON THE TRAPLINE OVER THE PAST TEN YEARS

Trappers with lines along the Northern Alberta Railroad right of way, generally use the train to go to and from their traplines. The train conductor lets trappers off anywhere along the way, and work cars travelling in between regular runs often give trappers a lift to town.

Trappers living in Fort MacKay have few cars or trucks to ferry them around. However, most of their lines are in the proximity of the Muskeg River or the Birch Mountains. These areas

are readily accessible via winter roads and cut lines, and most Fort MacKay trappers use either snowmobiles or dogs to get to them.

Access into most of the traplines in the project study area is relatively fast and safe in the winter. All but the farthest traplines can be reached from one of the three settlements in less than five hours by snowmobile. One Indian trapper is known to take 2-3 days going to his trapline, but his line is at the far west boundary of the project study area (along the MacKay River), and he walks.

The three main modes of travel on the trapline are snowmobile, dog team, and foot. As figure 4-5 shows, snowmobiles have almost replaced dogs within the last five years. Some of the factors contributing to the changeover are the availability of high paying jobs in the project study area, and the convenience of the snowmobile. To paraphrase one trapper, snowmobiles are fast, they don't have to be fed in the summer, and they don't howl at night. Nevertheless, they do break down; a few trappers use both dogs and snowmobiles on their trapline runs in case the machine should leave them stranded.

Trapline surveys revealed that three types of trails were available for use by the trapper. The highest quality of the three is the winter road, a major passageway through the bush that is used and maintained by either forestry or seismic crews after freeze-up.

They are preferred by most trappers when available, but there are two problems associated with them. The first is that seismic crews often clear the snow off of them, making snowmobile use difficult or impossible. The second is that the Department of Energy and Natural Resources requires seismic crews to push trees back on the roads when they are finished with them. (Six interviewed trappers voiced complaints about this practice.). This renders the road useless for truck or snowmobile travel. One trapper, who travelled to his line by truck on a winter road just opened this year, was nearly stranded when the road was covered over in late winter without his knowledge.

The most commonly used trails are the cut lines. Cut lines are old roads made by survey or exploration crews. They are narrower than the newer roads; many are partially grown over. They are found extensively in the project study area. There is some work involved for the trapper in maintaining them, especially after freak windstorms which fell a lot of trees.

Finally there are the trails that are built and maintained by the trappers. One trapper stated that in the days before the cut line, trappers built and maintained enough trails to permit a traveller to take a dog team to and from any settlement in northern Alberta and Saskatchewan. While old trappers trails were being used on most of the traplines visited, the importance of trappers trails appears to have been relegated to a secondary role. Occasional trappers do not maintain those in areas of the line that are not being used, and as a result, they become over-

grown and impossible to locate when the trapline changes hands.

4.2.4. Use of Trapping Devices

Trappers were asked in their interviews about their relative useage of three kinds of trapping devices; snares, leghold traps, and conibear traps (see figure 4-7). The results (figure 4-6) showed snares to be the most common device in use. This was true for both native and non-native people, and the use of snares was evenly distributed among the different age groups sampled. Probable reasons for the prevalence of snares in the project study area are their low cost, light weight and compactness, and their tradition of use.

Interviewed trappers were asked to give the total number of traps they either owned or had access to. The number ranged from 0 to 350; the mean was 71.

Practically all of the interviewed trappers have heard of conibear traps, and seventy-eight percent of fifty-eight responding trappers own at least one conibear trap.

Trapline observations enabled the researcher to get a better picture of the way these devices were being used by local trappers. These observations are summarized in table 4-10.

Of particular interest was the observation that trappers make sets [4] for lynx, fox, wolf, and coyote right on the trails

[4] A set is defined as a site prepared for entrapment of an animal or animals. The set includes bait, trap(s) or snare(s), and logs, branches, etc, used for hiding the trap, making a

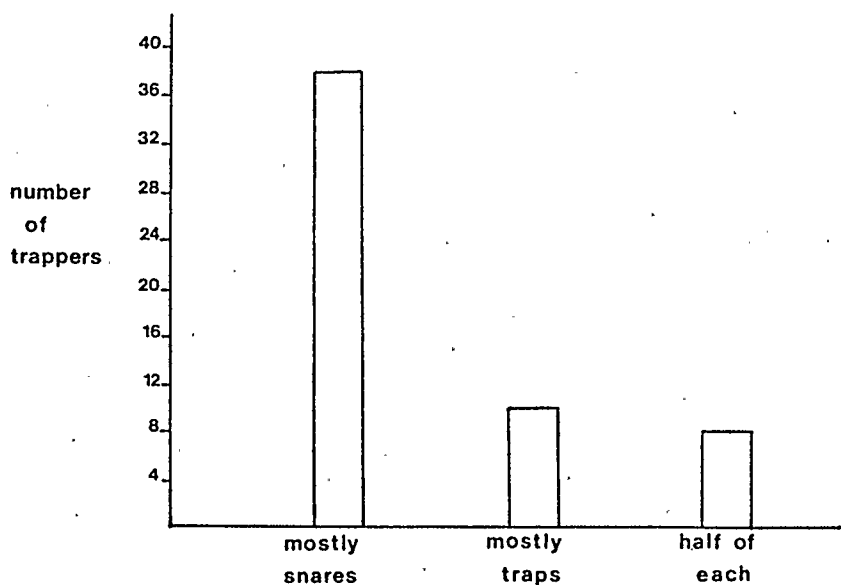


Figure 4-6. REPORTED USE OF TRAPS AND SNARES BY TRAPPERS IN THE PROJECT STUDY AREA.

they travel on, including winter roads. Trail and pen sets [5] made near winter roads and well-used cut lines were occasionally disturbed by snowmobilers and seismic crews. Such disturbance

cubby, or used as an anchor for the trap.

[5] Trail sets are placed right on an animal trail. No bait is normally used, as the animal is expected to cross the path naturally. Pen sets are cubbies made of branches, and placed off the trail, under a tree. One opening is made into the cubby, which is either covered by a snare, or a leghold trap is placed inside the cubby. Bait is normally used.

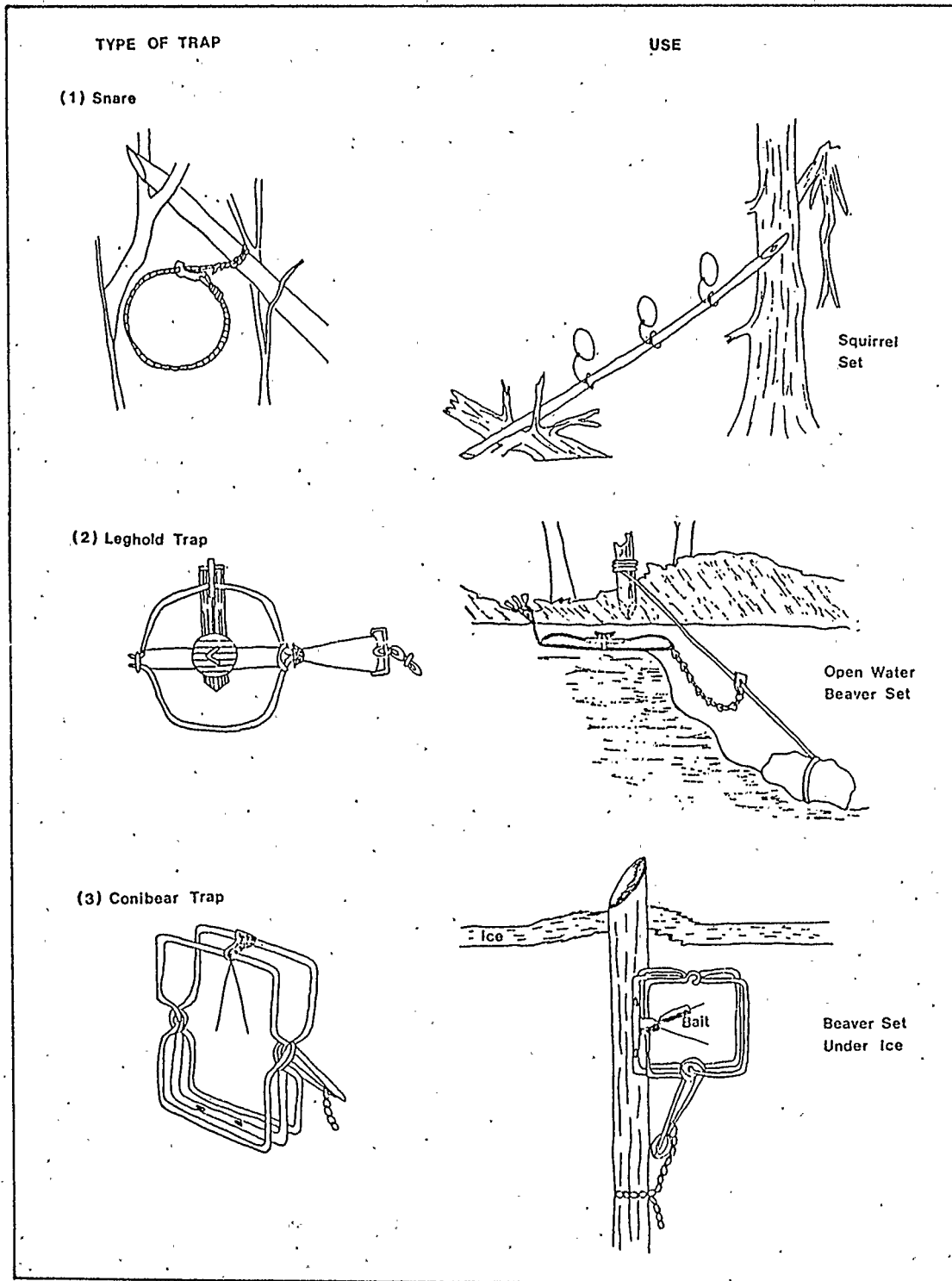


Figure 4-7. TRAPPING DEVICES

Table 4-10. COMMONLY USED METHODS OF CATCHING FURBEARERS IN THE PROJECT STUDY AREA

<u>ANIMAL</u>	<u>DEVICE (S)</u>	<u>DETAILS</u>
Bear	Firearm	Shot in fall or spring
Beaver	Firearm	Shot in open water
	Snare	Runways under ice*
	Leghold trap	Runways under ice*, Drowning set near shore
	Conibear	Runways under ice*, or open water
Coyote	Snare, leghold trap	Trail set*
Fisher	Leghold trap	Pen set*
Fox	Snare, leghold trap	Trail* or pen set*
Hare	Snare	Trail Set*
Lynx	Snare, leghold trap	Trail* or pen set*
Marten		no data
Mink	Leghold trap	Around old beaver dams*,
		Under creek ledges*,
		On muskrat pushups*
		Pen set*
Muskrat	Leghold Trap	In pushups* and houses
	Gun	Shot in open water
Otter	Conibear	Creeks*
	Leghold trap	Trail set*,
		Under running water*
Squirrel	Firearm	Shot in open water
	Snare	Squirrel snare poles*
Weasel	Leghold trap	Around cabin*, squirrel dens*
Wolf,	Snare, leghold trap	Trail set*
	Firearm	Shot on frozen water or muskeg

*Observed in the field

was rare for creek sets [6] or trail sets on more remote parts of the trappers' lines.

Discussions with trappers emphasized the relative importance of firearms (as opposed to traps and snares) in catching spring beaver. "Spring hunt" is a significant event for trappers. In Fort MacKay, it is a group activity partaken by almost every available male in the village. It begins at spring breakup. The men travel in small groups on foot or by snowmobile, or along the Athabasca River by boat. Beaver, otter and muskrats are shot along creeks or sloughs, and some of the meat is eaten. Most of the men stayed out for 7-21 days in 1977, and returned with not only pelts, but also meat for the family table. "Spring hunt" appears to be the most common way of taking beaver in the project study area, and the main fur catching technique for the large number of occasional trappers in the area.

4.2.5. Trapping Companionship

Under the regulations set up by Fish and Wildlife, each trapline is registered under one senior trapper, who is permitted to take one or more registered partners. The wife of a trapper and his sons and daughters under age 18 need not register to trap. Some area trappers also take friends and non-immediate relatives onto the trapline as companions. These companions often

[6] Creek sets are sets placed under ice or open water.

do some trapping, which is technically illegal unless they are registered on that trapline. Trapping partnerships are permitted on adjacent traplines if papers are signed and presented to the local Fish and Wildlife officers. There is only one known partnership of adjacent trappers in the project study area.

Table 4-11. COMPANIONS WHEN TRAPPING IN 1975/76

<u>Companion(s)</u>	<u>White</u>	<u>Metis</u>	<u>Indian</u>	<u>Total</u>
Registered Partners	7	6	6	19
Friends or Family	2	8	4	14
Trapped Alone	6	15	4	25

As shown in table 4-11, more than half of the trappers interviewed reported doing most of their trapping with another person. The other person is often a registered trapper, but field observations revealed that the other trapper is sometimes registered on a different trapline. Trappers who register a partner on their line do not always trap with that person. As often as not, the men will split up their territory, and each will keep his own catch.

Recent pressure by Fish and Wildlife enforcement officials on trappers with low annual yields had led a number of occasional trappers to take partners. In at least four known cases, senior trappers have opted to "hire" others to trap their lines or to buy fur from other trappers and sell it under their own name. This is an unfortunate situation from the trappers' point of view because as a group they approve of neither Fish and Wildlife

pressure, nor the idea of people holding traplines who are not trapping. It presents a management situation that is not easily resolved.

Table 4-11 shows one other interesting detail that was confirmed in field observations; that treaty Indians are the least likely group to trap alone. This may be a historical carryover, a continuing manifestation of the value that Indian society places on sharing. In the case of Fort MacKay, the most traditional settlement of the three studied, three of fourteen trappers do most of their trapping alone. Only one of these is a treaty Indian. The majority of Fort MacKay trapping partnerships observed, registered and otherwise, were partnerships of kin. This practice has traditional roots for Indians, and also exists in other northern Indian communities such as Snowdrift, N.W.T. (VanStone, 1963), and Rupert House, Quebec (Knight, 1968).

4.2.6. Trapping Equipment and Supplies

Nearly every trapper in the project study area has at least one cabin on his trapline, although, according to one senior trapper, this wasn't always the case. Whatever past practices were, there is little doubt that most trappers use cabins nowadays for their overnight stays.

Interviewed trappers were queried about the number of cabins that exist on their traplines and the number that were built in the past five years. Information collected from fifty area traplines showed the median number of cabins to be two. The usual

practice is to have a main cabin, and one or more line cabins for brief stays.

Forty-four percent of the traplines had cabins built on them within the past five years. This is sign that interest in trapping is still strong in the project study area.

Trapline surveys showed a great deal of variation in the quantity of equipment and supplies kept on the trapline. All trappers visited had certain basic equipment such as a stove, lantern, power saw, axe, and ice chopper. However, beyond that, certain white trappers had noticeably more power equipment on their lines than average. For example, three traplines registered to white senior trappers had the following equipment in total; two propane refrigerators, a television set, two power generators, an automatic washing machine, an all-terrain vehicle, a small caterpillar, an acetylene torch kit, and a portable sawmill. All three of these senior trappers spent the entire season on their traplines, not one of which is located within twenty-five kilometres of a community or an all-weather road.

Trapline visits also confirmed that a great deal of variation exists in food supplies. Five of six white trappers visited were observed to have a variety of fruits, vegetables, and even store-bought meats to supplement bush food. Three treaty Indians visited during the survey showed a much greater reliance on wild meat (particularly hare, grouse, ptarmigan, and beaver), most of which was taken on a day-to-day basis.

The differences between Indians and whites in food and supplies used on the trapline is probably a result of two things; differences in economic status, and differences in lifestyle between most whites and northern Indians.

4.3. POSSIBLE DETERMINANTS OF TRAPPING SUCCESS IN THE PROJECT STUDY AREA

Trapping success as used in this section means tangible success, measurable in number of pelts or, in this case, potential dollar value. This is an important point to make because trapping contributes other things to the trapper and the trapping community. These include bush food (and thus a reduction in expense for purchased food), material for clothing, and intangibles, such as happiness at performing the activity, self-pride, etc. However, as information was readily available only on fur catches, this section will only point out correlations between fur catches and other variables.

4.3.1. Effort

One would intuitively expect that for a large sample of trappers, more time spent in the activity would result in more money earned. This was indeed the case and was shown with both t-tests and cross-tabulations. Effort was coded into three categories (the middle category being two weeks to two months on the trapline), and cross-tabulated against 1975/76 trapping income, coded into five categories. A chi square test showed the

three effort categories to be significantly different from one another ($p < .01$).

Next, a t-test was run comparing last year's trapping earnings of those trappers who spent two months or more on their line with those who spent less than two months on their line. The former averaged \$1114 compared with \$526 for the latter ($p < .01$).

The researcher believes that trapper effort (measured indirectly here by time spent on the trapline) is the most important variable in explaining differences in trapline incomes in the project study area. Of course there are a number of items that affect trapper effort, including fur prices, fur abundance (based on both furbearer habitat quality and fur cycles), variations in weather patterns, and variations in personal situations, such as need, available alternatives to trapping, etc. Some of these will be discussed in the next section of this report.

4.3.2. Method of Travel on the Trapline

Since snowmobiles appear to be replacing dogs as the major method of travel on the trapline, it was questioned whether the replacement might produce higher trapping incomes. This question was tested indirectly by comparing the incomes of the trappers using snowmobiles and those using dogs. Snowmobile users were found to average only \$25 (3%) more income in 1975/76 than dog team users, and the difference was not significant. (Note that capital and operating costs are neglected in this comparison). The researcher hypothesizes that changing to snowmobiles makes

trapping more convenient in the project study area, but does not, in itself, make a more efficient trapper.

4.3.3. Use of Traps and Snares

Two t-tests were run comparing trapper income figures for trappers who use mostly snares to trappers who use mostly traps. No significant difference was found between the two groups.

Usher (1971) reported in a Banks Island, N.W.T. study that the number of traps used correlated highly with the number of white foxes caught. A similar analysis was performed on project study area trapper data, using number of traps, and calculated trapper income figures as an indirect measure of the number of animals caught. The correlation analyses performed considered only trappers who use traps and snares equally, or mostly traps. The results show that no significant correlation exists between number of traps owned or accessed and trapping income produced.

This does not prove that a relationship does not exist between number of traps used and trapping income produced, since not every trap owned or accessed is actually used in a given season. However, the researcher doubts that such a relationship exists in the project study area, where snares (which could not be counted) are used so frequently, and the trapping techniques and number of furbearing species available (14) are greater than on Banks Island.

4.3.4. Trapline Area

Trapline areas were tabulated from the trapline maps in the local Fish and Wildlife Branch office. Linear traplines were eliminated from this analysis because there is evidence to indicate that they are trapped more intensively than area traplines (Boyd, 1976). Trapping areas were correlated with three different measures of trapper and trapline income, with the results shown in table 4-12.

Table 4-12. CORRELATION ANALYSIS OF TRAPLINE SIZE WITH FUR DOLLARS PRODUCED

<u>Income Measure</u>	<u>R</u>	<u>R²</u>	<u>Significance</u>
1975/76 Income per Trapper	.31	.09	.03
1973-76 Avg. per Trapper	.58	.34	.0001
1970-74 Avg. per Trapline	.19	.04	.12

While the results are not conclusive, they do strongly support the theory that trapline size is one of several contributors to trapline success. However, the results of another study done in the Fort McMurray area must be pointed out here. Todd (1976) found that a negative correlation exists between cash value per unit area and trapline size. He points out that this is due to decreasing trapping intensity with increasing trapline size. His result may be more important to management in the oil sands area than whether or not trapline size contributes to trapper income because there is very little vacant trapping area available to be used in the expansion of current traplines.

4.3.5 Distance of the Trapline From the Trapper's Home

This information was obtained from the interviewed trappers, or, when in doubt, calculated from a 1:250,000 mapsheet. Distance was correlated with measures of trapper and trapline income, with the results shown in table 4-13.

Table 4-13. CORRELATION ANALYSIS OF TRAPLINE ACCESSIBILITY (DISTANCE FROM TRAPPER'S HOME TO TRAPLINE) WITH FUR DOLLARS PRODUCED

<u>Income Measure</u>	<u>R</u>	<u>R²</u>	<u>Significance</u>
1975/76 Income per Trapper	.40	.16	.002
1973-76 Avg. per Trapper	.50	.25	.0002

These low, significant correlations suggest that as distance travelled to the trapline increases, so does trapping income. The researcher suggests that this is because trappers who opt for lines nearer to their homes may be making less effort to trap their lines than those who opt for the more remote lines. The correlations might be stronger except for the fact that there are some intensive trappers who got their traplines near settlements before any developments were ever imagined.

The researcher is convinced that the correlations are not due in any major part to the absence of furbearing animals near the settlements. Initial beaver counts in the vicinity of Fort MacKay support the researcher's theory that furbearers are far from being trapped out in the vicinity of settlements (personal communication, Dr. F. Gilbert). [7]

4.3.6. Trapping Blocks

The study area was broken down into six trapping blocks in order to examine the value of each to trappers using them (figure 4-8). These blocks differ from one another in proximity to settlements, terrain, and principal means of access.

A cross-tabulation of three year average trapper and trapline incomes with trapping blocks reveals that seven of eleven sampled trappers averaging more than \$1000 from their traplines trapped in either the North Athabasca or Birch Mountain blocks, despite the fact that only thirty-five percent of the trappers sampled trapped on these blocks. Furthermore, these two blocks contain all seven of the traplines averaging more than \$2,000 worth of fur. The North Athabasca block is the likely location of the majority of new oil sands developments (see chapter 5).

4.4. TRAPPER MOTIVATION

The purpose of this section is to provide some insight into the material and social needs of trappers, that are satisfied by trapping. This is an important perspective for those who are charged with trapline management to consider, especially those who will eventually decide what happens to trappers adversely affected by oil sands development.

[7] Dr. F. Gilbert, principal investigator, AOSERP aquatic furbearer study.

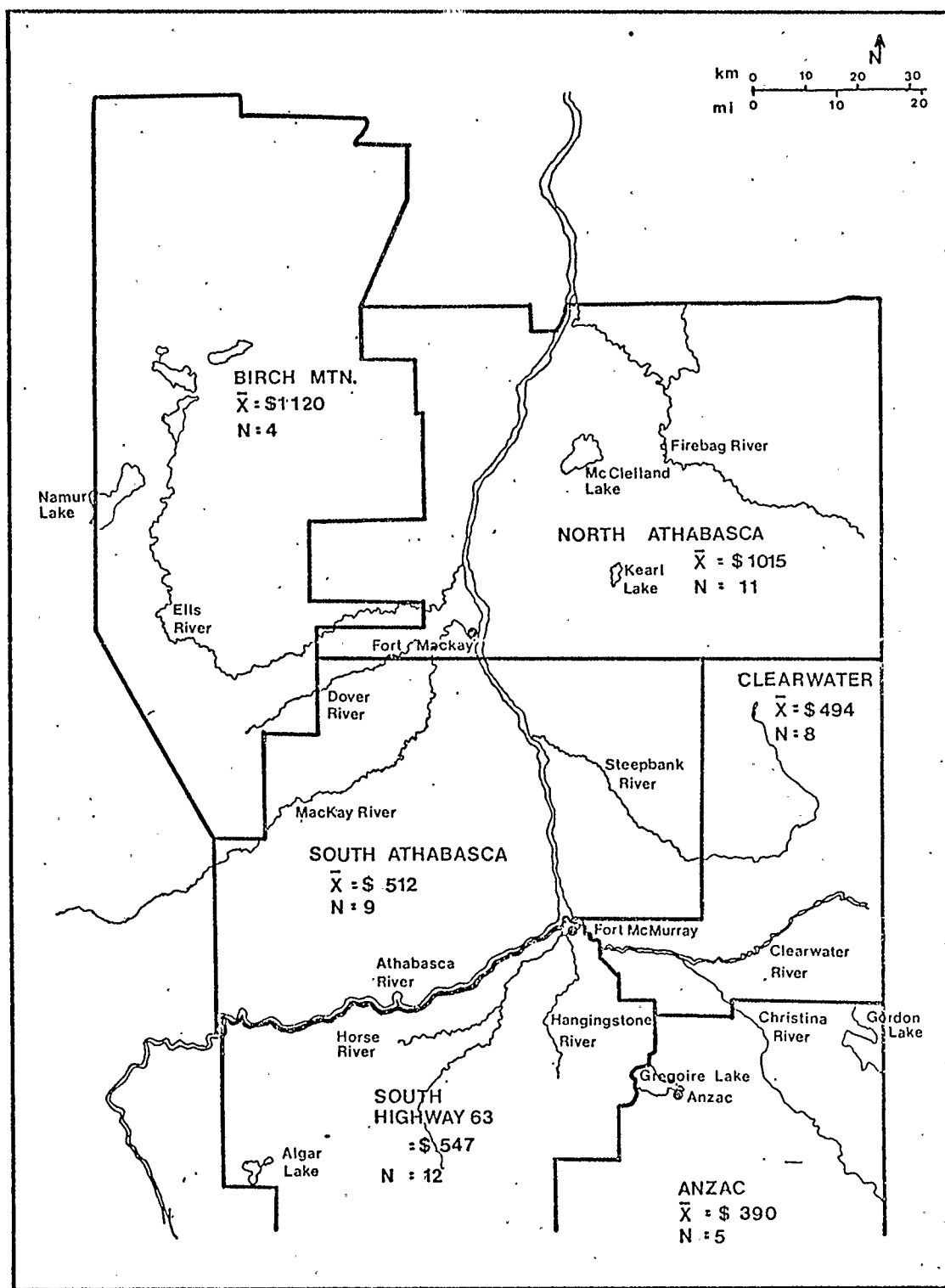


Figure 4-8. AVERAGE (73/74 to 75/76) TRAPPER INCOME MEANS IN 6 TRAPPING BLOCKS IN THE PROJECT STUDY AREA

Unfortunately, the analysis provided here is a crude one. It is not the result of a well-defined attitude survey (as defined by a sociologist), or extensive participant observation among the trappers. It is the result of some insight on the part of this researcher gained over a thirteen month study, and twenty-eight informal, randomly selected interviews.

In the discussion that follows, the researcher will assess the validity of some of the results, based on limitations of the technique and the amount of extrapolation from collected data that was necessary to produce a result. Within the limitations mentioned, the researcher believes the results present a valid picture of trapper motivation in the project study area, which is useful for the purpose of trapline management.

4.4.1. Enjoyment of the Lifestyle

This is a very general motivational category that indicates trappers who perform the activity because they like the lifestyle. Table 4-14 shows that for eighteen of twenty-three trappers scored on the second interview, enjoyment was a strong motive for the activity. This was consistent with earlier fieldwork.

The following comments made by trappers explain best what they enjoy about the lifestyle:

-I like being out there. It's good for me.

-I like to be in the bush.

- There's no clock there. I work when I want.
- I like being my own boss.
- It's a good life. Lots of old people get pensions but you can't chase them out.
- Just to be out there alone...nobody bothers me.
- I feel happier to be in the bush....I'd die if I was put in the city.
- Good food.

Table 4-14. ENJOYMENT OF LIFESTYLE AS A MOTIVATION FOR TRAPPING IN THE PROJECT STUDY AREA¹

<u>Code</u>	<u>Abs.</u> <u>Freq</u>	<u>Rel.</u> <u>Freq(%)</u>	<u>Adjusted</u> <u>Rel. Freq (%)</u>
Strong Motive	18	64	78
Motive	5	18	22
Not a Motive	0	0	0
Not Coded	5	18	-

¹Coded from 28 interviews, May, 1977.

Most trappers made reference to the bush itself in commenting about the lifestyle. It seems that, to the trapper, the trapping activity is viewed as only part of a total lifestyle that includes being in the wilderness, and enjoying self-reliance and freedom. This was true for white and native trappers alike. This view of the trapping activity is very different from the official view of trapping, as evidenced by the game laws which differentiate the trapping activity from other parts of trapping life (such as hunting and fishing). This was an often-heard complaint from area trappers, which could be remedied by a change in

the game laws.

4.4.2. Tradition

Tradition is used here in a broad sense to mean not only a cultural pattern that is passed down the generations, but also a personal pattern, formed early in life, and continually maintained. Coding for tradition required a lot of extrapolation from actual statements, and in the process, the researcher was more inclined to assume tradition as a trapping motive for native people than for whites (as native society had been committed to a hunting-trapping lifestyle for centuries). Native people were more often brought up on traplines than whites, and this factor was heavily weighted in the coding decision.

The researcher found tradition to be a motive of almost three quarters of the coded trappers, particularly treaty Indians and older trappers.

In addition, there appears to be a connection between tradition as a motive and trapping effort, although a chi square test just missed detecting this at the .05 level of significance.

Sample responses of trappers motivated by tradition are:

"Ever since all my life, [sic] that's all I've been doing. Since my dad was alive, I was a trapper."

"Grandchildren have to learn [the] Indian way, too."

"When you spend all your life at it, you seem to need it."

"Because I was trapping all my life..."

"That's how I make my living." [8]

Table 4-15. TRADITION AS A MOTIVATION FOR TRAPPING IN THE PROJECT STUDY AREA¹

Code	Ethnicity			Age			Effort	
	Whi	Met	Ind	18-35	36-55	over 55	<2 mo.	>2 mo.
(1) Strong Motive	3	3	7	1	6	6	3	8
(2) Motive	0	2	1	1	2	0	2	0
(3) Not a Motive	4	2	0	1	4	1	3	1

¹Coded from 28 interviews, May, 1977.

4.4.3. Financial Need

Trappers considered here as being motivated by financial need are those who trap to support themselves or their families, those who depend on trapping money during the trapping season, and those who need the money in order to do things they consider a part of their lifestyle (boating, snowmobiling, etc.). The

[8] The term "make my living" was used often by native people in the project study area, even by trappers who were clearly not "making their living" at trapping. The researcher took this expression to mean a major activity done over a person's life.

question of financial need is a key one in the opinion of the researcher, because, before the days of the wage economy in the North, indigenous people were trapping out of economic necessity. Field observations prior to the second interviews raised the possibility that trappers are much less motivated by economic necessity than used to be the case before the coming of the GCOS project, and that lifestyle considerations have become a much more conscious motive for trapping by the native people. A special effort was made to get the trappers to talk financial need without biasing the responses by asking a direct question. In addition, trappers were assumed to trap out of economic necessity (for the purpose of coding) unless it was clearly indicated in the interview that this was not the case.

The results support the researcher's hypothesis, showing clearly that financial need is not a motive for trapping for over fifty percent of the interviewed trappers. However, treaty Indians are apparently more motivated by financial necessity than either Metis or white trappers.

Motivation due to financial need showed a significant relationship to trapping effort ($p < .01$). The researcher suspects that the relationship between financial need motivation and actual trapper behavior, is causal.

It is interesting to note that while trapping out of financial necessity was more applicable to native people than to whites, it is the native people who get the poorest prices for their furs by selling them to middlemen for immediate cash in-

Table 4-16. FINANCIAL NEED AS A MOTIVE FOR TRAPPING IN THE PROJECT STUDY AREA

<u>Code</u>	<u>Abs.</u>			<u>Rel.</u>		<u>Adjusted</u>	
	<u>Freq</u>			<u>Freq</u>	<u>(%)</u>	<u>Rel. Freq</u>	<u>(%)</u>
(1) Strong Motive	3			11		11	
(2) Motive	10			36		36	
(3) Not a Motive	15			54		54	
(4) Not Coded	0			0		-	

<u>Code</u>	<u>Ethnicity</u>			<u>Age</u>			<u>Effort</u>	
	<u>Whi</u>	<u>Met</u>	<u>Ind</u>	<u>18-35</u>	<u>36-55</u>	<u>over 55</u>	<u><2 mo.</u>	<u>>2 mo.</u>
(1)	0	1	2	0	2	1	0	2
(2)	2	4	4	3	5	2	0	8
(3)	6	7	2	4	7	4	11	2

¹Coded from 28 interviews, May, 1977.

stead of shipping them directly to a major fur auction. This situation could be remedied by a small transportation enterprise which could advance cash and handle the shipping of fur to the major auctions. A native-run cooperative is one possibility, although there appears to be a lack of local native personnel with the necessary training to run such an enterprise.

4.4.4. Money as a Motivating Factor, Without Financial Need

Aside from financial need (as already defined), it was established that the desire for money itself is a motivating factor for trappers. This factor was examined indirectly by asking the trapper how he reacts to high prices offered for furs. Those

trappers saying they were more motivated to trap when fur prices were high, were considered to be motivated by money.

Table 4-17. MONEY AS A MOTIVE FOR TRAPPING IN THE PROJECT STUDY AREA¹

<u>Code</u>	<u>Abs. Freq</u>	<u>Rel. Freq(%)</u>	<u>Adjusted Rel. Freq(%)</u>
Strong Motive	7	25	26
Motive	12	43	44
Not a Motive	8	29	30
Not Coded	1	4	-

¹Coded from 28 interviews, May, 1977.

Table 4-17 shows that seventy percent of the interviewed respondents are motivated to trap to some degree by money. Money motivation appears to be strongest for treaty Indians, and weakest for trappers over 55, but data is lacking to establish significance on these points. Money motivation also appears related to trapper effort, but this relationship was not significant at the .05 level.

4.4.5. Need of Meat

As already mentioned, trappers do not look upon trapping as an isolated economic activity, but rather as a part of a self-sufficient lifestyle which is connected with other wilderness activities. One of these activities is hunting, which may be done for pleasure, need, or both. Trappers were queried about the im-

portance of meat supplied from the trapline, for use either on or off the trapline. Previous fieldwork led the researcher to suspect that the trapline is at least as important for supplying meat as it is for supplying money through the sale of furs. [9]

Table 4-18. IMPORTANCE OF THE TRAPLINE FOR SUPPLYING MEAT TO PROJECT STUDY AREA TRAPPERS¹

<u>Code</u>	<u>Abs.</u> <u>Freq(%)</u>	<u>Rel.</u> <u>Freq(%)</u>	<u>Adjusted</u> <u>Rel. Freq(%)</u>
(1)Very Important	3	11	12
(2)Important	12	43	48
(3)Not Important	10	36	40
(4)Not Coded	3	11	-

<u>Code</u>	<u>Ethnicity</u>			<u>Age</u>			<u>Effort</u>	
	<u>Whi</u>	<u>Met</u>	<u>Ind</u>	<u>18-35</u>	<u>36-55</u>	<u>over 55</u>	<u><2 mo.</u>	<u>>2 mo.</u>
(1)	0	2	1	0	2	1	0	3
(2)	3	4	5	4	4	4	0	8
(3)	4	5	1	3	5	2	9	0

¹Coded from 28 interviews, May, 1977.

[9] The economic value of the meat taken off the trapline can be crudely estimated by considering the replacement value of this meat if it were bought in local stores. Assuming that sixty percent of area trappers get their meat from the bush (see table 4-18), that these trappers spend an average of three months per year on their traplines, that they require about 0.7 kilograms of meat per day to meet caloric requirements, and that store-bought meat averages four dollars per kilogram around Fort McMurray, the meat taken off the trapline would be valued at over \$19,000 per year.

Table 4-18 shows that sixty percent of the sampled respondents feel that they need the meat from their traplines, including five of six treaty Indians.

One trapper explained that, even if he is not trapping when the meat is needed, it is easiest to hunt in familiar territory, such as one's own trapline. Another trapper said that he is more comfortable hunting on his own trapline than anywhere else. However, it appears that most trappers are opportunists when it comes to big game; they will hunt it on other traplines where it is most frequently found. One such place in the project study area is along the Firebag River near its mouth, which is frequented by large numbers of moose.

Trappers, asked about their use of different animals on the trapline, reported taking small game for food most frequently (table 4-19). This includes hares, grouse, and ptarmigan, as well as small furbearers such as beaver and muskrat. Big game animals, such as moose and woodland caribou, are taken on the trapline by about half the trappers on a regular basis. Fish are rarely taken from traplines due to the scarcity of productive lakes and streams on project study area traplines. Most trappers who use fish on a regular basis, such as for feeding dogs, obtain it from the Athabasca River with a gill net. [10]

[10] Domestic Fishing Licenses are required, but are easily obtained by trappers. They are free to treaty Indians, and \$2 for everyone else.

Table 4-19. USE OF MEAT AND FISH FROM THE TRAPLINE BY PROJECT STUDY AREA TRAPPERS¹

<u>Code</u>	<u>Big Game</u>	<u>Small Game</u>	<u>Fish</u>
Taken Most Years	10	19	4
Taken Some Years	3	3	1
Rarely or Never Taken	8	3	21
Not Coded	7	3	2

¹Coded from 28 interviews, May, 1977.

A chi square testing the relationship between need for meat and trapping effort proved significant at the .01 level. The researcher hypothesizes that the need for meat is causally related, not so much to actual trapping effort, as to time spent on the trapline. At the same time, the reverse is true for many trappers; time spent on the trapline results in a greater need for meat from the trapline. It is easier for trappers to obtain bush food than it is for them to haul and store large quantities of food from home. This may explain why trappers who are not financially dependent on trapping still require meat from the trapline.

4.4.6. Fur Abundance

The strength of motivation to trap due to the abundance of fur is an important question, especially since the ten year cycle was at its bottom point when the study was undertaken. Unfortunately, the importance of this question was not recognized un-

til after the second interviews were given, so no statistics are available. However, as mentioned earlier in this chapter, sixteen trappers did mention the lack of fur on their lines in interviews, one of whom spent than two months on the trapline in 1975/76. For the others as well as trappers who did not pay for their lines in 1975, it is hard to say whether or not the peak of the ten year cycle will motivate them to trap again.

It should be noted that studies in other northern areas mention the importance of furbearer populations as a motivator to trap. These areas include the Yukon (Tanner, 1966), Attawapiskat, Ontario (Honigmann, 1962), and Banks Island (Usher, 1971).

4.4.7. Other Reasons Given for Trapping or Holding a Trapline

Other motives exist for trapping or holding a trapline, and while they are less significant for the trappers as a whole, they are very important to certain individual trappers.

Two motives reported by ten of twenty-eight trappers interviewed are holding the trapline for either personal security, or to pass on to a young relative. Although no statistics were compiled on this point, security appears to be a strong motive for native trappers who currently hold other jobs. Several native residents who hold traplines but work full-time expressed skepticism about the tenure of their jobs. They view the trapline as something they can always go back to, as a retreat from the drudgery of wage work they do not like, or out of economic necessity, if need be.

At least four trappers from Fort McMurray and Fort MacKay view their traplines as something that will bring them money in the future through compensation by oil companies ready to develop their leases. Two compensation settlements already made, awarding \$6,500 and \$10,000 to native trappers whose lines were lost to Syncrude development (personal communication, T. Garvin) [11] are viewed by some of the trappers as an easy way to get money. The temptation to hold a trapline for this reason is strong for trappers with lines on the east side of the Athabasca River, which is rumoured to be the next area developed.

Passing down a trapline from father to son was a common practice among native people, and the desire to do so continues to exist today. Under Fish and Wildlife regulations, there is no guarantee that when a line is relinquished, it will automatically go to the trapper's son, nephew, or grandson, but the researcher knows of no case where such a request by the trapper was denied. Unfortunately, the potential recipient of the trapline is not always old enough to register the line when the senior trapper is ready to retire. [12] The old trapper may then hold the line, doing very little trapping, until the relative comes of age. Local Fish and Wildlife officials have solved this problem to some

[11] Terry Garvin, Community Relations Coordinator, Syncrude Canada, Fort McMurray, Alberta.

[12] A person must be 18 years of age to register a trapline or become a partner on one, in Alberta. A registered trapper's son or daughter need not register to legally trap if they are under 18.

extent by encouraging young trapline applicants to become partners with some of these old trappers. This is a good practice in that it trains a young trapper, gives the older trapper the satisfaction of passing on his knowledge, and keeps the line trapped in the years it would ordinarily not be trapped. In addition, if the trapper's desired recipient of the trapline turns out not to be as interested in trapping as the elder had hoped, the line can be passed on to the partner, who is now an experienced trapper.

The last motive to be discussed here is prestige. Historically, hunting and trapping excellence were looked up to in the Chipewyan and Woodland Cree cultures. Because of this, it was hypothesized that prestige would be an important motive for trapping in the project study area. No direct evidence was found to support this idea. Perhaps trappers gain status among their peers by bragging about their skill or catch. Trappers queried about this denied it, saying, "Everybody is the same". Two white trappers did mention that they get prestige from being associated with trapping. One is a writer; the other is often invited to talk about trapping to young people in the schools.

4.5. THE FUTURE OF TRAPPING IN THE PROJECT STUDY AREA

One can never be confident of future predictions, and those offered here must be treated with caution. Present trends in trapping in the project study area can and will change with future development and changes in the state of the fur industry in

Canada. The predictions are based on current observations and trends in trapping, reports about trapping in other northern communities in Canada, and certain assumptions about development in the project study area and the fur industry in Canada.

4.5.1. Trapping Research in Other Northern Areas

VanStone (1963) noted that trapping in the Indian community of Snowdrift, N.W.T. had undergone a decline, which he related to certain acculturative factors, such as the increasing importance of settlement life and the availability of wage employment. The tendency of Indians to spend more time in permanent communities was noted in virtually every study examined. It was related to a shrinkage of trapping territory and a concentration of trapping near the permanent community by VanStone (1963) in Snowdrift, Buckley (1963) in various northern Saskatchewan communities, and Brown (1966) in Colville Lake, N.W.T.

The availability of wage work was cited as a cause of the decline of trapping in communities such as Snowdrift, Lac La Marte, N.W.T. (Liebow and Trudeau, 1962), Rupert House, Quebec (Knight, 1968), and the Mackenzie Valley, N.W.T. (Asch, 1977). These authors report a decline in either numbers of trappers, time spent trapping, or the proportion of trapping income to total community income, although at least one author (Asch) strongly feels that this pattern is not of the people's choosing.

Two studies report the increasing importance to native people of the spring hunt (Slobodin, 1966, in the Mackenzie Valley, and Rushforth, 1977 in Fort Franklin, N.W.T.). The former feels this is indicative of a decline in trapping, the latter does not.

Panpanekis (1972) and Berger (1977) note a decline in native trapping in the 60's, which they blame on low fur prices. Berger believes this effect was only temporary. Tanner (1966) believes that fur catches in the Yukon are related to fur prices, as well as furbearer abundance. Honigmann (1962) noted that the Attawapiskat Cree respond to furbearer scarcity by trapping less, although he did not state whether trapping has actually been declining there.

A decline in trapping activity is related to changes in attitudes and values by Brown (1966), VanStone (1963), and Usher (1971). Brown and VanStone noted that Indian people in the N.W.T. were tending to devalue trapping ever since permanent settlements and wage work was introduced into local areas. Usher states;

"Where trapping is not itself a valued pursuit, it becomes merely a secondary adjunct to subsistence hunting, or more recently, to casual labour."

(1971, p. 34).

In summary, studies done in other Canadian boreal communities show a general trend of declining trapping activity, not always accompanied by a decline in other subsistence activities related to trapping. Reasons for this decline are:

- 1 The increasing importance of the permanent settlement in the native way of life (not always by choice),
- 2 The availability of other income sources, and
- 3 The instability of trapping incomes due to fluctuations of furbearing animals and the prices paid for their pelts.

Indicators of a decline in trapping cited in the literature are; shrinkage of the total area trapped; an increasing amount of trapping near permanent settlements; and a decline in the value trappers place in the trapping activity relative to other activities.

Little mention of white trappers was made in the literature. As previously pointed out (chapter 2), white trappers coming in from the South were considered the cause of fur decline in the Mackenzie watershed in the early 1900's (MacGregor, 1974, and Fumoleau, 1975). This was also noted for northern Saskatchewan in the 1930's (Worsley et. al., 1961). The pressure they exerted on the fur resource and the native people resulted in some provincial and territorial governments passing laws to limit the number of white trappers who could trap in the North. For example, no new whites were issued trapping licenses in the N.W.T. after 1938 (Brown, 1966). Saskatchewan reorganized trapping territories in 1946 which kept southern whites from trapping in the northern part of the province (Worsley et. al., 1961). However, not all provinces took such action. Alberta has never limited the number of white trappers who could register lines in the northern part of the province.

4.5.2. Trapping Trends in the Project Study Area.

Several of the changes believed to affect trapping patterns were also noted in the project study area. The most important of these is the availability of wage work to native residents of Fort McMurray, Fort MacKay, and Anzac. The opportunity for wage work was initially available to native people during the "transportation period" (see chapter 2). The construction of the GCOS plant in 1963 made wage work more generally available to native people in the area.

Section 4.1.6 emphasizes the extent of the attraction wage work now has to native trappers. The scenario used in this report assumes that oil sands development in the AOSERP study area will continue at least into the 21st century. If this is the case, it is likely that wage work will continue to take native people off the trapline.

Most of the points raised in the literature about the increasing attraction of the settlements for native people are irrelevant for future predictions of trapping in the project study area. The three permanent settlements date back to the late 1800's and early 1900's; thus, plenty of time has elapsed for native trapping patterns to adapt to the presence of permanent settlements. This can be shown by the fact that only one trapper in the entire project study area is known to live a year-round existence in the bush. It does not mean that future trappers will not be affected by further changes in the settlement pattern; only that native people now trapping have already adapted their

trapping patterns to the major influences of permanent settlements (schools, churches, government assistance, and social life changes).

There is some evidence to suggest that native trappers are abandoning the more distant traplines. In the Fort MacKay area at least five "treaty lines" and six other lines have been left vacant by trappers from that settlement over the past three years. Five of these lines are in the Birch Mountains, and two others are eighty or more kilometres away from the village. (It is possible, however, that these abandonments are only temporary, while the fur is scarce).

Two other items noted in the project study area may be pointing to a future decline of trapping among native people. They are; the importance of the spring hunt (section 4.2.4), and the lack of evidence that trappers enjoy status in the two native communities. However, the relative importance of spring hunt to the overall fur harvest of native trappers could actually decrease if fur prices improve. It is impossible to predict the future of fur prices, although it is likely that area trappers will soon receive more money for their furs when trapper education courses come to Fort McMurray. [13]

[13] This optimistic prediction is based on the current success of trapper education courses held in Lac La Biche and Grouard, Alberta (personal communication, D. Unger).

Demographic trends in Fort MacKay and Anzac (section 4.1.3) may be relevant to the future importance of trapping to these two communities. Anzac had no registered trappers under the age of 35 in 1975/76, and the mean age of Anzac trappers was 60. Fort MacKay had only two registered trappers under age 25, and eight of the ten trappers under age 35 did very little trapping in 1975/76. New registrations improve the picture slightly. It was interesting to note that thirteen Metis under the age of 30 registered traplines in 1976 who did not do so the previous year. Five of the thirteen live in Anzac and Fort MacKay.

Perhaps the most important trend to watch is the change in the number of trappers who trap for economic necessity. Section 4.4.3 shows the extent that white and Metis trappers are no longer motivated by economic necessity. This trend could soon affect treaty Indian trappers as the old people retire from trapping and more acculturated young people register these traplines. This is already happening to some extent in Fort MacKay, much as it is happening in the N.W.T.

4.5.3. The Future of Trapping in the Project Study Area

The following assumptions are made for predicting the future of trapping to the year 2000:

- 1 Development in the project study area will proceed as predicted by the scenario in chapter 5. This includes the addition of five oil sands plants, two major roads, a new town, a provincial park in the Birch Mountains, and a threefold area population increase.

- 2 Neither the federal nor the provincial governments will intervene to stabilize prices paid to trappers for their furs (or to provide significant financial incentives to trappers).
- 3 Fur prices will continue to fluctuate as they always have, and will not significantly increase over the next twenty-five years any faster than the rate of inflation.
- 4 Trapline management policies in Alberta will not change significantly.

These are conservative, but reasonable assumptions, given the current priorities for the development of non-renewable versus biological resources.

(They are not, however, the optimum policies for the upgrading of trapping in the area. These will be discussed in chapter 6 of this report.).

If these assumptions are accurate, current employment and demographic trends among Fort MacKay and Anzac trappers suggest a decline in the importance of trapping to the total income of these two communities. This will include a decline in the number of trappers from Anzac, starting in about ten years. The number of trappers from Fort MacKay will probably not decline significantly over the next ten years, but the actual area trapped and time spent trapping may. Trappers from Fort MacKay will continue to hold most of the traplines they do now, although the more distant ones may be used to a lesser degree. The opposite could happen if Fort MacKay residents begin to buy cars and trucks by the time a road into the Birch Mountains is constructed. This would result in an increase of trapline useage in the Birch Mountain area by residents of both Fort MacKay and Fort McMurray.

Changes in trapper motivation will likely continue into the year 2000, although Fort MacKay trappers, coming from a community that is still fairly traditional, may lag behind in that aspect. Although there will be some who quit trapping to take better paying wage jobs, a significant number of these trappers will continue to trap on a part-time or occasional basis. Traplines should continue to be in demand because there should be a continuing surplus of "hobby trappers" to take up the vacated lines. Trapline vacancies will continue in the more remote areas not accessible by boat or truck, notably the southwestern and eastern portions of the project study area.

Finally, given the current trapping output of occasional trappers in the area and a predicted increase in the number of occasional trappers, fur yields will decline in the long run, although annual yields will continue to vary with fur abundance (and fur prices to a lesser extent).

At least half of the trappers who are currently trapping will have retired by the year 2000. Those who remain will likely be more fully integrated into wage employment.

The big question is what will the future native trappers be like? This will depend very much on future cultural, educational, and employment trends in Fort MacKay and Anzac. It may also depend on the number of native trappers who migrate to Fort McMurray from surrounding communities, and how they relate to trapping.

5. IMPACT OF OIL SANDS DEVELOPMENT ON TRAPPING

Thus far the report has concentrated on the trappers; their demography, land use, and motivation. This user information was collected for use in an impact assessment and the development of a subsequent management strategy. This chapter, which concentrates on the impact assessment, begins with a development scenario. Impact is then presented in two parts; direct impacts, or losses that trappers are likely to incur; and indirect impact, or changes in trapping patterns as a result of development.

5.1. DEVELOPMENT SCENARIO

The scenario developed here is based on 1977 predictions of the development of oil sands plants by the Long Term Energy Assessment Program (LEAP) of the federal government. This scenario is similar to, but more recent than two other scenarios written for oil sands development (Integ, 1973, and Hydrocarb, 1975). The researcher believes it is a reasonable scenario, since it incorporates both government and industry's thinking. [1] However, the rate of actual development will depend partly on factors which are very difficult to predict; such as future oil prices, plant construction costs, supply from other sources, demand, and government policy towards domestic production and importation of

[1] Three of the five projected oil sands plants in the LEAP scenario have already been proposed to the Energy Resources Conservation Board (Shell, Home, and Petrofina). A fourth (Amoco) has a pilot project going on one of their leases.

oil. The uncertainty of these factors limits the predictability of the future with any scenario.

Oil sands development brings with it other forms of industrial development, as well as municipal and recreational development. The scenario was expanded to include these other forms of development, which have the potential to affect trapping to at least the same degree as oil sands mining itself.

The reader should bear in mind that the scenario developed here is based on a great deal of speculation. It is meant to be used only as a reference point from which impacts can be predicted, and not as an end in itself.

5.1.1. Shallow Surface Mining

The projected establishment of specific oil sands plants as predicted by LEAP is shown to the year 2000 in table 5-1, and mapped on figure 5-1.

Table 5-1. Shallow Surface Mining Stripping 0-125 Ft. Of Overburden On The Athabasca Deposit.

<u>DATE</u>	<u>TOTAL CAPACITY</u> (Bbls. per Day)	<u>COMPONENT OPERATIONS</u>
By 1980	185,000	GCOS, Syncrude I
By 1990	510,000	GCOS, Syncrude I, Syncrude II, Home Oil, Shell Oil
By 2000	550,000	Syncrude II, Home Oil, Shell Oil, Canadian Petrofina

Source: LEAP, May, 1977.

The rate of development of surface mining oil sands plants was assumed to be approximately one every six years after 1978, with a gradual phasing out of surface mining operations after the year 2000.

These plants are expected to operate on a technology similar to that of GCOS; based on the hot water extraction of bitumen mined subsequent to the stripping of forests and non-bituminous overburden. This includes the use of tailings ponds for storage of waste from bitumen separation and purification. The tailings include water with suspended mineral fines and unextracted bitumen, and sand.

A map produced for an industrial development study of the Fort McMurray region (Hydrocarb, 1975), shows that the ultimate development of five oil sands leases by the major companies already named, may consume half of these lease areas. This includes mining areas, tailings ponds, and plant sites, but not roadways, power lines, or pipelines.

5.1.2. In-Situ Extraction

LEAP assumes a sustained level of production from the Athabasca Oil Sands of one million barrels per day of synthetic crude oil after the year 2000. It includes the development of an in-situ Amoco plant in the Gregoire Lake area. The three Amoco leases in the area cover 265 square kilometres (figure 5-1), and the Amoco lease on the Gregoire Lake Indian Reserve is currently undergoing in-situ testing.

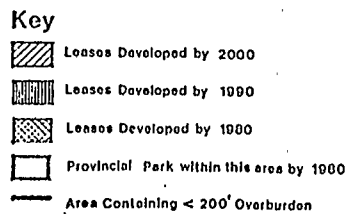
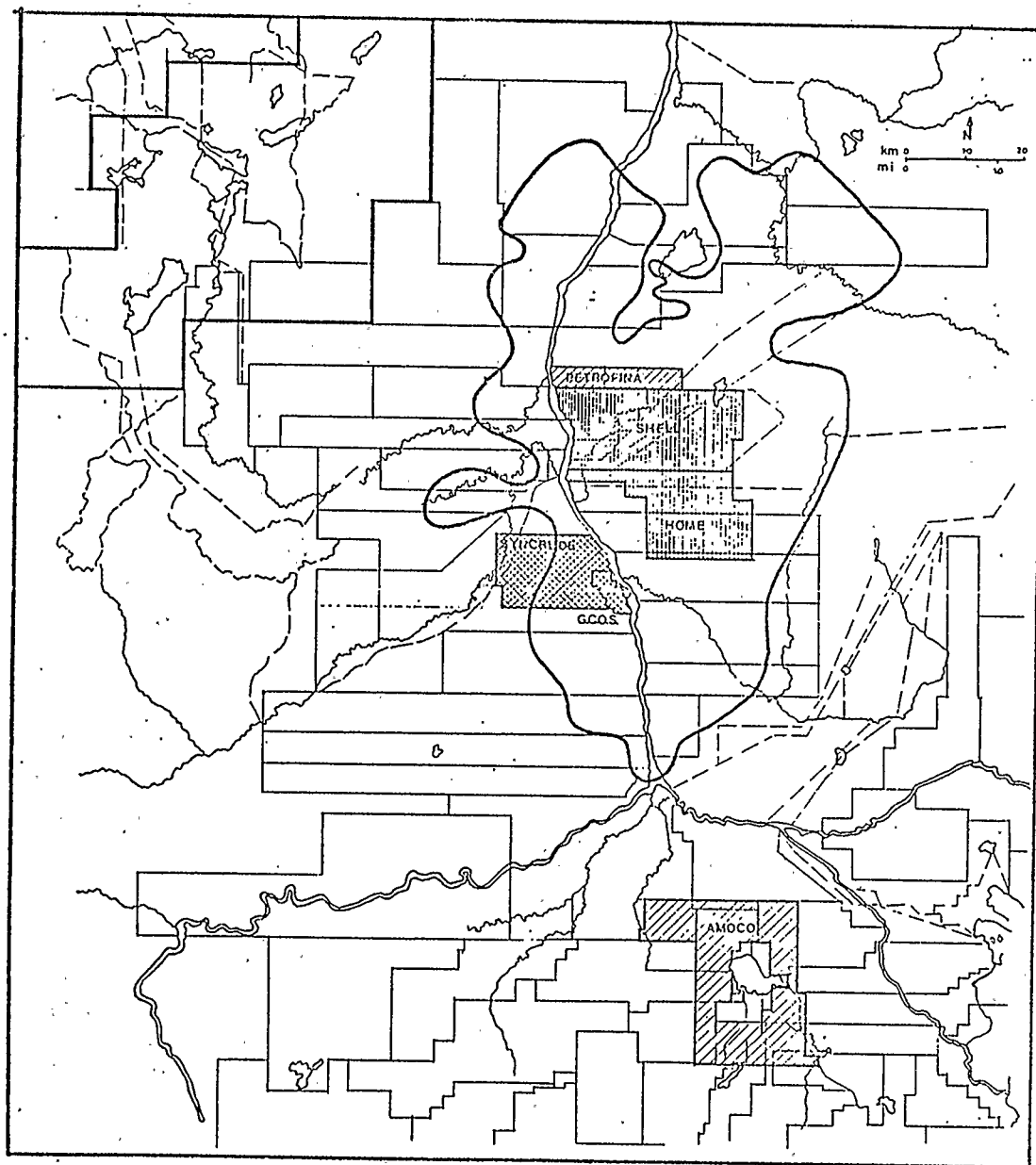


Figure 5-1. DEVELOPMENT SCENARIO

In-situ operation involves underground burning of the bitumen; which develops heat in the formation, reduces the viscosity of the bitumen, and displaces it to producing wells (Lombard North, 1975). The pattern of injection and production wells to produce the 450,000 barrels per day suggested by LEAP would cover about 46 square kilometres of land.

5.1.3. Recreational Development

Continuing growth in Fort McMurray has resulted in the need to supply a new provincial park to the area. Currently, there is only one, at Gregoire Lake. While there are plans to expand its facilities, a new provincial park will be definitely needed in the early 1980's (personal communication, C. Lacey,). [2] The Minister of Recreation, Parks, and Wildlife has already announced his intention to develop a park in the Gardiner-Namur Lakes area (Campbell, 1976). In fact, a Land notation has been placed on a large block of land around these lakes (figure 5-1). [3]

Other areas such as Gordon and Gypsy Lakes are also being considered for future parks, but planners do not know if and when these areas will be developed (personal communication, C. Lacey).

[2] Cliff Lacey, Regional Parks Planner, Alberta Dept. of Parks, Recreation and Wildlife, Edmonton.

[3] A Land Notation is a form of surface reservation, in which any outside applications for improvement are referred for scrutiny to the department making the reservation.

The scenario used in this report includes the development of a major park in the Gardiner-Namur Lakes area by 1980, in which trapping will not be prohibited. [4] Also assumed is an all-weather road from Fort MacKay to the park, following closely the path of the major winter road in that area (figure 3-1).

5.1.4. Road to Wood Buffalo Park Area

At the present time, Alberta Transportation is examining several alternatives for a surface transportation corridor to the Wood Buffalo Park area, as part of an overall transportation study of northeastern Alberta (personal communication, Dr. G.A. Ross). [5] Three of the four routes being examined would connect Fort McMurray with either Fort Chipewyan, or the Wood Buffalo Park road. This could mean an all-weather road paralleling either the east or the west bank of the Athabasca River, within the project study area. Construction could begin in the next five years.

[4] Mr. Adair, the Minister of Parks, Recreation and Wildlife, stated "...and traditional hunting...should not be taken away from local people", referring to the new park to be built in the Namur-Gardiner Lakes area (Campbell, 1976).

[5] Dr. G.A. Ross, consultant and advisor for Alberta Transportation, Faculty of Environmental Design, University of Calgary.

Presently there is not enough information to determine the route, or indeed if a highway link will be chosen at all. If a road is chosen, it appears more likely that it will be built from Fort McMurray rather than from the Peace River country to the west. This is because of Fort McMurray's potential size and importance, and because a road from the west could run into jurisdictional complications since it would have to be built through a National Park.

This report assumes a road will be built by 1982, parallel to the east bank of the Athabasca River, north from Fort MacKay. If in fact it is built on the west bank, the impact on trapping would be similar, although different trappers would be affected.

5.1.5. Regional Growth and a New Town

At least one study done in the project study area attempts to make a strong case for a new town. It points out several disadvantages of having Fort McMurray service the entire area population in the future. Underwood McLellan (1973) projects an increase of 20-50 thousand people solely from the development of new oil sands plants north of Fort MacKay, and suggests that Fort McMurray cannot comfortably handle the growth. The report goes on to point out that future plant sites will likely be too distant from Fort McMurray for comfortable commuting (58-74 kilometres for the Shell, Home and Petrofina plants), and that the costs of such commuting are unfavorable for the companies involved.

Current Alberta government policy states, "The Government will encourage the improvement and growth of existing towns and facilities rather than the development of new ones" (Coal Policy, 1976). This makes the prediction of a new town in northeastern Alberta a tenuous one at best. However, considering the factors already mentioned, as well as the LEAP scenario (which considers two new towns by the year 2025), a new town will be used in the scenario in this report. Its location is assumed to be near Bitumount and McClelland Lake (figure 5-1), consistent with the Underwood McLellan recommendation.

Underwood McLellan population projections are based on a figure of 1500 employees per plant, to which any natural population increases must be added. Even the 1500 figure may be low, as Hydrocarb (1975) predicts an average of 1800 employees for future plants.

5.1.6. Coal Development

At one time, Shell Oil was considering the prospect of using locally-mined coal to fuel an oil sands plant. They were granted the right to explore land near the Firebag River that is under their lease application. However, exploration to date has had disappointing results, as the limited extent and discontinuity of the coal seams make development uneconomic (personal communication, M. Mahannah). [6] For this reason, coal development will

[6] Moe Mahannah, Manager of Coal Development, Shell Oil

not be considered in this scenario.

5.1.7. Summary of Scenario

In creating a scenario to be used for evaluating the impacts of oil sands development on trapping, the following facets of development to the year 2000 have been assumed:

- 1 Development of four new oil sands plants based on surface mining, in addition to the Syncrude plant currently under construction and the already-operating GCOS plant.
- 2 Development of an in-situ plant in the Gregoire Lake area.
- 3 Two new major roadways, one west from Fort MacKay into a provincial park in the Birch Mountains; another along the east shore of the Athabasca River, north to the Wood Buffalo Park area.
- 4 The building of a new town near Bitumount and McClelland Lake.
- 5 A population increase of 50-80 thousand in the project study area.

5.2. IMPACT ON TRAPPING

It should be re-emphasized here that the concerns of trappers include not only furbearing animals, but also, any animals trappers use for food. Thus any activity affecting populations of moose, woodland caribou, upland game birds, waterfowl, and edible fish, may have an impact on trapping. Since furbear-

Company, Calgary.

ing and food animals can be adversely affected by activities causing loss of habitat, interference with migration patterns, or environmental pollution, overall environmental impacts are in effect, impacts on trapping. This report is not intended to be a general environmental impact assessment; it is primarily concerned with the human element of trapping. Therefore, environmental considerations affecting furbearers and other wildlife will be examined only in a cursory manner.

An assessment of the impact of development on animal populations in the AOSERP study area is currently being done for moose, caribou, aquatic furbearers, birds, waterfowl, and fish. Most of these sub-projects are still at the inventory stage, and will not be available until after this report is published.

The reader is once again reminded that the impact assessment following is based on a scenario that is purely speculative. Variances from the scenario in either the rate or actual location of development in the project study area would change the impacts described here.

5.2.1. Direct Impact

5.2.1.1. Loss of Trapping Areas

According to table 5-2, the total area of the leases to be developed by the year 2000 is 1053 square kilometres, or 3.5% of the entire project study area. Lease development will have a negative impact on trapping in at least two ways; loss of land for the production of furbearers and food animals, and loss of

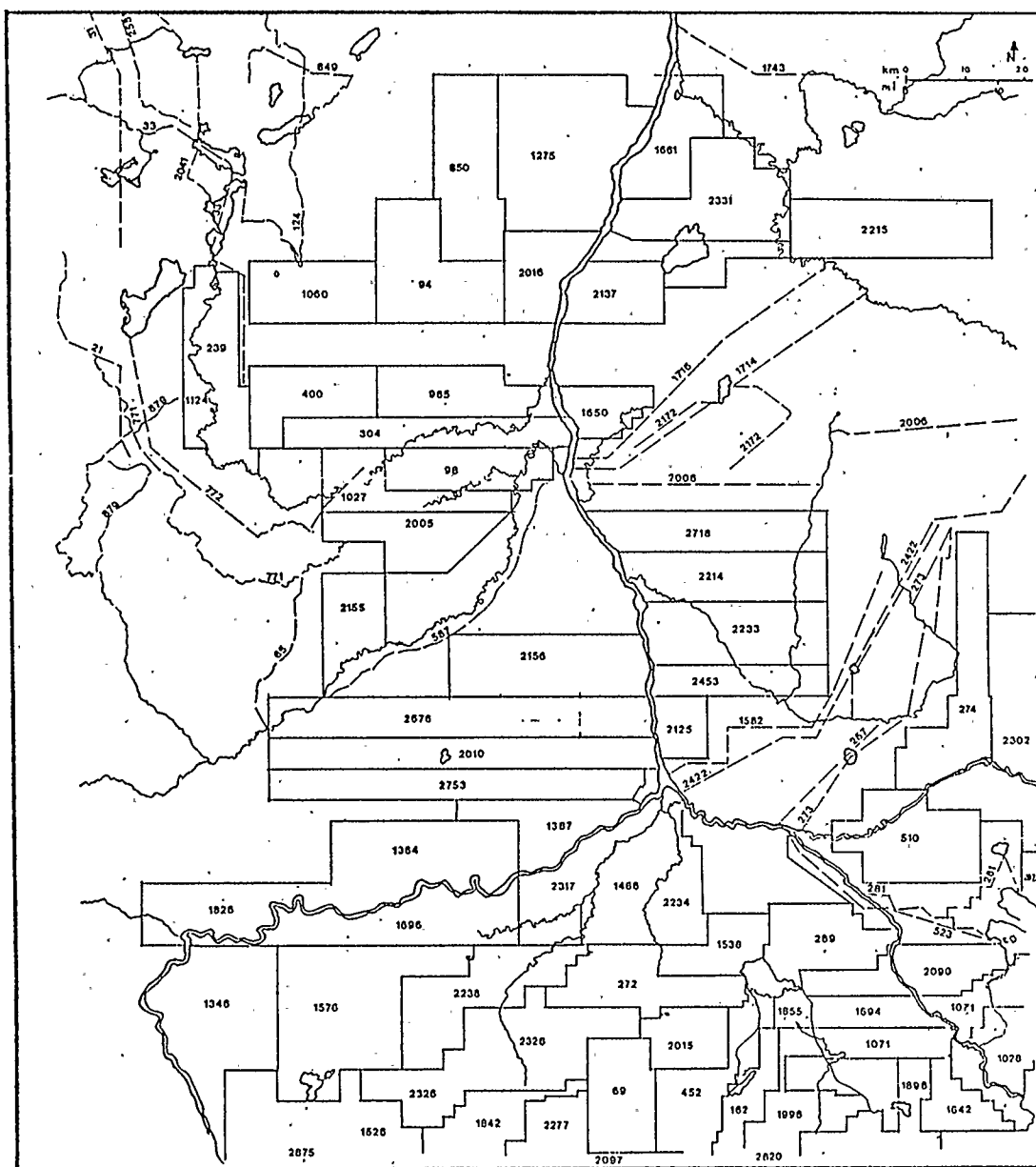


Figure 5-2. REGISTERED TRAPLINES IN THE PROJECT STUDY AREA (1975/76)

Table 5-2. Predicted Development of Oil Sands Leases to the Year 2000¹

<u>Lease No.</u>	<u>Developer</u>	<u>Area (km²)</u>	<u>Area Cleared (km²)</u>
86	GCOS	18	16
17	Syncrude	201	108
13	Shell	202	36
30	Home	153	47
12,34	Petrofina	54	22
73,76			
IR 176	Amoco	425	35
	Total	1053	264

¹ Lease areas calculated from acreages in Alberta Dept. of Mines and Minerals (1974). Amoco figure, which includes Indian Reserve lease, comes from Lombard North (1974). Areas cleared calculated from company figures supplied in ERCB reports.

land formerly accessible to trappers. The former is relevant to more than just the trappers in the immediate vicinity of these leases, as animals such as the lynx (Saunders, 1963) and beaver (Gunson, 1970) have been shown to migrate great distances in search of food or suitable habitat.

Accurate calculations of the amount of land lost for the production of furbearers and other wildlife on these leases could not be made due to the indefinite nature of the developments. Instead, conservative estimates of land to be cleared were made from Energy Resources Conservation Board (ERCB) reports on the Syncrude, Shell, Home, and Petrofina applications for development (table 5-2). [7] It is assumed here that no cleared land will be

[7] Estimates were based on company-supplied figures

returned to wildlife production by the year 2000. [8]

In-situ assumptions used for the Amoco leases are slightly different. Here it is assumed that 23.5 square kilometres of land will be cleared for initial production in the year 2000, and an additional 50% of this will be cleared for plant facilities and future well sites. [9] Land cleared for urban development would be very small in comparison to the oil sands lease areas. It is estimated to be 30 square kilometres. [10]

With all of these assumptions, 294 square kilometres of land would be cleared in the project study area by the year 2000, which is 1% of the entire project study area. It is probable that the actual amount of land taken out of wildlife production

estimating the size of mining areas, tailings ponds, overburden storage, and plant sites. Mining areas not required for the 20 year life of plant at the level of production designated by LEAP (table 5-1), were not included in the calculations. Estimates do not cover transportation corridors. Note that ERCB estimates of plant life are greater than the 20 years used in the LEAP scenario, and ERCB estimates of areas suitable for surface mining are as much as 80% higher than company figures.

[8] The lag time between stripping and revegetation for any single area is assumed to be 10 years (Bresee & Tyler, 1975), with at least another 10 years for the land to regain wildlife capability. Under these assumptions, only a small area on the GCOS lease may be reclaimed by the year 2000.

[9] This is based on 10.4 square kilometres of land covered with wells per 100,000 BOPD (Lombard North, 1974), 50% of which would have to be cleared (Research Council of Alberta, 1973). The scenario calls for 450,000 BOPD by the year 2000.

[10] This is approximately 70% of the figure used by Underwood McLellan (1973) for the new town. Their figures are based on six oil sands plants north of Fort MacKay, where the scenario used in this report assumes only four.

lies somewhere between the total land cleared and the total area of developed leases, because untouched land proximal to disturbed areas may not be suitable habitat for some wildlife species.

The value of the land to be developed to produce furbearers can be indirectly evaluated by an examination of trapping harvest records, although using these records as indicators of actual furbearer populations is risky at best, and any findings based on them must be treated with caution.

Comparisons made between regional harvest data and data specific to areas of future development (table 5-4) suggest that the traplines affected by future development are average for the project study area in their ability to produce furbearers. Differences between regional data and the local areas assessed are generally less than one standard deviation of the local means. If in fact the developing areas are not atypical of their region in ability to produce furbearers, an estimate of this lost capability can be made using trapline harvest data from Boyd (1977). Boyd notes the average annual production figures for furbearers important to the project study area in table 5-5.

If Boyd's figures are indicative of the furbearer production capability of the areas to be lost to future oil sands development, it can be seen that their loss could mean the loss of productive habitat for squirrel, mink, and to a lesser extent, beaver and lynx. Actual on site research is necessary to confirm this, as trapline harvest figures may not be representative of either production capability or habitat quality.

Table 5-3. Estimated Trapline Losses in the Project Study Area to the Year 2000, Assuming Development Scenario in Section 5.1.

Trapline No.	Lost to;	Senior Trapper in 1975/76		Trapline Earnings ³	Est. Loss (% of line) ⁴
		home ¹	cult ²		
162	Amoco	an	I	\$ 287	20
272	Amoco	fm	M	919	15
452	Amoco	an	M	602	20
587	Syncrude	mk	I	1206	20
1071	Amoco	an	M	281	20
1650	Shell	mk	M	2825	100
1694	Amoco	fm	M	170	5
1714	Home/Shell	mk	M	767	50
1716	Home/Shell	mk	M	255	40
1855	Amoco	an	M	627	100
2006	Home	fm	M	814	30
2013	Amoco	an	I	842	50
2015	Amoco	fm	M	1760	15
2137	New Town	mk	W	2842	10
2172	Home/Shell	mk	M	4680	60

¹fm=Fort McMurray, an=Anzac, mk=Fort MacKay.

²W=white, M=Metis or nonstatus Indian, I=treaty Indian

³1971-74 Three year calculated average

⁴Losses on Amoco leases assume initial development to be located in southern portion of lease area, proximal to IR 176 test site.

Table 5-4. Comparison of Fur Harvests in Two Areas of Future Development With Regional Data

MEAN ANNUAL HARVEST PER TRAPLINE (No. of Animals)				
	AOSERP Study Area ¹	South Section N.E. Alta ²	Pred. Surf. Mining Dev ³	Pred. In-Situ Dev ⁴
Beaver	21.9	18.6	28.5 [17.9] ⁵	10.3 [6.9]
Coyote	.8	1.0	.8	.5
Fisher	.6	.4	.2	.2
Fox	.7	1.3	1.1	.8
Lynx	4.7	7.3	13.2 [13.8]	3.8 [5.3]
Marten	.1	.1	0	0
Mink	4.1	3.8	3.2 [3.4]	4.7 [4.2]
Muskrat	115.86	5.5	7.2 [8.5]	4.9 [9.4]
Otter	.2	.4	<.1	.1
Squirrel	63.6	54.2	45.0 [86.7]	28.7 [33.4]
Weasel	5.6	2.2	2.0	2.2
Wolf	.2	.3	.3	.3

¹Data from Todd (1976). Based on analysis of 1970-75 trapline records, 131 traplines.

²Data from Renewable Resources (1975). Based on analysis of 1970-74 trapline records, 165 traplines.

³1970-75 trapline affidavits for 6 traplines expected to incur losses to future surface mining developments (see table 5-3).

⁴1970-75 trapline affidavits for 8 traplines predicted to incur losses to future in-situ development.

⁵Numbers in brackets are standard deviations from the mean.

⁶Todd (1976) notes that almost all of these muskrats came from the delta area north of project study area.

Table 5-5. Production of Economically Important Fur-bearers In Two Regions Containing Areas of Future Oil Sands Development.

Continued.

FURBEARER	SQUARE MILES TRAPPED PER ANIMAL CAUGHT	
	NTS MAPSHEET 74D (In-Situ Development)	NTS MAPSHEET 74E (Surface Mining Development)
Beaver	4.7	2.9*
Lynx	23.4	10.8*
Mink	18.4*	23.6*
Muskrat	8.5	5.2
Squirrel	0.9*	0.7*

Source: Boyd (1977); based on 1970-75 trapline affidavits. Asterisk denotes high production figure compared with the rest of Alberta (see Boyd, 1977).

Turning now to the question of land lost to trappers, the researcher first wishes to assume that surface mining leases are not trappable over their period of production. The reason for this is that the trapper needs unrestricted access to the good parts of his line, while the developer needs to control access to the lease. In the past, trapping was completely closed down on the GCOS lease, and much the same is happening on the developing Syncrude lease. [11]

[11] Out of three traplines crossing the Syncrude lease, two trappers have been compensated, and their areas closed down. One trapper, whose line is not entirely within the the Syncrude lease, is currently negotiating with Syncrude and trapping on their lease at the same time.

The complete loss of trapping areas on the Amoco lease is less certain for several reasons. First of all, the developed area predicted by the scenario to the year 2000 is very small in comparison to the size of the leases. Secondly, within the area covered with well sites, fifty percent of the vegetation could be left intact (Research Council of Alberta, 1973). Finally, no precedent has yet developed for dealing with the conflict between trapping and oil production on in-situ leases. Assuming Amoco proceeds in the vicinity of their test plant and that developed areas cannot be trapped, the researcher predicts that only one trapline will be completely closed down on the in-situ leases by the year 2000, and seven others could incur a loss of trapping area ranging from five to fifty percent (table 5-3).

As previously mentioned, traplines are not expected to be closed down in the Gardiner-Namur Lakes area where the provincial park will be developed. Should a new town be built, a small amount of land would be permanently lost to trapping, but the rest could still be trapped. [12] This is not to say, however, that its trapping value would not be reduced by the proximity of a settlement.

With the development scenario given, fifteen traplines out of a total of 105 traplines in the project study area would lose upwards of five percent of their trapping area by the year 2000

[12] Presently there are several traplines that begin right outside of Fort McMurray, that are still being trapped.

(table 5-3). Native people, particularly those from Fort MacKay would suffer the greatest losses, assuming the ownership of most of these traplines stays in the same families. Table 5-3 assumes that trappers will be able to gain access to the remaining portions of their lines through the leases or in some other convenient way. If this is not the case, those traplines crossing the Shell and Home leases (four in all), would be rendered useless. [13]

5.2.1.2. Loss of Trapping Equipment

At the present time, exploration crews are active throughout the project study area, and this activity can be expected to increase as the pace of oil sands development increases.

As previously mentioned, trappers currently rely to a great extent on roads used and maintained by oil companies, as both means of access, and a place to set traps and snares. Much of the exploration activity takes place during the winter months, and inevitably, conflicts occur between seismic crews and trappers. Twelve interviewed trappers noted problems with seismic crews; five of these involved loss or damage to trapping equipment, or the theft of trapped animals. Part of the problem lies with the seismic companies themselves, who have not con-

[13] Trappers affected by the Amoco development could still gain access by highway 63 or the Northern Alberta Railroad. Most of them use these thoroughfares anyway. Trappers affected by Syncrude developments have a number of alternative routes to reach their lines, including a major winter road and cut lines.

cerned themselves with policing employees who shoot animals while working, or steal animals and traps. Effective policing would be to the companies' advantage, as it would lower the incidence of damage claims, and prevent otherwise-necessary government interference in the matter.

Another source of trapper losses are hunters and snowmobilers in the autumn and winter, respectively. Seventeen interviewed trappers reported problems with visitors, fourteen of which involved loss or damage. According to one old trapper, this is a recent problem, traceable to the growth of Fort McMurray. Trappers used to have an "open door" policy, leaving cabins open for others in case of emergency. Unfortunately, sportsmen in the area have not respected the trapper's property, and have stolen and vandalized his possessions. Many trappers are now resigned to making an effort to either lock their cabins, or carry their possessions with them on every trip to the trapline. This affects, not only the ability of trappers to store needed equipment in the bush, but also the trapper's morale.

The problems caused go beyond the trappers; increasing numbers of law-breaking sportsmen have necessitated the staffing of an additional enforcement officer in the Fish and Wildlife detachment in Fort McMurray (personal communication, M. Doran).

[14]

[14] Marvin Doran, enforcement officer, Fish and Wildlife Division, Fort McMurray.

The Fish and Wildlife Division serves as the agency for reporting and handling losses due to hunters or exploration crews, but their work load is already beyond the point where they can serve the trappers in this way (see section 6.2). The problem of uncompensated losses can only increase with the predicted increases of population, exploration, and construction activity throughout the area.

5.2.2. Indirect Impacts

5.2.2.1. Effects of Park, Roadway, and Urban Development on Trapping Patterns

While the negative impacts stemming from extensive land clearing are fairly obvious, this is not the case with roads and parks. Roads and parks would serve to open the wilderness in the project study area, and their effect on trapping would not be entirely negative. The building of all-weather roads into the bush does have very definite advantages for trappers with access to cars or trucks. Several vacant traplines in the Birch Mountains would be attractive to these trappers if the park road is built. Other trappers having but not using cars or trucks could benefit from any all-weather road by year-round access to their traplines, and increased speed and safety.

As has been shown earlier, accessibility of a trapline is a positive asset to the majority of area trappers, but the important question is whether accessibility to the trapper will be improved by the developments being discussed.

The majority of area trappers appear to depend on means other than car or truck for travelling to and on the trapline (see section 4.2.3.). For these trappers, good access routes already exist into the areas where the roads will be built, though they are not all useable before freeze-up.

Unfortunately, these advantages help only a particular segment of the trappers, most of whom are white and live in Fort McMurray. Native trappers living in Fort MacKay (where few people own cars) would likely suffer from the road projected into the Birch Mountains due to increased competition for traplines from trappers who own vehicles. Increased traffic could drive furbearing animals away from the road, and if the new road destroys the major winter road, access into the area may actually be hindered for trappers without vehicles. In addition, native Fort MacKay trappers depend to some extent on fish obtained in the Gardiner Lake narrows. Lake whitefish frequent these narrows, one of the few open water areas in the winter. [15] The fishery could be adversely affected by increased utilization if a road and provincial park are built to the Gardiner Lakes.

[15] The researcher accompanied Mr. A. Boucher, a treaty Indian trapper, to these narrows on December 18, 1976. Mr. Boucher told the researcher that Fort MacKay native people have been taking fish from the narrows for many years. The late Phillip McDonald, former Fort MacKay chief, had built a cabin at the south narrows on his trapline, which other native people used when they came there to fish.

A similar problem could occur if a road is built on the east side of the Athabasca River. The road would cross the Firebag River, where moose are commonly taken by trappers from Fort McMurray and Fort MacKay. Hunters and heavy traffic in the area might disperse the moose population to the point where the ability of local trappers to obtain one is seriously hampered.

Urban development near McClelland Lake would probably cause changes in trapping patterns similar to, but of greater magnitude than the development of roads and parks. The habitat directly affected is primarily jackpine forest, where red squirrels and long-haired furs (particularly the lynx) have provided relatively good incomes for trappers in this area. The location of a town and a road here would bring many people into close contact with what is now relative wilderness. The influx of sportsmen from the new town and Fort McMurray would devalue those traplines near to the new town. Trappers such as Jerry Rochon, who feels the need for isolation (and whose trapline includes part of McClelland Lake), would be forced to find another line, or at least, shift his operations away from the corridor of activity. As has happened near Fort McMurray, full-time trappers might be replaced by occasional trappers in the vicinity of the new town, resulting in a decrease of fur yields. The number of traplines affected would depend on the size and population of the new town, oil sands plants nearby, the roads built into what is now wilderness, and the attitudes of the trappers using the area.

5.2.2.2. Effect of Economic Development on Trappers and Trapping Patterns

It has been pointed out that trappers are being affected by the increasing number of jobs created by oil sands development. Although some native people question just how much opportunity development has brought for them, there is little question that there are native people now doing wage work who never did before. The extent of wage work being done by trappers, both white and native, is documented in section 4.1.6.

Informal interviews in Fort MacKay and Anzac have convinced the researcher that unless trapping changes significantly, it will not compete with wage work in the minds of young people who will soon be entering the work force. During these interviews, the researcher encountered trappers who have given up this occupation for the steady financial rewards of wage work. This trend is likely to continue as native leaders push to have an increasing number of new oil sands jobs guaranteed for native people.

New job opportunities can have a positive impact on trapping, as they supply money to trappers that is needed for the acquisition and maintenance of modern trapping equipment. The negative aspect is that trappers doing wage work often reduce the amount of time spent trapping, or reject it altogether.

Trapping patterns exhibited by trappers with other employment often conflict with the principal aim of trapline management; maximum sustained yield of all furbearer species. [16] Such trappers have less time to cover their areas and check their

traps. Many also attempt to maximize economic gain over the short run by concentrating on only the most economic species. To the extent that these practices cause a buildup of surpluses that would otherwise be harvested, and to the extent that furbearer population quality is adversely affected by the underharvesting of certain furbearer species (Todd, 1975), the spread of this kind of trapping pattern should be judged a negative impact of economic development on trapping.

[16] This conflict is less applicable to trapping in the fringe agricultural areas of Alberta, where an extensive road network allows trappers to cover their areas in a minimum of time.

6. MANAGEMENT CONSIDERATIONS

The information presented up to now makes two important points about the impact of oil sands development on trapping; that oil sands and related development in the project study area is having a depressing effect on trapping; and that this effect will likely increase with future development. The purpose of this section is to present and discuss management alternatives to alleviate this negative impact, in order to arrive at feasible management guidelines.

This report examines two basic types of impact mitigation. They are; (1) compensation to the trapper for losses suffered, and (2) upgrading of the trapping industry to keep it viable in the face of further development. Two other options, the cessation or retardation of oil sands development, and the planning of lease developments around trapper use, were not seriously considered, for reasons of government policy and economics, respectively.

Impact mitigation measures are easily proposed, but their actual imposition is subject to the constraints of the organizations charged with carrying them out. For this reason it is important to review the organizations that have the most potential for administering trapping compensation or upgrading programs; Fish and Wildlife, the oil companies, and the Federal Department of Indian Affairs.

6.1. FISH AND WILDLIFE

The Alberta Fish and Wildlife Department is the organization responsible for managing the fur resource in the province. Fur management in Alberta consists mainly of trapline management at this time. Trapline management is done through the licensing and regulatory management of trappers.

Direct contact between trappers and Fish and Wildlife is at the local level, through enforcement officers located throughout the province. One such office is located in Fort McMurray.

Local officers are responsible for collecting trapline affidavits and fur buyer records, interviewing applicants for vacant traplines, and enforcement of trapping regulations. In addition, they document trapper complaints, and make recommendations on items of importance to local trappers. These items include the removal of a trapper for mismanagement of his line, suggestions for the filling of a vacant line, and changes in trapline boundaries. Since the recommendations of local enforcement officers are normally followed by the head office responsible for decision making, it can be seen that the local officers have a lot to say in the affairs of trappers.

As the great majority of direct communication between trappers and Fish and Wildlife officials is done at the local level, it is important for this study to know something about the relationship between the two in Fort McMurray. Discussions with trappers and Fort McMurray enforcement officials lead the researcher to believe that this relationship is less than op-

timal. There are several reasons for this, the foremost being that trappers as a group have a fear of the officials. Others are; past misunderstandings in communication, [1] inconsistency in the enforcement of laws (with the frequent changing of enforcement personnel), and anger on the part of trappers over some of the laws being enforced. The lack of sufficient staff to handle the rapidly-growing Fort McMurray population was one major contributor to problems in the past, and the hiring of an extra staff member in 1976/77 was certainly a step in the right direction. This will hopefully give the enforcement staff more flexibility to meet the needs of the trappers, including time to investigate complaints, and service in the village of Fort MacKay.

[2]

Trappers in Alberta have one channel directly to management staff; through the Alberta Trappers Central Association (ATCA). The ATCA holds annual meetings which are attended by at least one management official. The association submits resolutions which

[1] A good example of this took place while the researcher was doing the second interviews. Local officials sent out notices to trappers still holding linear traplines, to get them to come into the office and get their lines changed into areas. The notice said that their traplines would "cease to exist" next year. Trappers were worried and angry about these notices, which were obviously misleading.

[2] Many Fort MacKay trappers complained about having to make a special trips into Fort McMurray to register their lines. There is no bus service connecting the two places, and a taxi costs \$60 per round trip. Last year several trappers had to go to the Fort McMurray office more than once because new registration forms arrived a month late.

are formally reviewed by a management staff committee (personal communication, D. Unger). An ATCA chapter opened in Fort McMurray in the summer of 1976, giving project study area trappers the potential to input into trapline management through that source.

Of special relevance to the project study area is the role of Fish and Wildlife as an intermediary between seismic companies and the trappers.

Seismic companies are required to sign an agreement in this province that makes them responsible for any damage caused to trappers by their operations. The agreement is made with the Department of Energy and Natural Resources (see Appendix A), and is then turned over to the local Fish and Wildlife office. A trapper with a complaint is expected to deal with the company who caused the damage. Fish and Wildlife cannot enforce the agreement; it can only make information available to both the trapper and the company (personal communication, C. Hambling). If neither the Department of Energy and Natural Resources, nor the Fish and Wildlife Department have the power or the inclination to help the trapper, this leaves the trapper in the unenviable position of having to depend on the goodwill of the company for compensation. This is a bad situation, for the trapper lacks an understanding of the legal system, as well as the education and sophistication to deal with large oil companies. In all fairness to Fish and Wildlife, the problem has been recognized by the Working Fur Committee, although no solution has yet been forthcoming.

6.2. THE FEDERAL DEPARTMENT OF INDIAN AFFAIRS
AND NORTHERN DEVELOPMENT (DIAND)

The Department of Indian Affairs has little to do with trapping in Alberta, except for the payment of trapping licenses for treaty Indians.

Indian Affairs is currently pushing for economic development on Alberta reserves, and has a certain amount of money available to promote this. Their emphasis has been on wage employment, with traditional alternatives (such as trapping) being ignored almost entirely. This may or may not be the preference of the Indians themselves, but it seems safe to assume that extensive wage employment cannot be created on many northern reserves without large and continuing subsidies. The promotion of trapping may be useful, then, in creating employment in work that is both natural to the Indian people, and has possibilities for employment of large numbers of people who otherwise have problems securing employment. The workplace is already there, only the incentive to use it is lacking.

The Department of Indian Affairs became involved in the promotion of trapping when they entered into the Manitoba Wild Fur Program with the provincial government in 1975 (Manitoba Mines, Resources and Environmental Management [Manitoba Mines hereafter], 1975). A similar arrangement could be worked out in Alberta if both provincial and federal governments were willing to fund it.

6.3. OIL SANDS INDUSTRY

As the oil sands industry is leveling large parcels of land that are currently being used by trappers, an important issue is the degree of corporate responsibility that these industries can be expected to assume towards the people whose traplines are being destroyed. Legally, oil sands leases take precedent over trapping rights. Trapline registration gives the trapper no right to the land which he uses; only the right to harvest furbearers. Corporate lease holders have only the legal responsibility to compensate trappers for physical losses, such as damage to equipment (personal communication, D. Unger). Compensation for loss of livelihood is at the discretion of the company at this time.

Past interactions between trappers and oil sands companies are worth examining. GCOS did not compensate the trapper working on that lease, but that was almost two decades before corporate social and environmental responsibility in Canada became a serious issue. Syncrude Canada has already compensated two trappers and is negotiating with a third (personal communication, T. Garvin). [3] One other trapper who was adversely affected by Syncrude's diversion of Poplar Creek, was not compensated.

[3] Terry Garvin, Community Relations Coordinator, Syncrude Canada.

According to Terry Garvin, negotiations with trappers were done slowly, allowing the trappers plenty of time to think about what they wanted. A guideline formula was used, the aim of which was to cover ten to twelve years of lost income. Loss of improvements were considered separately from loss of income, and trapline lineage was also taken into account. One of the trappers was represented by legal counsel; an interpreter was employed with another.

Negotiations are currently under way between Syncrude and a third trapper whose line runs partly through the developing lease. This trapper is being paid a monthly salary to trap his line until a final settlement is reached. [4]

While Syncrude Canada has been negotiating with trappers suffering major losses, it does not follow that other companies will choose to do the same without any form of coercion. This must be borne in mind in considering whether it is sufficient for the government to allow enlightened corporate self-interest to be the sole guiding principle for future negotiations.

[4] This trapper told the researcher that he agreed to take the trapping job for five years, but would now prefer to be paid off.

6.4. COMPENSATION FOR LOSSES

The researcher proposes that three different kinds of compensation be considered for trappers suffering major losses of trapping area to oil sands and related development. They are; (1) monetary compensation, (2) relocation of the trapper, and (3) alternative employment. These suggestions cover the range of compensation alternatives suggested by the trappers.

It must be emphasized that every trapper has different aspirations, and that actual settlements should take this into account.

One problem in determining the form compensation should take is that both government and industry have jurisdiction over possible forms of compensation. For example, alternative employment for trappers could be offered by either oil companies or the government. Both are in a position to guarantee the terms of employment. Trapper relocation could only be under government jurisdiction, and monetary compensation could be offered by either.

In theory, either government or industry could preside over negotiations, but the question must be raised as to which party would likely be the fairest to trappers.

The researcher feels that while Syncrude Canada has used reasonable guidelines in its negotiations, it cannot be concluded that all oil companies will do the same. On the other hand, the creation of a government bureaucracy to handle compensation to trappers may actually impede negotiations and give trappers less than industry "enlightened" by the threat of government interfer-

ence in the case of unsatisfactory negotiations.

The researcher feels that whoever is made responsible for compensation, the three interested parties should be involved in the negotiations, and an appeal process should be provided for, in case a satisfactory settlement cannot be achieved. In addition, Fish and Wildlife officials should be included in the negotiations should the trapper express interest in relocation.

Negotiations should be required by law, and the trapper should have the right to free legal counsel if he so wishes (during the negotiation or the appeal process). In the past, native trappers have used representatives of the Metis and Indian Association in negotiations with seismic companies. This is a good idea for the native trapper who desires it because it allows the trapper to use the services of people he knows, trusts, and can relate to.

It was hoped initially that statistical data could be collected in this study on trapper preferences for compensation. Trappers were asked to discuss the subject in the second interviews, but unfortunately, the answers cannot be considered reliable. This is because most trappers not threatened with losses did not relate to the question, and those that did were reluctant to discuss specifics without having more time to think about it. Nevertheless, some general feelings did come out about the alternatives for compensation. They will be discussed where appropriate.

6.4.1. Monetary Compensation

Any discussion with trappers about compensation usually brought up the subject of money. Some trappers tended to emphasize the value of the trapping lifestyle, saying that money cannot buy this, while others emphasized that it would be expensive, but satisfactory, to compensate the individual for the effort put into setting up the trapline. Here are some sample comments made by trappers on the question of monetary compensation:

- Money doesn't mean anything to a person losing a trapline.
- If they offered me enough to start another living, there would be no problem.
- Offering money for a trapline is not the point.
- Not much a guy can do. Try to get money.
- The developer should pay for cabins and traps.

Monetary compensation has been, and should continue to be considered for two kinds of losses; tangible loss of equipment (such as traps, snares, and cabins); and the loss of land improvements (such as trails), and livelihood. (This is consistent with the stand taken by the ATCA on compensation [Calgary Herald, 1977]). Equipment loss is applicable to traplines affected by exploratory operations as well as development for the production of oil. Losses caused by exploratory operations are minor in relation to losses caused by actual development. For this reason, the researcher recommends that compensation procedures for these losses be simpler and more standardized than procedures for large losses. Damaged traps and/or animal pelts should be compensated

at fair market value, and the trapper should be paid for any inconvenience caused.

In the case of major settlements, money should be paid to trappers for all tangible losses, as well as land improvements. Additional money should also be given if the trapper has held the trapline for a long time (five or more years), and if the trapline was previously in the trapper's family. These intangibles increase the value of the trapline to the trapper, and cannot be replaced even if the trapper can be relocated on a line that is superior to the one he is losing. If the trapper wishes to be totally compensated with money, or if a desired alternative form of compensation cannot be provided, the money should cover loss of fur income, and loss of meat (if the trapper was taking meat from the line). The number of years of losses he is compensated for should be standardized, perhaps somewhere between 10-20 years. The aim should be to ensure a guaranteed income over a period of 10-20 years, but if the trapper has been steadily employed in the past, a lump sum and smaller payments may be more desirable.

6.4.2. Trapper Relocation

Once again, trappers as a group were not totally for or against this alternative. Some trappers with a heavy time or emotional commitment to their traplines were not content with the idea of relocation (or any form of compensation, for that

matter). Others were in favor of relocation, but expressed the concern that the new trapline should be of at least equal quality as the old.

The researcher feels that, should a trapper express an interest in relocation, a local regional representative of the Fish and Wildlife Division should be included in the negotiations. This would serve to inform the negotiating party which lines are vacant, as well as to provide relevant information about these lines. If a trapper chooses relocation, he should still be compensated with money for differences between the old and new line such as, convenience, potential for obtaining meat and fur, and differences in the development of the lines (trails, cabins, etc.). Here again, Fish and Wildlife can be helpful in assessing these items.

6.4.3. Alternative Employment

If the object of a compensation settlement is to cover a trapper's lost income, one way this can be accomplished is with a guaranteed job. Trappers queried about this alternative were suspicious of such a concept, perhaps because they believe that nothing can be guaranteed. Their comments about this alternative were generally negative:

- No job is guaranteed for life.
- Not at my age.
- You don't have to buy a job.

Alternative employment would normally take the form of labor jobs, given the limited educational background of trappers (see section 4.1.5). However, there is another form which appealed to the majority of trappers queried about it. This is a trapping job for the company.

There are distinct advantages to this kind of arrangement. To the trapper, it means a guaranteed income at a desirable job. The company can use the research data collected by the trapper, as well as from the favorable publicity gained from the offer. The government also benefits from the data (if it is shared), and the area economy benefits from the harvesting of animals that might otherwise be lost.

The advantages of this arrangement should make it high on the list of compensation alternatives. That it is feasible is suggested by the existence of one such arrangement in the project study area. However, one must keep in mind that it can only work if both the trapper and the company are willing to adjust their activities to the presence of the other.

6.5. UPGRADING OF THE FUR INDUSTRY

Strategies considered for the upgrading of the fur industry in the project study area are; trapper education, liberalization of game laws for trappers, economic incentives, increased marketing of fur products, and intensive habitat management. The ideas discussed here have been considered or employed in fur programs across Canada. The need for some forms of upgrading were also

noted by local trappers.

Emphasis will be placed on the Manitoba Wild Fur Program, a joint federal-provincial program administered by the Manitoba Department of Mines, Resources, and Environmental Management. Committed to spend over \$8 million in five years (beginning in 1976) to upgrade the fur industry, it is the most extensive program of its kind in Canada.

6.5.1. Trapper Education

Trapper education programs are run in every province of western Canada. The course given in Alberta covers items such as; proper skinning and pelt preparation techniques, techniques of humane trapping, and an exchange of methods used by trappers who take the course. Success of the program is measured by acceptance of the new techniques, and the actual financial gain attributable to the production of a more saleable product (Banks, n.d.). Courses last three weeks, and trappers are paid during the time they are on course.

According to Dave Unger, who is responsible for trapper education in Alberta, the success of these courses goes beyond the small number of trappers actually taking the course. The students take the new knowledge with them into their home community, and pass it on to other trappers. The course itself does more than just teach techniques. It brings trappers from many communities together to learn from one another, restoring a badly-needed sense of pride to the profession. In addition, the course

exposes trappers to the marketing end of the fur industry. The reader will recall that it is the sale of the raw fur which loses the project study area trapper much money.

It is not known what the demand is for trapper education in the project study area. The researcher knows of no local trapper who has applied for or taken the course, but then, the trappers have been poorly informed about these programs. The researcher feels that the level of interest would be high if trapper education were offered in Fort McMurray, and that trappers would gain from the subsequent uplift in pride and knowledge brought to the area. They would benefit financially if the only thing they learned was how to ship furs to an auction, and perhaps these monetary rewards would spur them into expanding their operations.

6.5.2. Liberalization of Game Regulations for Trappers

It has already been pointed out that trappers regard their profession as a way of life that goes beyond the taking and selling of furs. One plausible explanation for the decline in trapping in the project study area is that this way of life has been fractured by conditions which make it difficult for the trapper to live off the land. According to some trappers, the current game regulations have served to do just that.

The regulations that trappers complain about are those which restrict their right to take game food from the bush to the normal hunting season. This creates a hardship on trappers for two reasons. First of all, trappers are forced to compete with large

numbers of hunters (many of whom do not need the meat) for a limited supply of game. Secondly, the migration of hunters into the bush during hunting season tends to disperse the game, making it necessary for trappers to spend more of their time obtaining food than was necessary before the project study area was heavily populated. This time could be used for fixing cabins and trails if the trapper was able to take game while he was trapping. [5]

While arguments have been advanced for not giving trappers extended hunting privileges, it seems clear that; (1) trappers, by reason of their occupation, are different from sport hunters, (2) trappers are likely to need wild meat from the trapline (see section 4.4.5), and (3) granting trappers extended privileges to hunt game animals can be an incentive to trap under certain conditions. The conditions are that trappers not be allowed to waste game, and that the meat must be consumed on the trapline. This would ensure that they stay on the trapline if they want to make use of the privilege, and that the privilege is not misused.

It may be argued that granting the trappers this privilege would threaten certain game species such as moose or caribou. However, the game meat used by trappers is likely small in com-

[5] This statement is not valid for those trappers who break the law and hunt out of season on the trapline. The researcher saw evidence that the majority of trappers do break the law to some extent. They do this at the risk of fines and prosecutions, however, and the researcher heard of several instances where trappers were caught.

parison to the total amount taken annually. In addition, if a particular species is deemed to be threatened, it can be protected (from both hunters and trappers) with the already-existing game management tools in the province.

It is interesting to note that at least one province, Ontario, gives its northern trappers extended rights to hunt game animals; through a policy of differential enforcement (personal communication, M. Novak). [6] It is not known what effect this has had on trapping in northern Ontario, nor whether a similar situation would work to stimulate trapping in northern Alberta, but the researcher recommends that it be tried as part of a fur development package. A game regulation already exists in Alberta giving northern trappers the right to hunt one extra bear, [7] so a precedent already exists for extended game hunting privileges for trappers.

6.5.3. Economic Incentives to Trappers

At the present time at least three provinces and a territory are using economic incentives as a way to upgrade the fur industry. Ontario flies in some of its northern trappers under a Resource Development Program (personal communication, M. Novak). Saskatchewan has a similar program for trappers who take a cer-

[6] Milan Novak, Ontario Ministry of Natural Resources.

[7] Alberta Game Hunting Regulation 183/75, no. 8.

tain amount of fur, as well as a provincial marketing service which advances sixty percent of the fur value to trappers (H. Strom, 1977). [8]

The Northwest Territories funds its trappers association local chapters, gives interest-free loans to individual trappers, gives grants for establishing and maintaining hunting-trapping camps, and pays out a subsidy based on the dollar value of the trapper's catch (R. Williams, 1977). [9]

The Manitoba Program is the most extensive of all fur development programs in Canada. Its economic incentives were developed in consultation with the trappers to aid them with specific problems (Manitoba Mines, 1975).

Trappers in northern Manitoba noted that certain conditions, such as social isolation, poor access, and poor communication, were inhibiting factors to trapping in the more isolated areas. The Wild Fur Development Program (WFDP), as a result, funds infrastructure improvements such as the establishment of base camps with radios, and the building of access trails. Inadequate sources of credit were also cited as a problem by the trappers. The WFDP deals with this by funding loans for equipment, improvements, and grubstakes. Local Fur Councils (set up by the Manito-

[8] Harold Strom, Fur Administrator in Saskatchewan, in a presentation delivered to the annual Western Fur Managers Conference, April 19, 1977, in Edmonton, Alberta.

[9] Ron Williams, Supervisor, N.W.T. Trapline Management, in a presentation delivered to the 1977 Western Fur Managers Conference.

ba Registered Trappers Association), are provided with management services, and where deemed necessary, fur collection depots for the storage and shipping of wild furs to the auction. In addition, loans are made available to pay out advances to trappers shipping their furs, but needing money right away. All of these incentives are components of the overall WFDP, which includes trapper education, marketing strategies, and research and habitat management.

An evaluation of the applicability of the aforementioned economic incentives to the Alberta situation is risky at this time. Fur managers in Saskatchewan and the N.W.T. have been discouraged by the results of their programs, but in Manitoba where the program is more coordinated and comprehensive, a real increase in production of over ten percent has been reported in the first year of the program (E. Engen, 1976). [10] While program management in that province admits that the increase is not entirely due to the program, they feel it has helped. They note a seventy-eight percent increase in pelt production for the second (1976/77) season up to February, over the same time a year ago.

The researcher is not prepared to say for certain that an economic incentive program will revitalize the trapping industry in northern Alberta, but he feels it should be seriously con-

[10] Ed Engen, Manitoba Fur Manager, in a presentation delivered to the 1977 Western Fur Managers Conference.

sidered as part of an overall fur development program in light of the apparent Manitoba success.

In determining whether it is worthwhile to fund such a program, the government should consider the value of the trapping jobs to the trappers and their dependents. A minimal way of doing this is to consider the trapping dollars earned by the trappers, but from a government standpoint, it is more relevant to consider the potential cost in public monies of providing for trappers if trapping should become unviable, versus the cost of keeping it viable. This comparison is rational if one assumes that displaced trappers will either turn to public assistance, or take a job which would otherwise go to someone else. In either case, it would result in one person plus dependents having to go on public assistance in some form or other.

If we assume that half of the area trappers are economically dependent on their trapline incomes, and that this percentage of trappers would require public assistance for their families if trapping were no longer viable, then the breakdown of trapping in the project study area could result in the loss of support for some sixty-two trappers plus their dependents. Public support would include, but not be limited to, welfare. (For example, there would be medical care, dental care, and perhaps, housing costs.) If one assumes a figure of \$10,000 per year per family of public support, then the present value of the future costs to care for the families (assuming a ten percent discount rate) would be \$6.2 million.

Admittedly this calculation is very rough, and overstated in the sense that trappers economically-dependent on this activity may already be collecting public assistance. On the other hand, \$10,000 per family is likely a conservative estimate of the cost of switching from the current trapping lifestyle to one that is more typical of a southern Canadian in the Fort McMurray area. It is significant to note that this figure is of the same magnitude as the \$8 million invested in the Manitoba Wild Fur Program, particularly when one considers the 1/2.7 estimated cost/benefit ratio for the latter (Manitoba Mines, 1975).

Other factors that should be considered are the importance of economic diversity to the northern economy (see Alberta Energy and Natural Resources, 1976), and the potential value of trapping as a source of jobs for northern native people in the province. If trapping can be expanded to employ native people that are currently unemployed, the governments should also consider the reduced social costs that might result; reduced welfare payments, and perhaps, lowered costs for social services.

If such a program was to be undertaken in Alberta, the researcher recommends that it be planned in conjunction with the Alberta Trappers Central Association, the Indian Association of Alberta, and the Metis Association of Alberta. This would ensure that the program be beneficial to those people it is designed to help. A large scale program of this nature need not give the same incentives to every region in the province, because the needs of every region are different. For example, the north-

central Alberta is more isolated and offers less employment alternatives to trapping than is the case with the project study area. Thus they need to be handled differently.

Interviews with local trappers helped to identify several trapping problems in the project study area, that are potentially solveable with economic incentives. They are:

- 1 Trappers (particularly those from Fort MacKay) are getting low monetary returns for their product. This is because they sell their furs to local buyers instead of shipping them to fur auctions.
- 2 Extreme fluctuations in the prices paid for furs makes trapping an unreliable source of income.
- 3 Trappers tend to take only those species which are worthwhile in terms of effort and monetary return. This has resulted in the underutilization of squirrel and beaver, two fur species that were traditionally staples in Alberta (Todd, 1976).
- 4 Trappers appear to be abandoning the more distant and less accessible traplines in favor of those that are easier to reach.

The solution for the first problem is some sort of marketing assistance for the trappers. This could take the form of a marketing or transportation cooperative, or the establishment of a fur depot (preferably in Fort MacKay) similar to those established in northern Manitoba. This would ensure that the furs are shipped directly to one of the major auctions, giving trappers a better return for their product. An important feature of this plan would be that the depot or cooperative has enough cash on hand to give trappers significant advances for their product. (The cooperative or depot might eventually get into items such as the sale of equipment or grubstakes at prices comparable

to those paid in Edmonton).

The problem of unstable incomes and trapping for only the economic furbearer prices could be solved by subsidies for uneconomic fur species. This would guarantee the trapper a reasonable return for all furbearer species, and ensure that he always has an incentive to keep his line trapped. These subsidies could be tailored to provincial trapping patterns and species management objectives, so that, for example, trappers get subsidies for taking beaver and squirrels, which are greatly underutilized at the present. Subsidies should be based on the price actually received for the animals. This is important because it would give the trapper extra incentive to trap primed animals, and to get the best price possible for the pelt (via a co-op or fur depot). The money could be paid at the end of the trapping season, at which time trappers could present their bills of sale to the local Fish and Wildlife office.

Finally, incentives could be applied to get trappers back into the most distant traplines. The WFDP in Manitoba funds base camps and trail building to make these areas more accessible and less isolated, and the researcher proposes that a similar program would work in the project study area. Only one or two base camps would be needed here, because most areas are already accessible, or will likely be so within the next ten years (see scenario in chapter 5). The areas that might still be deficient of good accessibility are in the extreme east and west of the project study area.

6.5.4. Increased Marketing of Fur Products

Another step that could be taken to upgrade the fur industry is funding the promotion and development of fur products. This is one component of the WFDP in Manitoba. The WFDP is investigating uses for low grade furs and fur by-products (Manitoba Mines, 1975).

Another interesting idea that was suggested in Ontario (Novak, n.d.) is that the marketing of furbearer meat be considered. Novak points out that with the widespread use of snowmobiles, carcasses of animals such as beaver and muskrat could be taken out of the bush with a minimum of trouble. With the escalating cost of meat protein in North America, markets for furbearer meat could be a reality with a well planned promotion program.

6.5.5. Intensive Habitat Management

This is perhaps the most controversial step that could be taken to upgrade the fur industry in the project study area, because not all biologists (or self-educated laymen) feel that wildlife management is warranted in wilderness regions. Todd (1975) discusses the biological desirability of trapping in northern Alberta, and concludes, after considering the "balance of nature" argument [11] advanced by preservationists and protec-

[11] The "balance of nature" argument is, in a nutshell, that natural systems have managed and perpetuated themselves in North America for centuries, without man's scientific management. Todd (1975) points out that this is a truism as long as one

tionists:

...furbearer management, or lack of it, in wilderness regions may have important ramifications in adjoining fringe and agricultural areas.

The ramifications he was referring to include livestock and nuisance damage by carnivores and beavers respectively that are forced to disperse into other areas by overpopulation. Also, overpopulation of furbearers, such as the beaver, risks outbreaks of disease (tularemia, for example), which is transmittable to humans.

While animals such as the beaver and squirrel can best be managed by more intensive trapping, there are other furbearers in the project study area that would be trapped more intensively if their numbers were greater. For example, carnivores such as lynx, fox and coyote are currently bringing trappers good prices, but were scarce in 1975-77 due to the bottoming of the fur cycle. Keith (1974) points out that these populations are largely dependent on the cyclic fluctuations of the major prey species, the snowshoe hare. Since this cycle occurs almost synchronously throughout North America, intensive management of hare populations is likely impossible to achieve. There is, however, at least one furbearer in the project study area that has a much greater potential for management; the muskrat.

considers the "balance" to be dynamic, with continual and possible violent fluctuations in animal numbers, precipitated by mass starvation and disease.

Muskrats are currently being intensively managed in Manitoba as part of the Wild Fur Development Program. Habitat improvement is being accomplished through stabilization and regulation of marsh water levels in order to increase the number of muskrats that can be locally sustained. MacKay (1977) points out that these animals are extremely prolific, and are the only furbearers which can be easily increased in numbers right out in the trapping areas. One muskrat habitat project in Oak Hammock Marsh (twenty-four kilometres north of Winnipeg), was able to increase population levels twenty-two times in three years (to near ten thousand individuals). These surplus individuals were then harvested on a sustained yield basis by local trappers.

Todd (personal communication) points out that suitable muskrat habitat is lacking in the project study area, but that this is mostly due to the lack of suitable standing water. If this is the only reason for low muskrat populations, intensive habitat management could be considered to bring up the number of muskrats in the area. Small water control projects involving dyking or ditching could be tried in areas with good potential, and the projects expanded to traplines where the interest in muskrats is high. This could be done by the government as part of a more comprehensive upgrading package. In addition, it might be considered by the oil industry as a form of rehabilitation of tailings ponds. Admittedly, research would be required to determine if such projects are both economically or environmentally feasible.

6.6. SUMMARY OF MANAGEMENT CONSIDERATIONS

Clearly, trapping in the project study area is economically insignificant in comparison to the billions spent by the oil sands industry. Be that as it may, trapping is still an important source of livelihood to many who participate in it, as well as an element of economic and cultural diversity in the Fort McMurray area. Trapping is in some danger of decline, at least partly due to oil sands development, and the researcher believes that saving it makes good social and economic sense.

This section has served to discuss two possible management strategies for mitigating the negative impacts of oil sands development on trapping in the project study area. The first, compensation for losses, could be administered by either the government alone, or a combination of government and industry. It could be applied specifically to regions affected by large scale developments; it does not have to cover the entire province. The second strategy, to upgrade the fur industry, is more preventative and more universal than the first. It could be locally tailored to handle problems specific to a region, but the program itself could not logically be restricted to just one region. The upgrading strategy assumes that trapping is desirable for a number of social, economic, and biological reasons, and that the fur industry needs assistance if it is to remain viable in the North.

The discussion in this section of two strategies is not meant to imply that if one is chosen, the other should be rejected. Rather, it is hoped that the governments (federal and provincial) and industry consider adopting all or parts of the two to protect trappers and trapping, particularly in the areas of future oil sands development, from the negative impacts of this development.

The strategies evolved here are either derived from, or consistent with, comments made by local trappers about the future of the trapping industry in their area. It is hoped that further trapper input will be solicited and used in the eventual selection of a management strategy for the industry.

7. SUMMARY AND MANAGEMENT RECOMMENDATIONS

The purpose of this report is to detail the trapping situation in the area of oil sands development, as well as the problems trapping now faces or will face in the future due to further development.

Information gathered by the researcher on these topics emphasized input from trappers living in and around Fort McMurray, Alberta. These trappers provided valuable insights into the nature of the problem, and how it might be remedied.

Information was collected from trappers in a series of interviews and trapline visits. This was supplemented by community observations, discussions with wildlife management and oil industry officials, and a literature search.

A historical review of the project study area shows that Beaver, Chipewyan, and Cree Indians were the region's first trappers. Descendants of the Chipewyan and Cree Indians who currently reside here have lived in the vicinity for over two centuries.

Metis trappers entered the area from the Red River to the east. Others were born here, from unions of white fur traders and Indian women.

Whites en masse did not enter the project study area as trappers until the time of the Yukon Gold Rush (1898). The Gold Rush and other developments brought in from the outside induced significant effects in trapping patterns before oil sands projects were ever conceived. Indian people were induced to live in

settlements, and the introduction of poison and the steel trap nearly wiped out the beaver by 1930. In a way, oil sands development today is just a continuation (albeit on a larger scale) of the conditions which have led to a decline in the importance of the trapping industry to the native way of life. This is not to say that trapping is no longer important. Over ten percent of the people living in Fort MacKay and Anzac still trap. This is at a time when the fur cycle is at the bottom and the most valuable furbearing species are scarce in the project study area.

7.1. TRAPPER DEMOGRAPHY, MOTIVATION, AND TRAPPING PATTERNS

Seventy percent of the project study area trappers registered in 1975/76 were native, and almost thirty percent of these are treaty Indians. The mean trapper age was forty-six for the entire study area, and sixty in the village of Anzac. Less than ten percent of the registered trappers were under twenty-five. This suggests that there is a declining interest in the profession.

Trapping appears to have changed quite a lot since the days of the free trappers in the project study area. For example, sixty percent of the interviewed trappers held other part-time or full-time jobs in 1975/76, while registering a trapline. This cannot be accounted for by the bottoming of the fur cycle because the percentage of the same trappers that were similarly employed five years ago (at the peak of the fur cycle) has changed little.

A survey of trapper effort showed that only twenty-six percent spent more than two months on the trapline, while twenty-nine percent spent less than three weeks in 1975/76. This is significant because trapper effort was found to be the most significant determinant of trapping income. However, this should not be taken as an effort baseline without further study, because the scarcity of long-haired fur may have had a major depressing effect on trapper effort.

Correlation analyses revealed that larger traplines and those more distant from the trapper's home tended to produce higher trapping incomes. The latter appears to be a function of choice; more motivated trappers tend to choose traplines that are far away from heavy human pressure. Trapping incomes were not affected by the type of trapping device most commonly used, nor by method of travel on the trapline.

Project study area trappers have almost entirely replaced their dog teams with snowmobiles within the last five years. They travel to their lines mostly by car, truck, or snowmobile. The average trapline has two cabins on it, almost half of which have been constructed in the past five years. Almost every trapline visited by the researcher used a power saw for cutting wood; and other modern equipment such as generators, refrigerators, and propane stoves were often found on lines registered to white trappers.

Access to most of the traplines is good. The majority can be reached by snowmobile in less than five hours, travelling on a major river, winter road, or cut line. Trappers are heavily dependent on the latter. They use them for travel, and in many cases, set their traps right on them. These trap sets are then, vulnerable to both seismic and recreational activities.

A trapper motivation survey done in the summer of 1977 showed that the most widespread motivating factor for trapping is enjoyment of the lifestyle. Trappers hold an holistic view of the lifestyle; they see trapping as only one component of a bush existence that includes subsistence activities. This may not be as inconsistent with their trapping levels as it might appear, if one considers that human pressures on the environment, coupled with restrictive game laws make a full-time bush existence very difficult today.

Another motivating factor is tradition, important particularly to treaty Indians and older trappers. While greater than seventy percent of the trappers are motivated to some degree by money, less than half said they are motivated by financial need. This represents an important change from the past that can be attributed to changes in the local economy.

Another important motivating factor is the need for meat. Sixty percent of the trappers surveyed expressed this motivation. Fifty percent reported taking big game animals on a regular basis, and seventy-five percent, small game. The animals most commonly eaten are rabbit, beaver, grouse, ptarmigan, muskrat,

moose, and lynx. Fish are rarely taken off the trapline because of the lack of good fish lakes and the fact that trappers have few dogs to feed.

Specific data was not collected to indicate the value of fur abundance as a motivator for trapping. The researcher suspects it is a strong motivator, as it was indicated in several trapper interviews, and in trapping studies done in other parts of northern Canada.

Finally, the researcher discovered three reasons that made project study area trappers want to hold traplines even if they didn't trap. One is the desire to pass on the trapline to a younger relative. This has been a tradition with Indian people. A second is to use the trapline for recreation; hunting, snowmobiling, etc. The third is to hold it for job or old age security. This motivation was associated mostly with native people who had full-time jobs, and reflects a culture conflict as well as a degree of uncertainty about the tenure of their jobs.

Trappers in the project study area earned very little money from the trapline in the past three years. Seventy-eight percent of the sampled trappers averaged less than \$1000 annual income from 1973-76. Only two percent earned over \$2000. However, it can't be concluded that trapping does not make economic sense because living expenses in the bush are low.

Trapping income in Fort McMurray, Fort MacKay, and Anzac in 1975/76 was calculated at \$64,000, \$28,000, and \$11,625 respectively. Other income figures were not available for comparison,

but the researcher suspects that trapping income in Fort MacKay still makes up a significant portion of the total income.

The project study area was divided into seven trapping blocks and compared in terms of the fur incomes produced. Traplines in the Birch Mountains and along the Athabasca River north of Fort MacKay were found to produce the highest trapper incomes. It is the latter area where future oil sands development is most likely to take place.

7.2. TRAPPING TRENDS

A literature review of trapping studies done in other communities of northern Canada show that trapping has generally been declining in the North. Three major factors appear to be responsible for the decline; (1) the movement of native people into permanent settlements, (2) the unreliability of trapping income, (3) and the recent availability of other sources of income and employment. All three of these situations exist in the project study area.

The researcher believes that trapping is on the decline in the project study area. At least five signs of this decline were evident during the study:

- 1 The lack of young replacement trappers and the high average age of trappers.
- 2 Trapline vacancies in the less accessible areas, particularly on treaty lines.
- 3 The presence of large numbers of part-time and occasional trappers.

- 4 The decline of economic necessity as a motivating factor.
- 5 The underutilization of certain fur species in the project study area; in particular, beaver and squirrel.

All of these signs, and in particular, the first three, must be interpreted in light of the fur cycle, which was at its low point when the study was done.

Even with the influence of the fur cycle, the researcher feels confident to predict four future trends in the project study area, assuming a development scenario not unlike that in chapter 5, and that no government strategy to help the fur industry will be forthcoming. These trends are:

- 1 An increase in trapping activity in the Birch Mountain area.
- 2 A continual decline in the relative importance of trapping to the Fort MacKay and Anzac economies.
- 3 A decrease in the number of full-time trappers and a corresponding increase in the number of part-time and occasional trappers.
- 4 A general decline in fur yields except for the high-priced species that are easy to catch (lynx, fox, and coyote at the present).

7.3. IMPACT OF OIL SANDS DEVELOPMENT ON TRAPPING

A development scenario to the year 2000 was generated in order to predict impacts on trapping. The scenario has a high degree of uncertainty associated with it because reasonable predictions cannot be made on future oil supply, demand, technological changes, and pricing trends that will have a large influence

over the rate of oil sands development. The scenario used has the following components;

- 1 Four new surface mining plants north of Fort McMurray in addition to GCOS and Syncrude.
- 2 One in-situ plant near Gregoire Lake.
- 3 Two new major roadways; one into a provincial park in the Birch Mountains, the other, north to Wood Buffalo Park.
- 4 A new town near McClelland Lake.
- 5 An area population increase of 50-80 thousand.

The impact of this development scenario on trappers and the trapping industry in the project study area is discussed in the body of this report, and summarized as a matrix in figure 7-1.

7.4. RECOMMENDATIONS

Two sets of recommendations are provided. The purpose of the first is to improve compensation procedures for trappers adversely affected by oil sands lease development, seismic activities, or damage from recreational useage of the land. The second set of recommendations suggests a program for upgrading of the trapping industry in northern Alberta; to reverse a trapping decline due in part to industrial development.

7.4.1. Compensation

- 1 Trappers should be legally entitled to compensation for loss of potential income as well as damage to equipment. Compensation should be paid for losses due to seismic and recreational activities, as well as the development of oil sands leases.














































ACTIVITY (TO THE YEAR 2000)									
EFFECT ON:	SURFACE MINING DEVELOPMENT		IN-SITU DEVELOPMENT		SEISMIC ACTIVITY	BIRCH MTN. ROAD & PROV. PARK	WOOD BUFFALO ROAD	NEW TOWN	REGIONAL POPULATION GROWTH
	Construction & Land Clearing	Production & Pollution	Construction & Land Clearing	Production & Pollution					
CURRENT TRAPPERS									
FOOD ANIMALS									
FUR MANAGEMENT OBJECTIVES		-	-		-	+			
FURBEARER POPULATIONS					-	-	-		
FUR YIELDS		-		-	-	+			
TRADITIONAL ECONOMIES									
FORT MacKAY			-	-	-				
ANZAC	-	-			-	-	-	-	

FIGURE 7-1. IMPACT MATRIX

KEY

	major negative	-	negligible or nil
	negative	+	positive
	suspected negative		

- 2 Compensation for large losses of trapping area (greater than ten percent) should be negotiated in the presence of the trapper, a representative of the provincial government, and the oil company. The trapper should be entitled to legal representation.
- 3 These negotiations should be based on a standard formula that covers a minimum of ten year's loss of fur income and meat from the trapline. Other factors to be considered in the settlement are; (1) the length of time the trapline has been in the trapper's family, (2) the improvements made by the trapper, and (3) the trapper's age and employability.
- 4 Compensation will almost always involve money. Consideration should be given to the trapper's lifestyle in determining the term and frequency of payments. If a large loss is involved, the aim should be to guarantee a certain level of income to the trapper over a period of not less than ten years.
- 5 Other forms of compensation besides money should be considered and encouraged. These include relocation of the trapper, guaranteed wage work, and employment trapping for the oil company.
- 6 Negotiations should not be finalized in less than six month's time. This allows the trapper the necessary time to think over his future.
- 7 Compensation procedures for seismic losses or lease development affecting less than ten percent of a trapline, need not be as lengthy or complex as those for large losses.
- 8 A trapper's appeal board should be established by the provincial government to determine and enforce a fair settlement where negotiations have failed.
- 9 Local Fish and Wildlife offices should be allocated enough man-hours to effectively investigate trapper damage complaints. In cases where the damage is caused by individuals, Fish and Wildlife should be given the power to prosecute in the name of the offended trapper.

7.4.2. Upgrading of the Fur Industry

- 1 The researcher strongly recommends that the provincial government create a fur industry upgrading program in Alberta, preferably with the Department of Indian Affairs.
- 2 The program should be administered by the Alberta Fish and Wildlife Department in a manner similar to that of the Manitoba Wild Fur Development Program.
- 3 The following should be considered as program components;
 - Expansion of the existing trapper education program.
 - The establishment of marketing or transportation cooperatives, or fur collection depots.
 - Financial subsidies to trappers for harvesting "uneconomic" furbearer species.
 - Funding for the construction of base camps and new trails to decrease isolation and increase accessibility into remote areas.
 - Trapper loans for equipment and grubstakes.
 - Funding for Trappers Association locals to help them better organize and represent trappers.
 - Funding of research, development, and marketing of furs and fur by-products.
 - Increased financial support for research into furbearer ecology and management.
- 4 The program should be designed in conjunction with the Alberta Trappers Central Association, the Indian Association of Alberta, and the Metis Association of Alberta.
- 5 The program should be allowed ten years to produce significant results. This would allow evaluation over the entire period of the ten year fur cycle.

7.4.3. Other Recommendations

- 1 That the hunting season be expanded for trappers north of the agricultural fringe.
- 2 That trappers be required to consume on the trapline, all game meat taken out of the regular season.
- 3 That the duties of the Fish and Wildlife Detachment in Fort McMurray be expanded to include summer visits

to Fort MacKay for the purpose of trapper registration.

- 4 That the Fish and Wildlife Division consider the possibility of creating smaller traplines in easily accessible areas of the project study area. These could then be used by occasional, or even recreational trappers. Changes in trapline boundaries could be made on vacant traplines, and in some cases, occupied lines with the consent of the affected trappers.
- 5 That the rehabilitation of strip mined areas in northern Alberta be done with the intention of providing at least as good furbearer habitat as was there previously.

LITERATURE CITED

- Alberta Energy and Natural Resources. 1976. The coal policy. Queen's Printer, Edmonton, Alberta.
- Alberta Fish and Wildlife Division. 1974-1976. Annual reports. Edmonton, Alberta.
- Alberta Mines and Minerals. 1974. (Now Alberta Energy and Natural Resources). Alberta oil sands facts and figures (Rev. ed.): Edmonton, Alberta.
- Alberta Energy Resources Conservation Board. 1974. In the matter of an application of Shell Canada Limited and Shell Explorer Limited under part 8 of the oil and gas conservation act. Report no. 74-H. Calgary, Alberta.
- _____. 1974. In the matter of an application of Petrofina Canada Ltd., Pacific Petroleum Ltd., Hudson's Bay Oil and Gas Company Limited, Murphy Oil Company Ltd., and Candel Oil Ltd., under part 8 of the oil and gas conservation act. Report no. 74-X. Calgary, Alberta.
- _____. 1975. In the matter of an application of Home Oil Company Limited and Alminex Limited under part 8 of the oil and gas conservation act. Report no. 75-H. Calgary, Alberta.
- Asch, M. 1977. Trying to stop the flow of oil, industry and prejudice. The gateway, February 15, 1977. University of Alberta, Edmonton.
- Banks, K. G. n.d. Alberta vocational centre, Lac La Biche, Alberta, curriculum guide for Alberta trapper education and wild fur upgrading program. Unpublished document, Alberta Fish and Wildlife Division, Edmonton.
- Berger, Justice T. R. 1977. Northern frontier, northern homeland; The report of the Mackenzie Valley pipeline inquiry: Volume 1. Supply and services Canada, Ottawa.
- Boyd, M. 1977. Analysis of fur production records by individual fur-bearing species for registered trapping areas in Alberta, 1970-75. Unpublished manuscript, Alberta Fish and Wildlife Division, Edmonton.
- _____. et al. 1976. Results of computer-assisted analyses of fur production records for registered trapping areas in Alberta, 1970-75. Unpublished manuscript, Alberta Fish and Wildlife Division, Edmonton.

- Braroe, N. W. 1975. Indian and white: Self-image and interaction in a Canada plains community. Stanford University Press, Stanford, California.
- Bresee, P. and S. Tyler. 1975. Alberta's Athabasca oil sands: A Canadian perspective. *Alternatives: Perspectives on Society and Environment* 2(4):4-10.
- Brown, Fr. 1966. The trapping profession in the Northwest Territories. *North* 13(2):40-43.
- Buckley, H. 1963. The Indians and Metis of northern Saskatchewan; A report on economic and social development. Centre for Community Studies, Saskatoon, Saskatchewan.
- Calgary Herald. 1977. Alberta trappers seek compensation for development damage to livelihood. November 5, 1977, p. A17. Calgary, Alberta.
- Campbell, T. 1976. Major parks seen in Alberta. In the *Edmonton Journal*, December 16, 1976. Edmonton, Alberta.
- Cardinal, H. 1969. The unjust society; The tragedy of Canada's Indians. M. G. Hurtig Ltd., Edmonton, Alberta.
- Chalmers, J. 1974. A century of fur trade. In J. Chalmers (Ed.), *The land of Peter Pond*. Boreal Institute, University of Alberta, Edmonton.
- Chance, N. A. 1968. Implications of environmental stress for strategies of developmental change among the Cree. In N. A. Chance (Ed.), *Conflict in culture: Problems of developmental change among the Cree*. Canadian Research Centre for Anthropology, Saint-Paul University, Ottawa.
- Dean, J. P. et al. 1969. Limitations and advantages of unstructured methods. In G. McCall and J. Simmons (Ed.), *Issues in participant observation: A text and reader*. Addison-Wesley Publishing Co., Don Mills, Ontario.
- Dempsey, H. A. 1974. People of the Boreal Forest: Chipewyan and Cree. In J. Chalmers (Ed.), *The land of Peter Pond*. Boreal Institute, University of Alberta, Edmonton.
- Fumoleau, R., OMI. 1975. As long as this land shall last. McClelland and Stewart Limited, Toronto, Ontario.
- Good Tracks, J. G. 1973. Native American non-interference. *Social Work* 18(6):30-34.

- Gunson, J. R. 1970. Dynamics of the beaver of Saskatchewan's northern forest. Unpublished MSc Thesis, University of Alberta, Edmonton.
- Hall, D. J. 1977. The Half-Breed Claims Commission. Alberta History 25(2):1-8.
- Hall, E. T. and W. F. Whyte. 1960. Intercultural communication: A guide to men of action. Human Organization 19(1):5-12.
- Hastie, L. 1976. Anzac: A community profile. Ekistic Design Consultants Limited, Edmonton.
- Helm, J. and N. Lurie. 1961. The subsistence economy of the Dogrib Indians of Lac La Martre in the MacKenzie District of the Northwest Territories. Northern Coordinating and Research Centre Monograph 61-3, DIAND, Ottawa.
- Honigmann, J. J. 1962. Foodways in a muskeg community. Northern Coordinating and Research Centre Monograph 62-1, DIAND, Ottawa.
- Hydrocarb Consultants Ltd. 1975. Industrial development study (2nd edition). Edmonton, Alberta.
- Intercontinental engineering of Alberta Ltd. 1973. An environmental study of the Athabasca Tar Sands. Edmonton, Alberta.
- Keith, L. B. 1974. Some features of population dynamics in mammals. Proceedings of the 11th International Congress of Game Biologists, Stockholm, Sweden.
- Knight, R. 1968. Ecological factors in the changing economy and social organization among the Rupert House Cree. National Museum of Canada Anthropological Paper no. 15, Ottawa.
- Levasseur, L., OMI. n.d. Some differences between Canada's Indians and her more recent settlers. Cultural Encounter. Indian-Eskimo Association of Canada, Toronto.
- Liebow, E. and J. Trudeau. 1962. A preliminary study of acculturation among the Cree Indians of Winisk, Ontario. Arctic 15: 190-204.
- Liska, A. (Ed.) 1975. The consistency controversy readings on the impact of attitude on behavior. Wiley Publishers, New York, N. Y.
- Lombard North Group Ltd. 1975. Environmental study; Amoco Canada tar sands lease, Gregoire Lake Area, Alberta. Calgary, Alberta.

- MacGregor, J. G. 1974. Paddle wheels to bucket wheels on the Athabasca. McClelland and Stewart Limited, Toronto, Ontario.
- MacKay, D. I. 1977. Muskrat research and habitat improvement in Manitoba. Paper presented to the Western Fur Managers Conference, April 19, 1977, in Edmonton, Alberta.
- Mair, C. 1908. Through the Mackenzie Basin: A narrative of the Athabasca and Peace River treaty expedition of 1899. William Briggs, Toronto, Ontario.
- Manitoba Mines, Resources and Environmental Management. 1975. Manitoba Wild Fur Program; 1975-1980. Winnipeg.
- Manuel, G. and L. Posluns. 1974. The fourth world; an Indian reality. The Free Press, New York, N. Y.
- Marino, M. L. 1975. Fort MacKay: A community profile. Ekistic Design Consultants Limited, Edmonton, Alberta.
- McCall, G. and J. Simmons. 1969. The nature of participant observation. In McCall and Simmons (Ed.), Issues in participant observation: A text and reader. Addison-Wesley Publishing Co., Don Mills, Ontario.
- Morley, C. G. 1973. It's not too late yet. Alternatives: Perspectives on society and environment 2(4):4-10.
- Nahanni, P. 1977. The mapping project. In M. Watkins (Ed.), Dene Nation: The colony within. University of Toronto Press, Toronto, Ontario.
- Novak, M. n.d. The use of meat of furbearing animals. Unpublished paper, Ontario Ministry of Natural Resources, Toronto.
- Panpanekis, M. 1972. The trapper. In M. Bolus (Ed.), People and pelts; Selected papers of the Second North American Fur Trade Conference, Peguis Publishers, Winnipeg, Manitoba.
- Phillips, B. S. 1976. Social research: Strategy and tactics. MacMillan Publishing Co. Inc., New York, N. Y..
- Redbird, D. 1973. Declaration for understanding. MacLean's 86(5):26.
- Renewable Resources Consulting Services Ltd. 1975. Northeastern Alberta Regional Plan; Furbearers. Unpublished manuscript, Edmonton, Alberta.

- Research Council of Alberta. 1973. The environmental impact of in-situ technology. In Athabasca Tar Sands study. Intercontinental Engineering of Alberta Ltd., Edmonton, Alberta.
- Rowe, J. S. 1972. Forest regions of Canada. Information Canada, Ottawa.
- Rushforth, S. 1977. Country food. In M. Watkins (Ed.), Dene nation: The colony within. University of Toronto Press, Toronto, Ontario.
- Saunders, J. K. 1963. Movements and activities of the lynx in Newfoundland. Wildlife Manage. 27(3):391-400.
- Sims, B. 1975. Fort Chipewyan sub-region profile. Ekistic Design Consultants Ltd., Edmonton, Alberta.
- Slobodin, R. 1966. Metis of the MacKenzie District. Canadian Research Centre for Anthropology, St. Paul University, Ottawa.
- Stacy, M. 1969. Methods of social research. Pergammon Press, Oxford, England.
- Statistics Canada. 1976. 1976 Census of Canada; Population: Geographic distributions; Census Division and Subdivision; Western provinces and the Territories. Catalogue 92-805, Bulletin 16. Ottawa.
- Tanner, A. 1966. Trappers, hunters and fisherman: Wildlife utilization in the Yukon Territory. Northern Coordination and Research Centre, Department of Northern Affairs and Natural Resources, Ottawa.
- Tester, F. 1975. Attitudes, values, communication principles, and the analysis of waste management for cold climates. Unpublished Master's Degree Project, University of Calgary, Calgary, Alberta.
- Todd, A. 1975. The biological desirability of fur-trapping in northern Alberta. Unpublished manuscript, Alberta Fish and Wildlife Division, Edmonton.
- _____. 1976. Analysis of fur production records for registered traplines in the A.O.S.E.R.P. Area, 1970-75. Unpublished manuscript, Alberta Fish and Wildlife Division, Edmonton.
- Underwood McLellan and Associates Limited. 1973. Alberta Oil Sands Townsite Study. Calgary, Alberta.

- Upshaw, H. S. 1968. Attitude measurement. In H. M. Blalock and A. B. Blalock (Ed.), Methodology in social research. McGraw-Hill, Toronto, Ontario.
- Usher, P. J. 1971. The Bankslanders: Economy and ecology of a frontier trapping community. Volume 2: Economy and ecology. National Science Research Group Report no. 71-2, DIAND, Ottawa.
- VanStone, J. W. 1963. Changing patterns of Indian trapping in the Canadian subarctic. Arctic 16(3);158-174.
- Walsh, G. 1971. Indians in transition; An inquiry approach. McClelland and Stewart, Toronto, Ontario.
- Worsley, P. et al. 1961. Economic and social survey of northern Saskatchewan. Interim Report no. 1, Research Division, Centre for Community Studies, Saskatoon, Saskatchewan.
- Zentner, H. 1967. The pre-machine ethic of the Athabaskan-Speaking Indians: Avenues or barriers to assimilation? In A. K. Davis (Ed.), A northern dilemma: Reference Papers. Western Washington State College, Bellingham, Washington.

APPENDIX A

REQUIREMENTS OF SEISMIC PROGRAMS, RE. TRAPPERS

ALBERTA DEPARTMENT OF ENERGY AND NATURAL RESOURCES

A representative of your company must contact the District Fish and Wildlife Officer at _____ (phone _____) at least five days prior to initiating your program. This is to provide you with information concerning registered trap lines in the area as you company may be held responsible for any damage to traps, snares or other improvements made thereon.

APPENDIX B

MEAN ANNUAL FURBEARER HARVEST ON TRAPLINES
DIRECTLY AFFECTED BY PREDICTED OIL SANDS DEVELOPMENT
TO THE YEAR 2000

Mean Annual Furbearer Harvest on Traplines
Directly Affected by Predicted Oil Sands
Development to the Year 2000.

<u>TRAPLINE NUMBER (Years Trapped in Parenthesis)¹</u>							
<u>FURBEARER</u>	<u>162(4)</u>	<u>272(4)</u>	<u>452(4)</u>	<u>587(4)</u>	<u>1071(2)</u>	<u>1650(2)</u>	<u>1694(3)</u>
Beaver	7.5	17.8	4.	41.5	5.	61.	3.
Coyote		.2		.2	1.	2.	
Fisher			1.	.2			
Fox	.2	.8	1.		1.		1.
Lynx	1.0	3.0	4.	5.0	1.	23.	
Marten							
Mink		4.5	3.	1.0	1.	5.	4.
Muskrat	.5	.2	29.	13.0			1.
Otter		.5					
Squirrel	10.0	79.0	87.	119.0		204.	3.
Weasel		12.0	3.	2.5		5.	2.
Wolf		.2	1.		1.		

¹Calculated from 1970-75 trapline affidavits. Missing records and nil catches were considered years not trapped.

TRAPLINE NUMBER (Years Trapped in Parenthesis)

FURBEARER 1714(3) 1716(4) 1855(4) 2006(4) 2013(4) 2015(2) 2137(4) 2172(4)

Beaver	10.3	11.0	9.2	21.2	12.2	24.	43.5	26.2
Coyote			1.0	1.2	.5	1.	.8	1.2
Fisher				.5		1.	2.8	.2
Fox	1.3		1.2	1.0	.5	1.	3.0	4.5
Lynx	5.3	1.2		5.0	4.8	17.	8.8	39.8
Marten								
Mink	2.0	.2	4.8	.8	5.0	15.	2.8	10.0
Muskrat		.8		6.5	8.2		5.8	23.0
Otter							1.0	.2
Squirrel	26.3	1.8	12.5	27.8	37.8		350.0	
Weasel	1.0		.8	2.5			7.8	1.2
Wolf			.2				.5	1.8
